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THE

PENNY CYCLOPAEDIA

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VOLUME XX.

RICHARDSON—SCANDER-BEG.

LONDON:

CHARLES KNIGHT AND Co., 22, LUDGATE STREET.

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London: Printed by Wiliam Clowes and Sons, Stamford Street.
RICHARDSON, SAMUEL, the inventor of the modern English novel, was born in Derbyshire in 1689. His father had been a joiner in London, but had retired to the country, and fixed himself at Shrewsbury, after the execution of the duke of Monmouth, with whom it appears he had been in some way or other connected. It is stated that both his father and his mother had been born in a superior station to that in which they had come to move. At one time the joiner hoped to have been able to educate his son for the church; but a decline in his circumstances forced him to forego this ambition, and young Richardson was in his seventeenth year bound apprentice to Mr. John Wilde, a printer of London, after having had merely the education in reading and writing to be obtained at a common village school. He has informed us himself however, that long before this the peculiar talents which he afterwards displayed in his novels had begun to show themselves. He was noted while at school, he relates, for his flow of invention; his schoolfellows used to make him tell them stories, and were always most pleased with those he made out of his own head. 'All my stories,' he characteristically adds, 'carried with them, I am bold to say, a useful model.' But already, as throughout his life, his most delighted listeners, and the associates who best drew forth his powers, were of the other sex. 'As a bashful and not forward boy,' he says, 'I was an early favourite with all the young women of taste and reading in the neighbourhood. Half-a-dozen of them, when met to work with their needles, used, when they got a book they liked, and thought I should, to let me to read to them, their mothers sometimes with them; and both mothers and daughters used to be pleased with the observations they put me upon making. I was not more than thirteen when three of these young women, unknown to each other, having a high opinion of my taciturnity, revealed to me their love secrets, in order to induce me to give them copies to write after, or correct, for answers to their lovers' letters; nor did any one of them ever know that I was the secretary to the others.' This was an employment well suited to nourish and strengthen Richardson a wonderful faculty of entering into the feelings of other hearts, and giving them true and natural expression. He was so punctual and industrious during the seven years of his apprenticeship, that Wilde used to call him the pillar of his house; yet he did not neglect his private studies, finding time, by stealing it from the hours of rest and relaxation, both for much reading and a good deal of letter-writing. He remained five or six years as foreman in Mr. Wilde's printing-office after his apprenticeship expired, and then set up for himself in Salisbury-court, Fleet-street. Soon finding himself in possession of a good business, he married Miss Allington Wilde, his old master's daughter, whom however he lost in 1731, after she had borne him five sons and a daughter, all of whom he likewise survived. He afterwards married Miss Leake, sister of Mr. James Leake, bookseller, by whom he had five daughters and a son: of these, four daughters, with their mother, survived him.

Richardson first became an author in the year 1740. He had been in the habit of occasionally furnishing prefaces and dedications for the works which he printed, at the request of the publishers; and had been often importuned by his friends Mr. Rivington and Mr. Osborne to draw up for them a small collection of familiar letters on subjects of general interest in common life; a task, they conceived, well adapted to his style and turn of mind. Many years before, he had been greatly interested by a story of real life that had been told him, the same in its general outline with that of 'Pamela;' he now thought of making it the topic of a letter or two in the proposed little volume; but when he began to reflect on the subject, its capabilities gradually unfolded themselves to him, and 'I thought,' says he, 'the story, if written in an easy and natural manner suitable to the simplicity of it, might possibly introduce a new species of writing, that might possibly turn young people into a course of reading different from the pomp and parade of romance-writing, and, dismissing the improbable and marvellous, with which novels generally abound, might tend to promote the cause of religion and virtue.' The result was the composition of the first part of 'Pamela,' the two large volumes of which were written between the 10th of November, 1739, and the 19th of January, 1740. It was published in the latter year, and became immediately so popular that five editions of it were called for within the twelve-month. So refreshing and exciting were mere nature, truth, and simplicity, even under many disadvantages and indeed positive offensiveness of style and manner, found to be in a species of composition fitted above all others to amuse and interest the popular fancy, but which had hitherto been cultivated in our language only in a spirit and after a mode of working with which the taste of the most numerous class of readers was the least formed to sympathise.

The first part of 'Pamela' was soon followed by the second part, which was felt at the time by most people to be a great falling off, and which it has since been generally agreed is an attempt at improving the original story that might very well have been spared. The author was led to write it by the appearance of a sequel to his book by another hand, under the title of 'Pamela in High Life,' the wretched speculation of some needy scribbler to turn to his own profit the interest and curiosity which Richardson's work had excited. It ought to be mentioned that Richardson also completed and published the 'Collection of Familiar Letters' out of the project of which his novel had arisen: Mrs. Barbauld, his biographer, speaks of this performance in high terms, describing it as 'a work usually found in the servant's drawer, but which, when so found, has not unfrequently detained the eye of the mistress, wondering all the while by what secret charm she was induced to turn over a book apparently too low for her perusal.' Another incident connected with the publication of Richardson's

P. C., No. 1231.
first novel is the circumstance of its having been the means of impelling his celebrated contemporary Fielding into the same line of writing. Fielding's first novel, properly so called, his 'Joseph Andrews,' which appeared in 1747, was an avowed burlesque of 'Pamela,' for which Richardson never forgave him.

It was not till after an interval of several years that 'Pamela' was followed by 'The History of Clarissa.' For four volumes, the last of which appeared in 1748 and immediately raised his reputation as a master of fictitious narrative to the highest point. The admiring world claimed him as its poet laureate; and the newspapers of the day, both in the French and German languages, soon acquired for him a European name. So strong was the hold which the story took of the imaginations of its readers, that, as if the events and characters had all been real, and the author's pen had had a power of actual creation and embodiment, many persons, during the progress of the work, wrote to him in the most urgent terms to gratify them by such a winding up of the plot as they had set their hearts upon, declaring that their own happiness depended upon the extinction of the heroine from the miseries in which he had involved her. But Richardson obeyed his own high genius, and was not to be persuaded to turn the deep and noisome tragedy of an unconquerable and triumphant endurance which he had so finely conceived, into a mere common-place stimulant for sentiment.

Richardson's next and last great work, his 'History of Sir Charles Grandison,' appeared in 1753. This is of all his works that in which he has most frequently deserved the title of poet. As to its characters, the groundwork on which he was not qualified to appear with advantage; and accordingly it contains much more that is tedious and uninteresting than either of his other novels; the plot too has little that excites curiosity or sympathy. Yet, for the power of his living personage of Grandison against all the principles both of poetical art and of probability and the philosophy of human nature. Yet with all its faults this novel too is full of its author's most graphic and dramatic genius; the whole picture of Clementina, in particular, is transfigured by the mere mention of her in either 'Pamela' or 'Clarissa.'

The only publications of Richardson's that have not been mentioned are, a paper in the 'Rambler' (No. 97); an edition of 'Shakespeare's Fables, with Reflections,' a single printed sheet; 'The Duties of Wives to Husband' (a subject on which, with all his anomy of nature, he entertained somewhat strong notions); and his 'Case,' a statement of the piracy of his 'Sir Charles Grandison' by the Dublin booksellers, which at that time was not done with great profit as well as of fame; and his pen and a flourishing business together soon placed him not only in easy, but even, it may be said, affluent circumstances. He early obtained, through the interest of Mr. Speaker Onslow, the lucrative employment of printing the journals of the House of Commons; and in 1766 he purchased the moiety of the patent of king's printer. In 1754 he was elected to the post of master of the Stationer's Company. He continued to reside and carry on his business to the last in Salisbury-court; but he had also his business with the world, first, at North End, afterwards at Parson's Green. He died on the 4th July, 1761, and was buried beside his first wife, in the middle aisle of St. Bride's church.

He was no stranger to the plots from one of every sort, or more perfectly irreproachable, than that of Richardson. In all the duties of morality and piety he was the most regular and exemplary of men. His principal weakness was a rather greater than usual share of literary vanity, not uncommon with some of the 'literary' and not without a kind of the day, more especially those who were fortunate enough to share the public favour with him in his own walk. These were failings naturally springing from the circumstances of his life, and the somewhat effeminate constitution of his nature both. But the usual end of such men, enriched by the habit of seclusion in a coterie of female idola-
ters—a sort of platonic hareem—in which he indulged in his latter days.

Richardson's, the name of a genus of plants in the natural order Cerinaceae, given by Houston in honour of Richardson, an English botanist of the sixteenth century. This genus was called Richardia by Linnaeus, but that name has been given to another plant. Most of the species of Richardsonia are natives of South America. They possess emotive properties, and under the name White Ipecacuanha, &c. are used extensively as a substitute for the true Ipecacuanha ('Cephalis ipecacuanha') in medicine. Richardson was banished from the French and German languages, soon acquired for him a European name. So strong was the hold which the story took of the imaginations of its readers, that, as if the events and characters had all been real, and the author's pen had had a power of actual creation and embodiment, many persons, during the progress of the work, wrote to him in the most urgent terms to gratify them by such a winding up of the plot as they had set their hearts upon, declaring that their own happiness depended upon the extinction of the heroine from the miseries in which he had involved her. But Richardson obeyed his own high genius, and was not to be persuaded to turn the deep and noisome tragedy of an unconquerable and triumphant endurance which he had so finely conceived, into a mere common-place stimulant for sentiment.

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RICHELIEU; as he is to that of Wallenstein. After the death of the two great leaders, Gustavus and Wallenstein, the French troops carried on the war on the Rhine in concert with the Swedes against the emperor. At the same time Richelieu was assisting the Protestant Orisons against the Roman Catholic insurrections in Flanders, which were supported by the Spaniards. He also allied himself with the States-General of the Netherlands to attack the Spanish dominions in Belgium, which he had in view to annex to France as far as Antwerp, a scheme in which however he failed. On the side of Spain the French aided the Spaniards in their revolt against Philip IV. Richelieu is also said to have meddled, by means of Père Joseph and the French ambassador in London, in the first stirring of the Covenanters and Puritans which led to the great Revolution. Charles I, ever striving in his foreign policy, had disappointed Richelieu in his proposal of a defensive league between France and England, and seemed to lean towards a Spanish alliance. "The king and queen of England," said Richelieu, "will reject the invitation of the treaty before the year is over." (Père Ofrânt; D'Estrange; President Hénault; Biographie Universelle, art. "Richelieu." In 1639 arms and ammunition were sent from France to Leith for the use of the disaffected.

He finally the French invaded Piedmont, which however they evacuated by a treaty with the princess of Savoy. The principal result of all these wars was to circumscribe the imperial power in Germany, and to weaken the influence of Spain in the general politics of Europe. Richelieu himself died in December, at his house at Paris, at the age of fifty-eight. The king repaired to his bedside shortly before his death, when the cardinal recollected him to Mazarin and others, and told his Majesty that he had nothing to say, but that he had professed to hint that all his "doings as a minister had been for the good of religion and of the state," an assertion Father Marigny from such a man, but which he may very possibly have believed. His funeral was magnificent, but the general aspect of the city and its suburbs was rather obscure and bedaubed underpopulated of late years on account of the frightful pestilence which had laid on the people. A splendid equestrian statue, by Girardon, was raised to his memory in the square of La Trinité. He left a considerable property, which was divided among his children, but was soon absorbed by the expenditure of the state, but was in great part the proceeds of the great Church preferment.

Mary de Medici died at Cologne a few months before her husband, and Louis XIII. died five months after his father.

Richelieu established the royal printing-presses; he was the founder of the French Academy; he built the Palais Royal, which was then called Palais Cardinal, and he restored the Louvre, which had been left to decay. He had left several works; some on religious and controversial subjects, and others on politics. His "Testament Politique" has been considered by some as apocryphal, but Foucher has defended its authenticity in the edition of 1764, by the Etats de Valteline, and apparently upon small grounds. The "Mémoires du Cardinal de Richelieu," written by himself, have been published in several volumes, in 1829-30, by Fénolot, from a MS. corrected in the cardinal's own hand, which existed in the archives of the department of Foreign Affairs at Paris. A Life of Richelieu, by Le Clerc, was published in two volumes, Cologne, 1866, without the author's name: it seems fairly written. Aubery and others have also written biographies of Richelieu. His domain of Richelieu was in Poitou was created a dukedom by Louis XIII., in 1631.

Cardinal Richelieu ranks among the greatest ministers of the old French monarchy; he had extended views, great pertinacity and sagacity, who was a man of the finest, the fittest, and the best. He was cruel, and unprincipled. He laboured strenuously to make the authority of the crown absolute, and by the same means he forebode the way for the subsequent despotism of Louis XIV. Montesquieu says that Richelieu made his speeches by anticipation. The French nation is the Europe that he deprived the king, but ennobled his reign.

His grand-nephew, Louis François de Plessis de Richelieu, marquis of Richelieu, figured under Louis XV., and received a name for his bravery in war and some ability in state affairs. He died in 1788, at a very advanced age. A grandson of marshall Richelieu entered the Russian service during the French revolution, was made governor of Odessa, a town which he greatly improved, and became, after the Restoration, minister of Louis XVIII. He was known by the title ofduc de Richelieu. He died in 1831, with the reputation of an honourable and loyal statesman.

RICHMOND, an ancient borough, a market-town, and parish, and the capital of the extensive baronial liberty of Richmondshire, in West Riding waspentsake. The north-western division of the North Riding of Yorkshire. The site of all these wapentakes is at its capital, the town of Richmond, the archbishopric and deanery of Richmond, and in the county of Ripon. Richmond is 33 miles north-north-west of London, 44 miles north-west of York, and 52 miles north by west of Leeds. The municipal borough comprises only the parish of Richmond, consisting of the town itself, a mayor, six aldermen, and twelve councillors, with a commission of the peace of six justices besides the mayor and recorder. Richmond was deprived of its quarter-sessions by the Municipal Act, but they have since been restored. The parliamentary borough comprises the parishes of Richmond and Kibby, and extends over 16,000 acres of land, and has a population of 4722. The population of Richmond alone, in 1831, was 3999. This borough returns two members to parliament, and is one of the polling-places for the North Riding.

Alan Rafus, son of Noel, count of Bretegne, a kinsman of William the Conqueror, who accompanied him in his expedition to England, is generally stated to have been the founder of both the borough and the liberties. He held his authorities the town is said to have been in existence prior to the Conquest. William confirmed on Alan the title of earl of Richmond; and the estates of the Saxons Earl Edwin, who built the churches and townships, and a jurisdiction over all Richmondshire, about a third of the North Riding. In the situation of his castle Earl Alan selected not only an eligible residence, but also a place of defence; its foundation was laid on an almost perpendicular rock on the west side of the Tees, and raised above the banks of the river. The site contains about six acres, and commands an extensive view of the surrounding country. To the original buildings of the castle additional walls, towers, and other structures were added by the successors of the founder.

The site of Richmond presents a succession of well-planned and romantic scenery. Swaledale is in many parts skirted with forest and rocky places, and the river winds through the country and around the town. The Tees presents a succession of well-planned and romantic scenery. Swaledale is in many parts skirted with forest and rocky places, and the river winds through the country and around the town. The Tees presents a succession of well-planned and romantic scenery. Swaledale is in many parts skirted with forest and rocky places, and the river...
The chief manufactury is an extensive paper-mill. Gas-works were established in 1851, and waterworks in 1837. The town-hall is a convenient building, in which the public business of the town transacts its business, held both for the town and Riding. It contains a spacious assembly-room.

A court of record is held once a fortnight before the mayor, recorder, and aldermen; it takes cognizance of all pleas, actions, and suits in which the debt or damage does not amount to more than 100l.; the recorder is the sole judge in this court. A court baron for the liberty of Richmondshire, of which the duke of Leeds is the chief baron, is held once in three weeks for the recovery of demesne rent.

Richmond is a Gothic building, and consists of a nave, chancel, and aisles, with a tower at the west end. It has been enlarged several times, and exhibits various varieties of architecture. The rectory is in the patronage of the crown. Holy Trinity chapel stands in the market-place.

The consistory court for the archdeaconry of Richmond is held in two rooms adjoining the north aisle. Some portions of this building are occupied as shops and dwellings. The upper part of the north aisle is fitted up for divine service.

The other places of worship are: a Catholic chapel, endowed by Sir John Lawson, Bart., in 1611; an Independent chapel; and a Wesleyan chapel.

Richmond free grammar-school was founded and endowed by Queen Elizabeth in 1558, and has been supported by Act of Parliament both, by which it is called 'The free grammar: school of the burgesses of the borough or town of Richmond, in the county of York, for the education and instruction of boys and youths in grammar.' The four benefactions were to the governors: a lodge and a cup, of a value of 100l. each, a schoolmaster's house, and a book; the present sum is now a yearly income of 337l. 7s. 4d. All natives and the sons of burgesses and other persons residing within the borough are entitled to admission as free scholars by the payment of seven shillings a year for fees, books, and cleaning. The instruction in writing and arithmetic is also paid for.

The Corporation School is endowed with an annuity of 50l. from the borough funds and charities, for which fifty scholars are taught. The National School contains about one hundred boys and eighty girls. There are also an infant-school, a mechanics' library, a subscription library, and a news-room.

There are charities at Richmond for poor tradesmen and widows, for the distribution of coal, bread, and medicines, and various small bequests for education and apprentice fees. (Clarkson's Richmond; and Allen's Yorkshire.)

RICHMOND. [SURREY.]

RICHMOND. [VIRGINIA.]

RICHMOND. [SURREY.]

Richter, Jean Paul Friedrich, commonly called Jean Paul, was born on 21st of March, 1749, at Wunderfelde, in the neighbourhood of Barleuth, where his father held the office of tutor or under-schoolmaster and organist. Shortly after the birth of his son, he was made pastor of the village of Jodis, whence he was transferred the following year to the Schoenebeck on the Rhine. Under limited circumstances of his parents, as well as to the want of a good schoolmaster, the boy had hitherto been educated and taught at home by his father. At Schwanebach bow ever he was sent to school, and continued the study of Latin and Greek, to which Hebrew and some other branches of learning were added. His stay at this school was short, and he was sent to the gymnasia at Hof, where he continued his studies for two years, notwithstanding the death of his father, which occurred shortly after, and left his family almost in a state of destitution. The young scholar however was in some degree supported by his grandfather on his mother's side. In 1761 he went to the university of Leipzig, for his family wished that he should follow the example of his father and study theology. He hoped to obtain some support from the university, but he found the difficulties greater than he had anticipated; and he was thrown entirely on his own resources. He had to economize in all other expenses and was compelled to obtain necessary food and clothing. The circumstances of his mother likewise grew worse, and she was unable to supply him with any money. Notwithstanding this painful situation, he persevered in his studies, and he remained cheerful. He applied himself in the study of theology, which he found ill-suited to his taste, and now seeing no other possibility of satisfying his most urgent wants, he wrote a book called 'Grünlandische Processe,' 2 vols., Berlin, 1763. The pittance which he received for his work, small as it was, determined him henceforth to try to support himself by writing. A second book, 'Auswahl aus des Teufels Papieren,' was soon written, but no publisher could be found, as his first work had not pleased with a favourable report. The negligence of the printer, he quitted Leipzig in 1785, and went to Hof to reside with his mother, who with her family inhabited a house containing one apartment. All that he possessed was a number of MSS., containing extracts from the various works of German authors, and his works, which were not large than diminished, but the unconquerable vigour of his mind and the benevolence of a few friends kept him up. He engaged himself as a tutor in a family, and in 1788 he succumbed in another for his 'Auswahl aus des Teufels Papieren.' The little sum which he received was however not sufficient to support him and his family. In 1793 several families of Schwarzenbach united to invite him to come and undertake the education of their children, an offer which he gladly accepted. Here he tried and developed the principles of education which he afterwards (1807) published in his 'Levane.' His circumstances now began to improve, especially after 1793, when, through the mediation of a friend, he found a publisher for a new work called 'Die humanen Loge,' 2 vols., Berlin, 1796.

The most admired works were: 'Hesperus,' 4 vols., Berlin, 1794; 'Quintus Finix,' 4 vols., Berlin, 1796 (this was the first work which appeared under his full name, for in the preceding ones he had only called himself Jean Paul); 'Biographische Miniaturen,' 2 vols., Berlin, 1797; 'Bebenskia, oder Blumen-acht. Zum Waldstein, &c., 4 vols., Berlin, 1796-97, and 'Der Jubilaeus,' ibid., 1797.

In this year his mother died, after having for a short time enjoyed the happiness of seeing her son appreciatted, and from the end of 1798 he went to Leipzig. His name is now favourably known, and the most distinguished among his countrymen, such as Gleim, Herder, Schiller, Wieland, and others, esteemed the man no less than his works. In 1798, in which year his work called 'Das Leben, oder die Unsterblichkeit der Seele,' was published at Erfurt, he was induced by Herder, whom he revered more than any other of his friends, to take up his abode at Weimar. It was about this time that he became acquainted with a distinguished physician of Berlin. He first settled at Neuenburg near Leipzig, but after a short stay in this town he took up his permanent residence at Barleuth. During this period of wandering he wrote 'Briefe und Beweisthender Lebenslauf,' Gera, 1799; 'Tuscan,' 4 vols., Berlin, 1800-3; 'Die Fliegenden,' 4 vols., Weidengen.

At Barleuth he enjoyed the well deserved fruits of his indefatigable zeal—the esteem and admiration of the most illustrious and best among his countrymen. In 1809 the Prince Primate, Carl von Dalberg, granted him a pension of 1000 florins per annum. In 1812 the prince was obliged to resign his secular sovereignty of Regensburg, Aschaffenburg, Frankfurt, Wittlar, &c., which he had before possessed, together with his archbishopric and principality of Regensburg. In 1814 he was appointed Bishop of Bayers. In 1817 the university of Heidelberg honoured Jean Paul with the diploma of doctor of philosophy, and three years afterwards he was elected an ordinary member of the Academy of Sciences of Munich. From the time of his settlement at Barleuth, he held different literary occupations as seriously as ever, and only now and then made either little excursions into the neighbouring country, or short journeys to Heidelberg, Munich, Berlin, and Dresden. At Barleuth he was in the happiest period of his life, as well as he made mention of 'Vorschule der Aesthetik,' 3 vols., Heidelberg, 1804; 'Katzenbergers Baderelse,' 2 vols., Heidelberg, 1809; 'Das Feldprediger Schenkel Reise nach Flug,' Tubingen, 1809; 'Der Kebet,' 2 vols., Berlin, 1810.

During the last years of his life he was attacked by a complaint in the eyes, which at the beginning of the year 1823 terminated in complete blindness. His physical powers also began to decline, and he died on the 14th of November, 1823. Some time before his death he had made prepara-
tions for a complete edition of his works. This plan was executed by his friend Dr. Otto, who edited the works of Jean Paul in 60 small 8vo volumes, Berlin, 1826-28. Another edition in 4 vols., imp. 8vo, appeared at Paris, 1836-38, which is disfigured by numerous typographical errors.

Whether we consider Jean Paul as a man or as an author, he is one of the most wonderful phenomena that Germany has ever produced. He was simple-hearted as a child, and his kindness, benevolence, and purity of conduct were proverbial. He was so poor that he had to struggle fearlessly with a world of adversity, without losing one particle of his cheerful and humorous temper. His works, which are all written in prose, and of which most of which have been reprinted, are always lively, and they induce a feeling, a most profound knowledge of human nature, and an intimate acquaintance with every department of science. His earliest writings are sometimes of a satirical nature, and show that he had not yet reached the height of pure humour which appears in his later works. Some of his works, such as the 'Levante' and 'Vorschule der Aesthetik,' are not novels, but philosophical discussions full of profound thought; but even here his humour sometimes pushes forth and enlivens the soberest of philosophies. Notwithstanding these great qualities of Jean Paul, there are some circumstances which prevent his writings from being as popular as they deserve to be. His ideas and conceptions are too profound to be understood and appreciated by the vulgar. He is possessed by a kind of mystical indistinctness, which can only be expressed in a language which presents considerable difficulties even to a German. His sudden transitions, his associations of ideas, the frequent distortions of his sentences, in which parenthesis is put into parenthesis, cause such difficulties to the reader that it is impossible for him to follow the author.

The time when Jean Paul shall be fully appreciated is yet to come. The best key to his writings is a work called 'Wahrheit aus Jean Paul's Leben,' in 8 vols., Breslau, 1856-58, which work has been much admired and praised. It was continued and completed by Dr. Otto. Another very useful work in this respect is, R. O. Spitzer, 'Jean Paul Friedrich Richter, ein biographischer Beitrag zu seinen Werken,' in 5 vols., Leipzig, 1838; H. Doring, 'Jean Paul und Carl Richter,' in 2 vols., Gotha, 1856, is a very different work.

English translations of some of the smaller and extracts from the larger works of Jean Paul have appeared in various magazines. But the choicest specimens, which are also most faithfully translated—are those given in German Romance, by T. Carlyle, who has also written some excellent essays on the life and writings of Jean Paul. (See Carlyle's Miscellaneous, vol. i., p. 31; vol. ii., p. 299-309; comp. p. 345, &c.)

RICINULA. [ENTOMOSTOMATA, vol. ix., p. 457.]

RICINUS, the name of an apetalous genus of plants belonging to the natural order Euphorbiaceae. This word is derived from the Latin 'ricinus,' and it indicates that the fruit of this plant was supposed to resemble. (Flora, Nat. Hist., v. 7.) The common name of Ricinus is Palmæ Christi, a name applied to these plants by Bruneel, Matthiæus, and other botanists, on account of the form of the elegant lobes leaves. It was originally a native of Asia, but is now naturalized in Africa, America, and the south of Europe. The characters of this genus are:—Flowers monosporus; calyx 3-3 parted, valvate; no petals; filaments numerous, polyadephous; style short; stigmas 1; ovary globular, 3-celled, with an ovule in each cell; fruit capsular, tricoccous; leaves alternate, stipulate, pinnate, glands at apex of petiole; flowers in terminal panicles; trees, shrubs, or herbs, becoming arborescent. Of this genus the Ricinus communis, common Palmæ Christi, is best known as producing the castor-oil. It has peltate pellate leaves, with lanceolate serrated lobes; an hermaphroditic gnemus stem, of a purplish-red colour upwards, and flowers in long green and glaucous spike, springing from the divisions of the branches, the males from the lower part of the spike, the females from the upper. The capsules are prickly. It varies in size; in Britain it is seen seldom more than three or four feet in height, but in India it is a tree reaching from two to four feet round its stem in Spain. Linney refers the species distinguished by Willdenow to this form, viz., R. viridis, R. africana, R. indus, and R. inermis. (Flora Mecina, p. 163.)

R. communis will grow freely in this country, and when sown in pots or hotbeds early in the season, and transplanted in spring, it forms a very handsome border annual. RICINUS COMMUNIS, the castor-oil plant, known in very ancient times both to the Egyptians and also to the Greeks. According to Herodotus, this plant was called the oil of the silicoptrum (σιλικοπτρον) by the name Kiki (κίκι). The Greeks also called it Croton (κρότον), a name bestowed by modern botanists on a closely allied genus of euphorbiaceous plants, one species of which yields the purgative oil designated Croton oil, or Olearium Totalig. [CROTON.] The native country of the Ricinus communis is unknown, though it is conjectured to be originally from Barren islands. Like all plants which have been long in cultivation, numerous varieties have been produced; but this is not always to the advantage of the plant. The oil obtained from the seeds is only employed in Europe; so that if this plant be cultivated it must be administered the seeds entire, but their variable action, occasionally producing fatal effects, has led to their disuse, and the oil is of comparatively recent introduction. The seeds of which there is a great deal of interest, are about the size of a small bean, obtuse at both ends, surface smooth, shining, and beautifully marbled. They were formerly known in the shops as semina Rici, or Calopetasia majoris. The skin consists of three forms—one, an outer brittle pellicle; 2nd, a hard test consisting of the external thicken, dark brown, formed of transverse radiating cells; the internal thinner, paler, and formed of vertical cells; 3rd, a membrane investing the nucleus or kernel. The nucleus consists of oily albumen, and an embryo, the cotyledons of which are membranous or foliaceous. The outer shell is devoid of taste; in the inner coat the ceremony or active principle resides, according to Dierbach; while others assert the embryo to be the seat of the purgative principle; and even by Linney. The oil obtained is, however, obtained in this country, and is a very different plant.

Various procedures have been adopted to extract the oil, and these have much influenced on its qualities in respect of colour, acidity, and freedom from rancidity; there are also effects which result from the greater or lesser maturity of the seeds, the peculiar variety of the plant from which they have been obtained, and the occasionally accidental, but more frequently intentional admixture of other seeds, before the different procedures have been begun. Southern Europe, and America, whence the first supplies were brought, much heat was employed, and during the application of this agent a volatile principle was either liberated, or more probably formed, which was so irritating as to require the workmen to protect their faces and hands. Even in the present day some heat is used to obtain what is termed the cold pressed castor-oil, but it is quite unnecessary, and should always be avoided.

According to Sir Whitelaw Ainslie (Materia Indica, vol. i., p. 256), the following is the plan pursued in the East Indies:—Take five seers of the small castor-oil nuts, and soak them for one night in cold water; next morning strain this water off and throw it away, and put the nuts into a second quantity of fresh water, and boil them in it for two hours: after which strain the water off and throw it away, as in the first instance: the nuts then are to be dried in the sun on a mat for three days; at the end of which time they
ricer to be well bruised in a mortar; add to the nuts thus bruised ten measures of water, and set the whole on the fire to boil, taking care to keep continually stirring the contents of the pot until all the oil appears at the top, when it must be carefully strained off and bottled for use. The quantity of nuts mentioned in this formula ought to yield about one quart of oil. The processes used in the United States and the West Indies are both objectionable, from employing not only less, but water, which last promotes the rancidity of the oil. The specific gravity and the rancidity are owing to different causes, the former being always in proportion to the freshness of the oil, the latter to the imperfection of the means used in extracting it, or to its age. The latter has the greatest force in this respect. The fresh seeds are bruised, and then put into a cold press (some persons improperly heat the plates of the press). The oil expressed is allowed to stand some time to permit the albumen, mucilage, and other matters to abside, it is filtered to separate them more rapidly. (Journal de Pharmacie, tom. v., pp. 207, 506.) The produce is equal to about a third of the seeds employed, and the oil possesses all its natural qualities. The American process yields only about 25 per cent. of oil. In the French West Indian Islands, a peculiar variety of Ricinus, called R. ruhcr, more active, is used, which yields an oil called corapar, or karahat, but this is violent and unpleasant, and must not be confused with or substituted for the fine oil procured in France. Both the French and American oils are much inferior to those obtained from tropical countries. Another mode of obtaining the oil is to macerate the bruised seeds in cold alcohol, by which six ounces of oil are procured from every pound of seeds. (Journal de Pharmacie, VIII., 473.) The expense of the process is great, owing to its laborious employment.

Oil of good quality is a thickish fluid, of a very pale yellow color (the best now almost limpid), with a slightly nauseous odor, and an oily taste, mild at first, but causing a feeling in the back of the throat which is more or less intense in proportion to the freshness of the specimen. Old or badly prepared oil is rancid and disagreeable. The specific gravity is, at 55° F., 0.909, according to Bausch, but according to Geiger it is only 0.934.

It can be sold only by a very low temperature. It is distinguished among fixed oils by its complete or nearly complete solubility in pure sulphuric ether and in alcohol, thereby approaching the essential oils in its habits, and its easy combination with alkaline leys, and consequently its ready saponification; two properties of the greatest importance, the one furnishing a convenient test of its purity, the other facilitating its administration in a form less reptitious than its ordinary state. Its very moderate price (in the year ending 31st of January, 1841) ranged, according to quality, from 4s. to 16d. per lb., renders it very worth adulterating, but its purity may be tested by mixing it with an equal quantity of absolute alcohol, in which it should be entirely dissolved; the adulterating oil, if there be any, will remain undissolved. Its ultimate composition seems to be —

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It thus appears to be one of the most highly oxygenated oils or fats, notwithstanding which, on exposure to the air, it very readily absorbs more oxygen, and quickly becomes rancid; it is however slow of drying. It is stated to consist of several principles, but without these it is difficult to determine what these are, or how far the formulae and products are uncertain. Busay and Lecanu, who have paid great attention to the subject (Journal de Pharmacie, XIII., 57) incline to the latter opinion, which is the most probable. "The oil of ricin," say they, "cannot be regarded as a simple organic product, resulting from the mixture of at least two different substances." The other view is that it is a compound of three fatty acids saturated by glycerine, for in the process of saponification 100 parts of it requires it to be strongly heated, but as a compound organic product resulting from the mixture of at least two different substances, the other view is that it is a compound of three fatty acids saturated by glycerine, for in the process of saponification 100 parts of it requires it to be strongly heated, but as a compound organic product resulting from the mixture of at least two different substances.

The only analysis of the seeds is that of Geiger (Handbuch der Pharmacie, p. 1675): —

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For further details respecting the chemistry of castor-oil, see Perea's Mat. Med., ii., p. 770.

Castor-oil is a mild aperient or laxative when pure, operating without gripping or other inconvenience, and commonly very soon after its administration. It is the most proper laxative for infants, and in many inflammatory states of the abdomen or of the kidneys, bladder, &c. It is also one of the best purgatives in rheumatism, especially in lumbago, and one of the best means of relieving habitual constipation, as, unlike other purgatives, the dose may be successively reduced without the power being impaired. It is also a most eligible medicine in piles or other affections of the rectum. Alone or with purgating it is a very efficacious means of expelling worms. The chief obstacle to its extensive use is the repulsive taste which it often possesses. Many expediens have been attempted to remove this; but no artifice can make bud or old oil good or palatable. Rancid oil may be purifed by calcined magnesia; but the careful exclusion of the air, which prevents the rancidity occurring, is preferable to any process for removing it when it has affected the oil. Mixing the oil soon as possible before swallow- ing it, with milk, coffee, or broth, is sometimes a successful means of escaping the unpleasantness. Brandy and wine are improper in many cases, owing to their heating properties. Syrup of orange and lemon are beneficial adjuncts, especially if a portion of the orange-peel be masticated immediately after swallowing the mixture. An emulsion with yolk of egg is sometimes acceptable, if made immediately before it is administered. By far the best plan however is to take advantage of the tenderness of the oil to alkalis, and so form a soapy emulsion, which does not destroy the purgative power, while it completely alters the appearance, and prevents any one recognising the oily object of his aversion. To effect this however requires care and skill, and it is only practicable on the rarest of all rare occasions, according to the age of the oil, very old oil requiring more bay than fresh oil. In general from fifteen to twenty drops of pure liquor potash will saponify half an ounce of oil, so that one ounce of the tenderest oil and one draught of spirit of pimento or of nutmeg are to be added.

1. Quantity of castor-oil on which duty was paid for home consumption in the United Kingdom, showing the average annual consumption in each of the following periods of five years each, with the net revenue annually received in each period —

<table>
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<tr>
<th>Periods of Five Years</th>
<th>Home Consumption</th>
<th>Net Revenue</th>
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<tbody>
<tr>
<td>1825-2</td>
<td>170,520 lbs.</td>
<td>£6,052</td>
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<tr>
<td>1825-9</td>
<td>251,661 lbs.</td>
<td>7,578</td>
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<tr>
<td>1825-9</td>
<td>469,541 lbs.</td>
<td>9,243</td>
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<tr>
<td>1835-9</td>
<td>705,005 lbs.</td>
<td>5,328</td>
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2. Rates of duty:

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<tr>
<th>British Possessions</th>
<th>East India Company</th>
<th>Foreign Countries</th>
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<tbody>
<tr>
<td>1825-9</td>
<td>1</td>
<td>3 per lb.</td>
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<tr>
<td>1825-9</td>
<td>0</td>
<td>3 per lb.</td>
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<tr>
<td>1825-9</td>
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<tr>
<td>1825-9</td>
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<td>3 per lb.</td>
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The distinction formerly made in the rate of duty between castor-oil from British possessions and foreign countries was quite unequally applied, as twelve months of the question on which duty was paid comes from countries within the limits of the East India Company's territories, and nearly the whole of the remaining tenth is from the British West Indies. About one-fourth of the quantity imported is not reported. In 1837-8 the imports averaged annually 205,772 lbs., and the home consumption 688,755 lbs.

Castor-oil is extensively used in the East, France, Italy, and elsewhere, for burning.
RICKETS, or Rachitis (from ῥᾰχῑς, the spine), is a disease in which the bones being of unnatural softness, some of them bend under the weight of the superincumbent parts of the body. Bones affected with rickets present such a softness of texture that they may be cut with a knife; these walls are remarkably thin, and their interiors, instead of being filled with marrow deposited in their bony cells, is occupied by a semi-fluid jelly-like substance of a reddish colour, which fills a number of rounded cavities of irregular size. The quantity of earthly matter in such bones is much less than the proportion, and they lose much of their normal weight. All the bones may be thus affected, but it is only those which have to bear the weight of the body that give evidence of it. The rachitic bone is also occasionally employed by the shoulders against the batteries of the enemy. In either case the intention is to dismount the artillery by causing the shot or shells to strike it obliquely behind the parapet or the traverse, and thus the chief attack is also used to compel the troops to abandon the parapets, or to destroy the palisades of the covered way or ditches, so as to facilitate the entrance into a work when an assault is to be made by main force. The practice of conducting the fire of a rocchet was first tried by Vauban at the sieges of Philiburg and Mannheim, in the war of 1688; and in a letter which that engineer wrote to Louvain, he states that at the former place it had succeeded so far as to dismount six or seven pieces of cannon, and oblige the besiegers to abandon the breach of the parapet for the face of one of the bastions in front of the ground on which the chief attack took place. The success of rocchet firing appears to have been still greater at the siege of Ath, which is conducted by means of the same weapon.

It is a remarkable circumstance that, soon after the invention of this method of firing, the changes which were made in the pieces or plan of fortifications, though attended with many great advantages, were such as to render the rocchet no longer effective in the destructive action of the rocchet. The great salient then given to the ravelins, and the consequent acuteness of the salient angles, allow the prolongations of the faces to be easily observed by the besiegers while a distance from the besieged, and thus the rocchet is not longer enabled to enfold the faces in their whole length with great accuracy. The faces of the bastions were also lengthened about the same time; and in fortifications composed on the inferior polygons, or on those of few sides, there is a lack of finishing of fortifications on those faces. The latter evils cease to exist when the works are formed on the superior polygons, because the prolongations of the faces of the bastions may then fill upon the intermediate ravelins, and thus be invisible to the enemy; but, for the damage to which the long faces of the ravelins are exposed, no other remedy can be found than in the construction of traverses or blindages on the terrepleins, or in covering the general direction of the faces by an advanced position of the latter about twenty yards long, on each side of the salient angle.

The French engineers divide rocchet firing into two kinds, of which one is designated rocchet mau, and the other rocchet long. "Long rocchet" is fire comprising all elevations of the piece from great est which the charge and the gun carriage will permit, to that which is but little above the horizon; and the latter term being applied to all other cases, down to that in which, from the elevation of the piece to the level of the horizon, the piece passes through a horizontal plane. When the crested piece contains the ground on which is to be roccheted is above the level of the battery, the coincidence of that crest with the vertex of the trajectory forms the inferior limit to the elevation of the piece; but if the shot were to pass closely over that crest with a lower elevation, it would at that place be in the ascending branch of the curve, and then the ground
behind the covering parapet would not, to a considerable
distance from thence, be struck. In proportion as the eleva-
tion or the angle increased above the same limit, the 
vertex of the trajectory is nearer to the battery, and thus the 
shot is in the descending branch when it passes over the 
crest of the work.

When the parapet over which the shot is to pass has 
little elevation above the battery, it requires considerable 
charges to allow the vertex of the trajectory to coincide with 
the crest; but the charges diminish rapidly as the height of 
the parapet increases, or as the distance of the battery from 
that point. The effect of the shot is somewhat akin to a kind 
of ricochet first mentioned above, for the angle made by the 
descending branch with the horizontal ground being greater,
the rebounds of the shot are more numerous within a given 
extent of ground, and between the successive grazes the 
curves are higher and shorter. In this case, and when the 
descending branch passes through the crest, the shot falls 
immediately behind the parapet, and no part of the 
ground to be ricocheted is free from its action: this is not 
always certain, when by great charges and low elevations 
the second kind of ricochet is used, since it may happen 
that the shot will pass above the objects which it should 
strike within the limits of the ground. In the modern 
system of fortification the greatest length of the face of 
the battery is more than 300 yards; therefore when there are no traverses on the terreplein, 
and it is merely required to strike an object somewhere 
between the crest of the covering parapet (supposed to be about 8 
feet high) and the further extremity of the parapet, a distance 
which from the ricochet would lodge in it, and do no harm to the 
defenders; and in order that the fire of the shot may do execution, 
whether made in that manner or with an increased 
elevation of the piece so as to produce ricochets, it is 
held that it may safely be tried by every field officer 
as described. For such a purpose General Miller's 
8-inch howitzers will probably be found to be the most 
serviceable; and if the large shot subsequently fired a ricochet 
to the distance of 100 yards, it is not impossible that 
the enemy's work of the troops who defend the parapet, 
spherical case shot fired from 24-pounder guns might 
be advantageously employed. One gun in a ricochet battery 
should be exactly in the prolongation of the crest of the 
parapet on the face of the wall on which the parapet is about 100 
yards, and the long ricochet, the interior slope of such 
parapet.

Experiments in ricochet firing were carried on at Wool-
wich, in the months of June and October, 1821, when a 
work was on the point of being garrisoned, and resembling a 
ravelin, was enfiladed in that manner with iron and brass 
ordnance of different natures; the covering face was eight 
feet high, and its crest was nearly on a level with the axes 
of the guns in the battery. The results were, that with a 
range equal to 400 yards, and a charge of powder equal to 
$\frac{1}{3}$ of the weight of the shot, about two-thirds of the 
number of rounds took effect; 600 yards, with charges 
varying from $\frac{1}{3}$ to $\frac{1}{2}$ of the weight, from one-third to one-
half took effect; and at 800 yards, with charges from $\frac{1}{2}$ to 
between one-third and two thirds took effect. It was con-
cluded therefore that ricochet batteries ought, if possible, 
to be at a distance varying from 400 to 600 yards from 
the nearest part of the line of rampart to be enfiladed; for 
be- 

yond the latter distance the effect is not certain. 
The long ricochet, with high charges and small elevations 
or depressions of the guns, may however be advantageously 
employed in firing from the ramparts of a fortress on the 
ground in front, or against extensive lines of works when 
the parapet is much greater than this.

It appears from the experiments above-mentioned that 
the best elevations of ordnance for enfilading a work a rico-
chet with shot or shells is that in which the axis of the 
projectile is parallel to the line drawn from the chamber of the gun or howitzer 
to the crest of the parapet over which the projectile is to 
pass. It is stated that of 170 shells filled with powder which 
were fired, 59 took effect, but only 33 burst in the work. 
Before the traverses were constructed several guns on the 
work were struck and rendered useless; but afterwards,

though the traverses were much injured, none of the guns 
protected thereby were damaged. When employed against 
troops in the field, ricochet firing is found to be of essential 
service; for the shot making on the ground eight or ten grazes, it cannot fail at some 
of those to take effect. In 1757, the King of Prussia had 
six inches mortars mounted on carriages 
from these he caused shells to be thrown a ricochet, in an oblique direction, against the enemy's line, which it im-
mediately put in great disorder.

Ricochet firing, when first employed in sieges, from the 
desire to injure the enemy's works with means to diminish its 
destructive effects, produced immediately a strong impres-
sion of its power; and the opinion of its superiority to the 
direct mode of firing has continued to prevail from the time 
when Fabian Sabban to the present day, though the theory 
of ricochet is now so precise, that when the guns in an enemy's 
work can be seen, they can be as readily disturbed by the 
latter mode as by the ricochet. It ought also to be remem-
bered that before the latter can be usefully employed, the 
parapets, traverses, or blindages which cover the artillery of 
a fortress must be ruined by other means; and it may rea-
sonably be concluded that the rapid reduction, or the 
most protracted defence of a place, will always be owing to a ju-
dicious combination of the different modes in which, accord-
ing to the circumstances, artillery can be used during the 
siege. [Siege.]

RIDEAU CANAL. [CANADA.]

RIDING. [YORKSHIRE.]

RIDINGER, JOHN ELIAS, was born in 1695, at Ulm in 
Wurttemberg, and was instructed in drawing by his father, 
who was a schoolmaster, and in the rudiments of painting 
by Christopher Rasch. His genius led him to animal 
painting. He was, says Fuseli, 'one of the greatest de-
fenders of art, and endeavored to protect the grounds of 
painting as the laws of nature, and the laws of painting 
can produce. If he has been excelled by Rubens in horses, 
and by Rubens perhaps in the ideal dignity of the lion, he far surpassed them and the rest 
of his predecessors and contemporaries in the wide extent of 
his painting; he alone was capable of bounding the 
tyard by every line of his pencil or brush.' He was 
appointed to the chair of painting at the Imperial Academy 
in Vienna in 1757, and in 1764 was made professor of 
painting in the real, and in 1769 at the Lower 
Austria. He was one of the most skilful 
artists in his time, and was held in the highest estime by 
all his contemporaries.
Protestant doctrines, and his abilities caused him to be associated with the principal reformers both in their chief undertakings and discussions. He frequently disputed on transubstantiation and other doctrines, and was at one time appointed to examine into charges brought against Bonner, bishop of London. The commission deprived Bonner of his dignities, and, after some time had elapsed, Ridley was appointed his successor in the see of London. He was not, however, permitted to take possession of his diocese, actively endeavouring to diffuse Protestant doctrines, for the better understanding of which he assisted Cranmer in framing forty-one articles, which were subsequently promulgated. His attempt to induce his bishop to favour Protestantism was never completed. Three instances are mentioned, in which he attempted great ends by the force and power of his preaching: he aimed at the conversion of the Princess Mary, went to her residence at Shrewsbury, but, having no permission to preach, left her house. Permission she peremptorily refused, and so offended Ridley, who afterwards showed considerable generosity and a ready sense of forgiveness, by interceding with Edward VI. on Mary's behalf, that she should be allowed the free exercise of her religion. He endeavoured throughout by his preaching to direct the young king's mind to works of charity, describing three sorts of poor—such as were so often, by accident, or by idleness. Edward, deeply impressed, increased the royal foundation's resources, to be a house for orphans; St. Bartholomew's, near Smithfield, to be an hospital; and gave his own house of Bridewell to be a house of correction and work for such as were wilfully idle. (Burnet.) Thirdly, at the instigation of the king, in July, 1553, and did not suffer him to be removed until complaints were made that the most learned Protestants were restrained from attending the discussions maintained by the Catholics and the Reformers on different disputed points. In April, 1554, a conversation was appointed at Oxford, at which the doctrine of the real presence was to be discussed, and since Cranmer, Ridley, and Latimer were esteemed the most learned men of their persuasion, the queen granted a warrant for removing them from the Tower to Oxford, through a narrow gate. The噪, great disorder, shoutings, taunting, and reproaches; all were considered to be defeated, and all were adjudged obdurate heretics. Ridley never again left Oxford. He was recon- duction to prison, and after resisting many efforts to induce him to recant, he was committed into the Lirps. Ridley died on the 16th of October, 1555. The place of his execution was in store of Bridewell College. Gunpowder was hung to his neck, but it was long before the flames penetrated the mass of fuel, and explosion did not terminate his miserable suffer- nings until his extremities were consumed; he bore his tortures with undaunted courage. Burnet says that for his petr, learning, and solid judgment, he was the ablest man of all that advanced the Reformation.

RIENZI. [PAPAL STATES.] RIES, PERDING, A. D., an eminent composer of the German school, was born at Bonn on the Rhine, in 1785. He was at first educated under his father, afterwards received instructions from Bernhard Romberg, and finally had a few lessons in composition from Albrechtsberger, the cele- brated teacher at the basin of the University of Vienna. The great composer candidly confessing that he possessed not the talent for teaching, which he considered as a 'particular gift.' But the young musician was studious and diligent, and acquired from books more knowledge than he obtained from his master. [Ascoli.] Several attempts were made at Munich; his last at Vienna, where he remained till 1805, when he was drawn as a conscript for the French army, which then occupied the capital, and had here, during early life, the use of one eye, he was declared disqualified for military service. He afterwards went to Paris, and composed much, but not success- fully. The Beethoven school, to which he belonged, was then but little understood out of Germany. He afterwards resided, through Hamburg, Copenhagen, and Stock- holm, to S. Petersburg, where fortune, illness, and his efforts, and was preparing to set out for Moscow, but the French army again deranged all his plans, and he finally determined to seek the English shores, where alone he could derive that peaceful and untroubled existence which he arrived in London in 1813, and was immediately received by the liberal violinist Solomon, who procured his admission into the Philharmonic Society, where his symphonies were performed with great applause, and he exhibited his talents as a first-rate performer. He was played there with equal success, both as a composer and teacher, and by his unwearied exertions amassed a handsome independence. In 1824 he returned to his native country, continuing how- ever to exercise his talents as a composer. He worked for the pianoforte, produced two German operas, and an oratorio, David, a work of more than ordinary merit. But his early efforts and prisions, his untiring and exhausting labours, undermined his constitution, and to this he may be considered to have fallen a victim. He died at Frankfort in 1838.

RIENSENGEBRGE, [GERMANY.] RIETLI. [SFOLETO, PROVINCE OF.] Rieti, the ancient city, is one of the principal towns of the Sabines, and now the chief town of a province of the Papal State, which has retained the name of Sabina to our times, but is now annexed to the delegation or ad- ministrative division of Spoleto. Rieti stands on an elevated site about one and a half miles above the level of the western highlands of the Appennines, a large tract which projects out of the central chain of the Abruzzo. This tract begins at the east of Anitrodoci, which forms the boundary between the table land of Aquila, 2590 feet above the sea, the waters of which run by the Pescara to the Adriatic, and the basin of the Velino, or of Rieti, the waters of which run into the Tiber. This mountain-region, which belongs partly to the Papal and partly to the Neapolitan territories, was the country of the ancient Sabini. Its length is about 75 miles from north to south, from the sources of the Nera at the foot of Mount Tetrus above Norcia, to the sources of the Anio above Subisico. Its greatest breadth, from the defile east of Anitrodoci, on the road from Aquila to Rieti, to the fall of the Velino near Terni, is about thirty miles. The Nera forms the northern boundary of this mass of highlands, and drains the northern part of them by means of the river Corno, which rises near Leonessa, and flowing northwards to the river Nera joins it near Cerreto. The Velino and its affluents drain the central and by far the largest part of the highland region. The Anio drains the southern part as far as the ridge which divides its waters from those which flow eastward into the Tiber. As it falls into the Tiber, the Tiber, the Tiber flows into the lowlands of the Campagna, and thence flows into the Tiber. The two watersheds of the Velino and Anio are the only outlets by which the waters of the highlands of Sabina find their way westward into the Tiber.

A succession of mountain-ridges form the western boundary of the highlands of Sabina on the side of the Tiber, extending from the Anio at Tivoli to the Nera above Terni. The southern part of this range near the Anio is known by the ancient name of Lagonegro or ‘New Monte Gennaro; and the northern part, which extends to the Nera, by the name of Mount Canetorius, which is seen from the valley of the Tiber towering to the eastward above the towns of Magliano, Celano, Oricoli, and Narni. The eastern boundary of the region of the Sabini is formed by the lofty ridge of the central Apennines, consisting of the groups of Monte Stubilla, 7200 feet; Mount Terminillo, north-east of Rieti, 7000 feet; and Mount Velino, 8180 feet. Between these two ridges, the Velino rises in the centre of the plain of Rieti. The Velino has its source in the central Apennines, about fifteen miles north of Anitrodoci, at the foot of Mount Cenatra, not far from the sources of the Tronto, which flows on the opposite side of the Apennines to the Tiber. The Velino first flows southward through a narrow and deep glen until it reaches Anitrodoci, where it turns to the west, passing by Civita Ducale and Rieti. Before it reaches the latter town, it receives the Velino or Imero from the Tagliezzo, not far from the lake Fucino, and flows north-west

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through a secluded but interesting valley called Cieolo, beginning to the Neapolitan territory. This valley has been explored of late years by Dodwell and by Keppel Graven, for the purpose of examining the remains of Cyclopian constructions which are scattered all about this district, and which are supposed to belong to the ancient inhabitants of the region. Several of the Cyclopian monuments were destroyed by Dodwell (14) as destroyed long before his time.

Keppel Graven, Excursions in the Avellino, 1839, vol. 1, chap. 7. Others look for those towns, Mhautum, Ruta, and Rista, on the banks of the Velino about 15 miles above a small but deep lake, which is still called Cisthia. The ruins of Trebula Mutuana are south of Rieti, near Osteria Nuova, on the Via Salaria, and in the same direction are the remains of Cures, near the village of Corrose; the foot of Mount Lucretiius are other remains, supposed to be those of Suna and Orvietum, also mentioned by Dionysius as cities of the aborigines.

The Salto, in the middle of the district of Cieolo, in the valley of the Salto, has acquired a certain historical interest on account of its position on the boundary of the Roman baronial family of the middle ages, the head of which, Francesco Cenci, was murdered in the castle of Petrela, as the instigation of his wife and daughter, who were put to death after a long trial, which has been the subject of many compositions both in prose and verse.

The Velino, after its confluence with the Salto, passes through Rieti, dividing the city from the suburb, and then turning to the north-west receives the Turano also from the north-west, and the Lucrceites, rises in the Neapolitan territory not far from the Anio, in the mountains which border the basin of the Fucino to the westward, and on the opposite side of which the Liris has its source. The Turano runs in a north-west direction to the Salto, passing near via Carcione on the Via Tiburtina, which leads from Tivoli into the country of the Marsi, flows along the eastern base of Mount Lucretiius, and then enters the plain of Rieti, where it joins the Velino after a course of about 40 miles. In the valley of the Turano, the greater part of which lies in the Papal State, but which, like the rest of this region, is almost unknown to travellers, is the town of Rocca Sinibalda, near the site of the ancient Trebula Mutuana. It was on the banks of the river that General P. Rainault had 8,000 men defeated and killed during the Marian or Bonar war.

The plain of Rieti is one of the most delightful spots in Italy. It is covered with plantations of mulberry-trees, vines turning round, and flowers of all kinds, and is composed of a luxuriant grass, flax, hemp, wood, and vegetables of every kind. It is traversed by two clear streams, which unite their waters about three miles below the town of Rieti, whose churches, steeple, and other massive buildings make a fine contrast with the brilliant verdure of the surrounding country. Further down the river, between the right bank and the base of the Apennines, is a succession of marshes and lakes, the largest of which, called Poggi di Luce, is about 10 miles in circumference; the banks are very bold and picturesque, but are considered unhealthy. The waters of the lake have an outlet into the Velino. Near this place the two ridges, eastern and western, which bound the plain of Rieti, approach each other, leaving only a narrow valley, which forms a kind of road bed with a rapid declivity until it reaches the edge of the terrace, where it falls into the valley of the Nera amidst clouds of mist. According to the measurement taken by the engineer Brandolini, the whole perpendicular height from the base of the rock to the level of the Nera below is 142 English feet, or about 455 English feet. The fall however is broken into two parts, the first of which is perpendicular, after which the water forms a succession of cascades or rapids, until it meets the Nera near the mouth of the river. The Nera flows into the Rhine at Schwabhausen. A rainbow is often seen hovering on the mist produced by the spray:

\[\text{Childe Harold, stanza 6}\]

The best view of the cascade is from the banks of the Nera below about three miles distant from the village of Papigno, which is near Terni. (Tournon; Valery.) The name of Marmora has been given to the mountain from which the river falls, on account of the abundant inundations, resembling mable, produced by the deposit of the sand and pebbles of the Nera, which the inhabitants of the neighbouring country are said to be subject to the gravel and the stone.

The valley of the Velino is said to have been in very remote times occupations near Pavia and Mantua, before they were descended from the highlands of the Apennines into the valley of the upper Tiber, which has ever since retained the name of Umbria. (Strabo.) After the migration of the Umbrians, another race of mountaineers from the central parts of the Apennines about Amnitherum, near the sources of the Aternum or Pescara, became possessed of the valley of the Velino; they were known by the name of Sabinus, and they spread from thence into the country between the Nera, the Anio, and the river Tiber, which they occupied almost as far as the mouth of the Roman camp. (Oros.) These were a remarkable people; their manners were simple, and their habits austere; they had a reputation for good faith and domestic virtue. They were religious, and even superstitious, and their country was divided, for ominous seasons, such as monstrous births, showers of stones, &c., are mentioned by Livy (xxv. 7; xxvi. 33; xxxvii. 3; ix. 11: liv. 13) as being of frequent occurrence at Reate previous to some great event or calamity. The Sabini had adopted a periodical migration of Pescara, the Aurunci, and Nomentan, and the region was called the Sabine, for being beyond the means which the country afforded, they sent out colonies in the spring of the year, and the migration was attended with religious ceremonies. The Piceni and Samnites were colonies of the Sabini, so near the boundaries of Rome. The subsequent history of the Sabini forms part of the history of Rome.

The principal towns of the Sabini were:—Amnutum, Tustini, Reate, Cures, Nebra, Brutum, Trebula Suenus, and Nomentum; the last was in the Papal State, and the Sabini, which extended on the side of Rome as far as the confluence of the Anio with the Tiber.

The name of Sabini has continued to be applied to the country of the ancient Sabini down to our own times. Previous to Napoleon's occupation, the Salto was one of the provinces of the Papal State. After the restoration of 1814, it was styled the Delegation of Rieti, which has been since united to that of Spoleto. (Spolento.

The plain of Rieti was almost entirely covered with water, when the consul M. Curiius Dentatus, 214 B.C., made a cut through the rock, deepening and widening the outlet for the waters of the Velino, and drained thereby the fields of Reate. The outlet must have existed before, for the waters of the Velino above could have no other issue, but the natural channel was probably not deep enough to prevent the country being overflowed, until Dentatus deepened it. The people of Interamnia, or Terni, complained of the damage occasioned to their fields by the overflowing of the Nera, in consequence of the additional stream thus poured into it. The senate sent a consul and ten legates to the spot to decide the matter, and Cecro repaired thither to plead for the people of Terni, and Interamnia. (l. 15.) The result was that the cut was maintained.

Under Tiberius the question was again agitated in the senate: this time it was the people of Rome, who, alarmed at the inundations of the Tiber, ascribed them to the Velinos, the Clania, and other affluents of the Tiber. The Romans made a sensible defence, and the opinion of Piso, who was for maintaining things as they were, was adopted. (Tacit. Ann. 1. 79.) In more modern times the bed of the Velino near Reate was the object of a small stream, called the Cserrat, deposited, and the river has again overflowed the plain; to remedy which Pope Paul III. made a new cut, and Clement VIII. afterwards restored the old one made by Curius. (Angeletti, Descrizione di Rieti.)

The name of Reate is derived from the Sabine city of Reate or Cebele, the ancient patroness of the place. Like the rest of the Sabini, Reate was an early and constantly ally of Rome, and is mentioned by Livy as having, together with Amni-
that position may change during the flight of the ball, the path of the latter may suffer several inflections.

The intention therefore, in forming spiral grooves within the barrel of a musket of piece of ordnance, is, to produce a rotary motion of the shot about an axis which shall coincide with the axis of its path, in order that the unequal pressure of the atmosphere in its first instance may, in irregularity in its form or density, may correct itself at every half-revolution of the shot on such axis; so that, on arriving at the object, the deviation may be only that which is due to some fractional rotation of the spiral, sometimes the curve-line makes, in the length of the barrel, 14 revolutions about the axis of the latter, but in general one revolution in the whole length (=30 inches) is considered sufficient.

Different methods have been employed for the purpose of enabling the bullet to acquire, by means of the rifle-grooves in the barrel, the intended rotation on its axis. At first the leaden bullet was made spherical as usual, but a little larger than the bore of the musket, and being laid on the part of the latter that was nearest the slope of a hill, and partly at the foot of it; it is a bishop's see; it has a college and a clerical seminary; it has also manufactures of coarse wool, silks, glass, and leather. The population amounts to about 9000, among whom are many wealthy landed proprietors. Three of these cities have the privilege of being in the highest part of the town, and enjoys a splendid view of the surrounding country. The cathedral was built in the twelfth century, but has been repeatedly restored. There are several other churches and convents, as well as the episcopal palace, which are worthy of notice.

(Angelotti, Descrizione della Città di Rieti, 1635; Maroni, Commentarium de Ecclesia et Episcopato Reatini, 1763; Galotti, Mémoire de Tré Antiche Chiese di Rieti, 1763; Speciale, Sabina, Sacra e Profana, Antica e Moderna, 1763.)

RIPLE, or RIFLED, a term applied to muskets or pieces of ordnance when their bores are furnished with spiral grooves. It is probably derived from an Anglo-Saxon word signifying to ring or tear; the grooves or flutters being formed by a machine which scrape away the substance of the barrel interiorly in parallel and serpentine directions. It is not exactly known at what time rifled barrels were first employed, or by whom; but it is known that the practice which our author thus calls them, as being grooved in a circular manner along the whole of the barrel; and he asserts that the range of the balls fired from them was very considerable. Rifled arms do not appear to have been introduced in the British service till the time of the American Revolutionary War.

A bullet made of lead cast in a spherical form, according to the practice till lately followed, having unavoidably some irregularities on its surface, and, from unequal expansion in cooling, a void space being formed in the interior by which the bullet is lessened in weight, and the gunpowder more freely entering in the centre, it follows that, when such bullet is discharged from a common musket, the atmosphere, pressing unequally against its front on opposite sides of the line of flight, causes it to deviate contrary to the direction which, when forming it, should be taken by gravity and the impulse of the fired gunpowder. It will also happen that the bullet acquires, by friction in the barrel, a rotary motion about some diameter as an axis; and this diameter not coinciding, except by chance, with the axis of the bar of the gun, the pressure of the air, which, that coincidence does not take place, will be greater on the side of the ball where the revolving motion conspires with the direct motion, than on the opposite side where they meet, and therefore the fire will, even if there were no irregularity of surface, produce deviation. This will evidently be, various, according to the position of the axis of rotation; and since

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passing through a simple barrel. He also ascertained that the velocity and range of a rifle-ball were greater after the piece had been long in use than they were at first, probably on account of a diminution of friction consequent upon an erosion of the surfaces of metal with which it came in contact.

Mr. Robins moreover proved by experiment that a rifle-ball in its flight presents always the same side to the front, or rather, that the axis of rotation continues nearly parallel to the line of its own motion. The direction of the bullet is thus such that each such a ball experiences when fired with an elevation of the piece so that its trajectory becomes greatly curved, for the axis of rotation not coinciding with the direction of the path, the inequality of the air's resistance on the front and rear sides of the bullet is sufficient to cause a revolution about that axis. Mr. Robins, in order to remedy the evil, proposed that bullets should be formed like eggs, the longer axis to be placed in the direction of the axis of the piece, and the larger end to be in front; for then, the centre of gravity being thrown forward, there will be a tendency of the axis of the bullet, at least in the descending branch of the curve, to keep in the direction of the line of flight. The suggestion has not however been adopted, and probably such balls would not be found to possess any practical advantages over those which are in common use.

In the year 1774, Captain Blair proposed the formation of rifled guns of iron to be used as field artillery. Agreeably to the old practice, they were to be made hollow in the act of construction, the same being the same as for smooth guns to be formed. The balls were to be of lead with knobs on them to fit the grooves, and they were to weigh not more than two pounds. During the late war, the French attempted to convert into rifled guns, of a cylinadro-spherical form, the cylindrical part being in contact with the charge of powder, and a ring of lead surrounding the shot near its middle, so as to render this part rather than the bore of the gun. The circumference of the ring being scraped down by the edge of the muzzle when the shot was forced into the gun, became in close contact with the surface of the bore, and thus no windage was left: by this contrivance it was expected that most of the advantages of rifled guns would be obtained, without the expense that took place in the shot. The result of the trials was thought to be favourable with respect to the direction and range of the shot, but the labour and time required to load the gun were great, and this circumstance probably prevented the invention from being adopted. No kind of rifle ordnance has ever been used in warfare, and the spherical form has always been found preferable to any other for shot.

It may be mentioned here, that bullets for common muskets and even for rifle-barrels, are not now cast in their actual forms, but are made from lead which has been previously cast in cylindrical rods rather greater in diameter than the intended ball. Each rod is passed between two revolving cylinders, each so contrived that as the rods are turned, and, by the pressure, the rod becomes a series of rudely formed beads: the rod in this state is passed between two other revolving cylinders, on whose convex surfaces are several corresponding hemispherical cavities, and the pressure then reduces the beads to a spherical form, the whole series of balls being connected together by a thin portion of lead where the hemispheres of the balls unite; this portion being afterwards removed, the bullets are complete. The cavities into which the beads fall, during the pressure, a projection to form itself about each in the manner above mentioned. The great pressure to which the lead is subject when passing between the cylinders, by forcing the particles together, fills up any vacancies which may form themselves in the rods during the cooling process, and renders the density of the ball nearly uniform.

RIFLEMEN (called by the French tirailleurs) are soldiers whose duties correspond nearly to those of light infantry in other armies, but their muskets are long rifles or grooved, their effect of fire, within certain limits, is more certain.

In the preceding article we have stated what is known respecting the first use of rifled barrels on the Continent; and now we add a statement of what has been ascertained as to the origin of this invention in the "Observations" compiled by the Earl of Albemarle in 1814. The Anglo-American people are however believed to have been the first who organised corps of infantry armed with rifles, and during their struggle for independence the fire from these pieces often took effect with fatal precision against the officers and in the ranks of the British forces. From that time the incorporation of riflemen with the armies began to take place among the nations of Europe, and it is now customary in all the principal armies of the world to have riflemen in the ranks. In the British army, formerly called the Royal American regiment, is a rifle corps; and Manningham's rifle corps appears in the Army List for 1801, but this became, in 1803, the 95th regiment. In the United States it was first proposed that riflemen, under the command of Sir David Dundas, who had before been colonel of the 60th regiment. Subsequently to that year, a regiment of native riflemen has been raised in Ceylon, and a rifle corps of cavalry at the Cape of Good Hope.

When a company or corps of riflemen set with closed ranks and files, the manner of performing the exercises differs but little from that which is practised by other troops of infantry; the men however are instructed to bear that the rifle do not fall to the ground, as it is easily damaged, and on service it may happen that it cannot be repaired or replaced.

If a corps of riflemen is detached from a main body of troops in order to skirmish with the enemy, one half advances with trailed arms about 100 paces towards the front, when it extends its files so as to cover the whole body from which it was detached, while the other half advances only 50 paces, and remains at close order for the purpose of support in case of necessity. If any man is wounded, the skirmishers retire quickly through their respective intervals in the main body, and re-form themselves in its rear. When a body of troops retreats across a plain, the men on the right and left flank throw forward, while the men in the main body fall back to the right-about and retire; those men then extend themselves so as to cover the retreating troops, whom they follow at the distance of a few paces, keeping off the enemy's flankers at the same time by their fire.

On firing at close order, the two right-hand files of each section step three paces to the front, and the rear-rank men step to the right of their file-leaders. Each man fires as soon as he gets proper aim; then, resuming his place in the company, he reloads. When the two first files have fired, the two next advance, and so on through the whole company. Rifle-firing in extended order is performed by sound of bugle, and the regulation is, that the whole body of men should not have their pieces unloaded at the same time. For this purpose, on the signal being given, each man of the front rank selects his object and fires; then, as soon as each rear-rank man sees his file-leader put another ball in his piece, he fires through the interval between two balls; and so on. Afterward, when the men are putting other balls into their pieces, they give notice to their file-leaders that they may fire; and this is continued, the men either standing or lying on the ground, till the signal is given for the second round.

On a signal being made to fire advancing, each rear-rank man moves briskly six paces before the front rank and fires; then, after reloading, he trails his arms. When the sergent of the front rank sees the other rank reloading, he steps forward and gives a signal with his whistle, on which the front-rank men pass six paces before the rear-rank and fire, and so on alternately. If the signal be made to fire retreating, the rank which happens to be in front fires and then goes twelve paces to the rear of the second rank; there he remains, facing to the front and allowing the sergeant on the flank of the second rank sees the first-rank men loading, he gives a signal with his whistle, on which the second rank fires and goes twelve paces to the rear of the former men; and so on. The ranks that support one another by their fire, till the signal is made to halt.

RIFLE BIRD. [PTILORIS].

RIGA. [LITAYA].

RIGA (the language of Livonia, Riga; in that of Estonia, Rii) is the capital of the government of Livonia, is situated in 56° 55' N. lat. and 24° 12' E. long., on the right bank of the Duna about seven miles above its entrance into the Gulf of Riga. The width of the river and the distribution of the bays of the coast render it safe and secure, and the merchants come up to the quays. In summer a bridge of pontoons, loosely attached to piles, and rising and falling with the tide, is laid across the river; this bridge is 40 feet wide and 2600 feet long, and is a pleasant and fashionable promenade in the summer time. The
The number of ships annually arriving at and leaving the port may be stated at between 1200 and 1300. In 1831, the arrivals were 1252, the departures 1483. Of these ships nearly one half are English. The value of the exports is about two millions sterling; that of the imports, consisting chiefly of colonial produce, but also including tobacco, starch, looking-glasses, and iron-ware, besides sugar-refining houses, which produce annually five million pounds of refined sugar. (Stein’s Lexicon; Hörschelmann; Cunabach; Hassel; Russian Official Journals.)

RIGAUD, HY., called the Vandyck of France, was born at Perpignan on the 25th of July, 1659. He was the son of Matthias Rigaud, an artist, from whom he learned the rudiments of painting, and upon whose death he was sent by his mother to Montpellier, and placed under various masters, among whom was one Rancé, a painter of portraits in the manner of Vandyck. In 1681 he returned to Paris, and in the following year gained the chief prize given by the Academy. He intended to follow Rubens, but was advised by Charles de Brun to practise portrait, and the same artist dissuaded him from visiting Italy. In 1700 he was admitted a member of the Academy of Paris, and presented as his admission picture a portrait of the seigneur Desglaudis, a performance which gained him the highest repute. His success as an artist was now most brilliant; he frequently painted the portrait of Louis XIV., those of the royal family, the principal nobility of the court, and many of the most illustrious personages of Europe. In 1757 he was appointed to the very illustrious Academy, and rated with the order of St. Michael. He was successively professor, rector, and director of the Academy. Grief for the loss of his wife, who died in 1742, coupled with his advanced age, hastened his own death, which happened on the 19th of December, in the 68th year of his age. He left no issue, and no pupil of note except Jean Rancé, who married his niece, and who became principal painter to the king of Spain. Works by Rigaud are contained in most of the collections of Europe. In the Louvre, besides others, are portraits of Le Brun, Mignard, and Bossuet. His pictures have been engraved by Edelinck, the Drevets, J. Audian, and other eminent artists, and consist of two hundred historical portraits.

Rigaud is considered one of the best portrait painters of the French school; his heads are full of character and expression, his touch bold and free, yet exquisitely delicate, and his colouring, though brilliant, generally speaking free from the flaws of the opulent. A trait of his is the ability to express a fluttering effect wholly inconsistent with the repose of the other parts of his work, and in many instances the attitudes of his figures exhibit an unnecessary violence of action. With regard to the title given him of the French Vandyck, it seems to me that his portrait of Madame de Pompadour, the charming simplicity of that exquisite painter, one of his most prominent merits, is entirely wanting in the works of Rigaud; nor do the two less resemble each other in their style of colouring and in their management of the chiaro-scuro. Where the tints of Rigaud are brilliant and dazzling, those of Vandyck are harmonious and chaste; and where the lights of the former are relieved by positive and forcible colour, those of the latter are brought to their pleasing degree of brilliancy by the gradual depth of the accessories and backgrounds.

(Biographie Universelle; Pilkington’s Dictionary of Painters.)

RIGEL. [ORION.]  

RIGHINI, VINCENZO, a composer of great merit, whose works deserve to be better known, and will probably ere long be rescued from the ill-deserved neglect into which they have fallen, was born at Bologna, about the year 1586, and received his musical education in his native city under the guidance of the celebrated Pietro Martini, but completed it at Prague, where he acquired a vigour which was not then the attribute of the Italian school. Righini composed many operas for different cities, among which his L'Olimpizzia, written in 1638 for Lazio, and Alcindo al Birro are well worth the notice of the true amateur. He died in his native city, in 1812.  

RIGHT. It has been shown in Law [vol. xii., p. 361] that the word right occurs under some form in all the Teutonic languages; and that it bears a double meaning equi-
the significations of the Latin word *ius*, namely, *lau* and *faculty*. The Anglo-Saxon word *lau* has this double meaning, but *righ*, in modern English, has lost the signification of *lau*, and has retained only its other meaning.

Right, in its strict sense, means a legal claim; in other words, a right which can be enforced by legal remedies, or a claim the infringement of which can be punished by a legal sanction. It follows from this definition that every right presupposes the existence of positive law.

The causes of rights, or the modes of acquiring them, are various, and can only be explained in a system of jurisprudence; for example, a person may acquire a right by contract, by gift, by succession, by the non-fulfilment of a condition.

Every right correlates with a legal duty, either in a determinate person or persons, or in the world at large. Thus a right arising from a contract (for example, a contract to perform services, or to pay a sum of money) is a right against a determinate person or persons; a right of property (or dominium) in a field or house is a right to deal with the field or house, availing against the world at large. On the other hand, every legal duty does not correlate with a right; for there are certain absolute duties which do not correlate with any determinate person. Such are the duties which are included in the idea of police; as the duties of cleanliness, order, quiet at certain times and places.

The word right is sometimes used, improperly and secondarily, to signify not legal but moral claims; that is to say, claims which are enforced merely by public opinion, and not by the legal sanction.

In this sense the right of a slave against his master, or of a subject against his sovereign, may be spoken of; although a slave has rarely any legal right against his master, and a subject never has a legal right against his sovereign. It is in the same sense that a sovereign government is sometimes said to have rights against its subjects, although in strictness, sovereign government creates rights, and does not possess them. In like manner, one sovereign government is said to have rights against another sovereign government; that is to say, moral rights, derived from the positive morality prevailing between independent nations, which is called international law.

We likewise sometimes hear of certain rights, styled natural rights, which are supposed to be anterior to civil government, and to be paramount to it. Hence these supposed natural rights sometimes receive also the additional epithets of indefeasible, indestructible, inalienable, and the like. This theory of natural rights is closely connected with the fiction of a social compact made between persons living in a state of nature; which theory, though recommended by the deservedly high authority of Locke, has now been abandoned by nearly all political speculators.

RIGHT. (Mathematics.) This term is applied in mathematical language to anything which is imagined to be the most simple of its kind, to distinguish it from others. Thus a right line is a straight line; a right angle is the most simple and well known of the angles used by Euclid; a right cone is one in which the axis is at right angles to the base, and so on.

RIGHT ANGLE. When two lines, at first coincident, are made to separate so that one of them revolves about their common extremity, the revolving line will in time become the continuation of the other. This angle or opening, in the most simple of its kind, to distinguish it from others. Thus an angle, made by AO and OB, or the angle of opposite directions, he introduces its half, and calls it a right angle. Let AOC and COB be equal angles, that is, let OC bisect the angle AOB, and each half is called a right angle. When the angle AOB is mentioned, it is as two right angles. All that is necessary as to the magnitude of a right angle has been given under the name of Angles; we propose here to point out the effects of the forced manner in which Euclid avoids the angle AOB.

It is sufficiently evident that nothing can lose its right to be considered as a magnitude by augmentation; that the sum of the angles AOB and OBC, which is double that of AOC and COB, must really be a magnitude of the same kind as the angle AOB. Now the consequences of preferring AOC to AOB, as a fundamental angle of reference, are as follows—

1. The introduction of the apparently very arbitrary axiom, that all right angles are equal, instead of the more simple and natural one that 'two straight lines which coincide in any two points coincide beyond those points.' It is as evident as that 'two straight lines cannot inclose a space,' or 'two straight lines which coincide in two points, coincide between those points,' that the same also takes place beyond those points. A moment's examination will show that this axiom immediately gives as a consequence that the angle COB is equal to the angle AOB: but there is another equal A'O'B in any other; or, as Euclid would express it, the doubles of all right angles are equal, whence all right angles are equal. And it is one consequence of leaving the general notion that Euclid has assumed the more complicated axiom which has been expressed and also the more simple one by which he might have avoided: for he nowhere shows that OA be made to coincide with O'A, then OB coincides with O'B. Some of his editors have supplied the defect by the axiom that all right angles are equal; that no two lines can have a common segment.

2. The necessity of proving a particular case of a proposition which is taken as self-evident in all other cases. Thus Euclid never proves that COB is equal to AOB; while he has to spend a proposition in proving that AOB and DOB are together equal to AOB.

3. The necessity of proving a particular case after the general case has been proved. Thus here, to prove that a given angle is the general proposition, of which to draw a line parallel to a given line from a given point within it, is the particular case. The construction of the latter is precisely that of the former: but the two results are obliged to be obtained in two distinct propositions; it would be right enough to make them cases of one proposition.

4. The habituation of the student to neglect the angles greater than two right angles, by his never meeting with one as great. Two lines which end at the same point may make two opening, or one greater than that of two right angles; except in the intermediate case when both are equal to two right angles. Now Euclid does not positively reject the angle greater than two right angles, nor does he A's or A's of two, but he says, which shall be always taken to be that which is less than two right angles. Had he had such intention, one of his propositions would have been positively false, to wit, that in any segment of a circle, the angle at the centre is double of the angle of the circumference. Had such been his intention, he would have said. 'in every segment which contains an angle less than a right angle, the angle at the centre is double of that at the circumference.' It is true that his proposition is, 'if a circle, the angle at the centre is double of the angle at the circumference then the circumference of a base; and some may think that the words in itals exclude (as in one sense they certainly do) the segment which has an angle greater than a right angle; since this angle and its reciprocal are in name only less than two right angles, do not stand on the same circumference as a base. Let this go, then we throw the difficulty on another proposition, the 27th. It is there shown that in equal circles, the angles which stand upon equal circumferences are equal when they have the same centre or at the circumference.' If no mention of angles greater than two right angles be intended in the previous proposition, then the one before us is not completely proved, but only with the angle at the circumference less than a right angle. At the same time there seems to be, in some of the subsequent propositions, proof of a device to avoid the angle greater than two right angles, and to subordinate proofs into particular cases in order to avoid the difficulty.
RINGTAIL, the English name of the female of the Hen Harrier, Circus cyaneus. [FALCONIDÆ, vol. x., p. 183; HANER (A. M.), loc. cit., p. 3.]
RINGLETAILED EAGLE, a Golden Eagle in its youthful plumage. [FALCONIDÆ, vol. x., p. 173.]
RINGWORM is the term applied to many cutaneous eruptions, and more particularly to those on the head. It is not now possible to determine to which of these the name was first applied; but it is probable that the species of herpes which appear in the form of rings were thus designated, especially that which nosologists call herpes circinatus. This disease is still often called ringworm, when it appears upon the scalp or on the body; but it is not still more generally applied to the different forms of verruca, especially Psorales and Psoraleae. The descriptions of the diseases thus confounded under this name will be found in the articles HERPES and POXARIO.

RINGS, COLOURED. Sir Isaac Newton, in his 'Treatise on Optics,' first supplied a careful examination of the coloured bands which are familiarly seen in soap-bubbles of sufficient tenuity, in thin plates of mica, and generally in any transparent plate of small width, whether bounded by denser or by rarer media. In explanation of these phenomena he invented his ingenious theory of 'Fits of easy transmission and of easy reflexion of light.' The explanation given by the undulatory theory is founded on the doctrine of the interference of the luminous waves.

Newton adopted an accurate method for discovering the relation between the thickness of the medium and the colours of the bands produced. Thus, by geometry, the distance of any point B of a circular arc from a tangent AC is equal to the square of the chord AB divided by the diameter of the circle. When the latter is greater in comparison of the arc AB, we may then substitute the tangent AC for the chord. Now, if we place together a convex lens and a plane glass, the perpendicular sections of both through the point of contact of this system is evidently that in our figure. The point of contact A is the centre of the coloured rings: AC, being the radius of one of them, is easily measurable, and the BC (the thickness of the interposed stratum of air) becomes known.

From the above it is evident that a convex lens of considerable focal length (about ten feet will answer) is to be preferred, inasmuch as the diameters of the rings enlarge, for a constant value of BC, in proportion to the square of the radius of the lens; the bands, being then greatly enlarged, may be more accurately examined and measured.

Suppose white light to be incident, the point of contact A will transmit it, and consequently appear black, but the light which passes through the small interval between the glasses will be decomposed, and form coloured rings having A for centre, each band having a gradation of colours from A interior to its exterior border, in the following order, viz.:—

<table>
<thead>
<tr>
<th>Colour</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Dull Green</td>
</tr>
<tr>
<td>Purple</td>
<td>Light Blue</td>
</tr>
<tr>
<td>Violet</td>
<td>Bright Pink</td>
</tr>
<tr>
<td>Blue</td>
<td>Bright Green</td>
</tr>
<tr>
<td>Orange</td>
<td>Strong Yellow</td>
</tr>
<tr>
<td>Yellow</td>
<td>Crimson-Red</td>
</tr>
<tr>
<td>Pink</td>
<td>Red</td>
</tr>
</tbody>
</table>

In the fifth, sixth, and seventh, the colours are green and pink, with a middle white in the fifth, but they are now faint colours, and gratefully been noticed.

By the calculation above explained Newton found the intervals BC between the plates in the succession of the darkest parts of the several rings to be as the numbers 0, 2, 4, 6, &c., and those corresponding to the brightest parts, as the odd numbers 1, 3, 5, &c., that correspond to the brightest part of the first ring being only 175,000th part of an inch. Hence conversely the interval may be computed by observing the colour and the number of the band; for these intervals are constant whatever may be the curvature of the
glass or glasses (if two lenses are used). The contact should be made as perfect as possible by pressure. Fringes may be similarly formed by laying a prism on a plane glass. The rings enlarge when seen obliquely, the interval for a given cause of the angle of incidence. The constant co-efficient of this cosine (as compared with perpendicular incidences) is \[ 1 + \frac{106 \mu}{107 \mu} \], \( \mu \) being the index of refraction.

If homogeneous light of any colour be used, the rings of light produced are all of that colour, intercepted by bands absolutely black. The colours, as given in the above table, when the light is white, being the result of superposing the different systems of rings, belong to the various homogeneous rays of the pismatic spectrum which constitute white light.

If we place the glasses between the eye and the source of light, so that the rings may be viewed by that portion of which is transmitted, we find, as might be expected, that the colours are now complementary to those visible by reflected light. Colours are said to be complementary when their mixture produces white light.

The colours of soap or other liquid bubbles are produced in the same way, and at the same thickness, as the rings of grey interference. We have in the rarer medium between the denser; here the denser is between the rarer. The rings commence at the top of the bubble, because there it first grows sufficiently thin.

The greatest error which arises from admiring the loss or gain of half an undulation in the interference producing these rings, gives a satisfactory explanation of all the phenomena of coloured rings, but which contains analytical investigations of an abstruse nature. Only three such as those denominated Grimaldi's fringes, are also formed by the interferer attendant on the inflexion of light by the edge of opaque bodies, for which see DIFFRACTION.

RING FAIRY is a name given to certain spots which are observed amongst grass in fields, and which are characterised by being more luxuriant than the surrounding herbage. They are of two kinds: either an entire knot of grass is more luxuriant than the rest, or the luxuriant grass grows in a circle or the segment of a circle around a comparatively barren spot. The name of fairy rings was originally given to these spots because they were supposed to be the places where the little fairies held their nightly revels. Recently a better cause has been assigned for their origin. They are now known to be those portions of the surface on which a species of fungus has grown, which by dying has afforded nutriment for the grass on the spot, and as the fungus grows in this particular place on account of some factor in its development, it continues year after year to extend itself beyond the small circular space to which it was originally confined; but as the grass in the centre loses the stimulating influence of the decayed fungus, this spot becomes comparatively barren, and the portion of luxuriant grass keeps on extending for many years, till the earth, no longer affording the circumstances necessary to the development of the fungus, it dies. There are several species of fungus that produce this effect. It was first noticed by Dr. Withering as occurring with the Agericaceae (A. campesira), the giganitic puff ball (Booista gigantea), and many others may be seen in the act of forming these circles. It is very probable that most of the large fungi would form these rings if undisturbed, and hence the name of fairy rings given to these spots by which they were surrounded afford the circumstances necessary to their growth.

RIODEJANERO. [JANEIRO.]

RIOMABBA. [ECUADOR, p. 267.]

RIOM, a town in France, capital of an arrondissement in the department of Pay de Dôme, 245 miles south-south-east of Paris, by the road through Fontainebleau, Montrouge, Nievres, and Mouldfis, and 7 miles north of Clermont-Ferrand.

This town was antiently the chief town of the duchy of Auvergne, erected by King Jean II, in 1360, in favour of his son the duke of Bern; its prosperity dates from this epoch.

Riom stands on a small elevation in the rich plain of the Limagne of Auvergne, near the little river Ambène, which flows by the Lachau and the Morges into the Allier. The town is surrounded by a boulevard planted with trees, and lined, toward the country, with houses of modern erection, which shut out the beautiful view from the boulevard. The interior of the town consists of several streets; the two principal cross each other near the centre; those are wide and handsome, but not quite straight; the other streets are inferior all are very ill paved with lava and basalt, and some broad, bare bare boulders are also usually built of lava from the quarries of Volvic, a small town three or four miles west of Riom: the dark colour of the stone gives to the place a sombre appearance. The principal public buildings of the town are the church of Saint Amable, remarkable for its elegant dome; La Sainte Chapelle, a beautiful Gothic building; the court-house (palais), another fine Gothic building; the clock-tower, from the summit of which there is a charming prospect of the surrounding country; and the central prison or house of correction, large, lofty, secure, and well ventilated.

The population of the town in 1831 was 11,922 for the town, or 12,379 for the whole commune; in 1836 it was 11,473 for the commune, showing the serious diminution of 906 persons in five years. The trade of the place is not very considerable; the chief articles of manufacture are candles, and preserves of apricots, apples, &c. which, together with the fruits of the neighbourhood, are sent to Paris, accompanied with line of different kinds of Carré de Gironde, and leather. The chief articles of trade, besides the above, are corn, hemp, coarse linens, walnut-oil, and hempseed-oil.

There are four fairs in the year.

The importance of Riom is chiefly derived from its tributary, the abundance of which is augmented by the propinquity of the people of Auvérune to litigation. It has a Cour Royale, the jurisdiction of which extends over the departments of Allier, Cantal, Haute Loire, and Pay de Dôme; a subordinate court of justice, and a tribunal of commerce; together with some fiscal government offices. There are also a high school, with a cabinet of natural philosophy; an hospital, two almshouses, a poorhouse, and a theatre.

The arrondissement of Riom has an area of 685 square miles, and is divided into thirteen cantons, or districts, each under a justice of the peace: it comprehends 130 communes. The population in 1831 was 146,472; in 1836, 146,516.

RIOT. A riot is a misdeemourer at common law. The definition of it given by Hawkins, and which appears to have been very generally adopted without much alteration by subsequent writers, is 'a tumultuous disturbance of the peace by three persons or more, assembling together of their own authority, with an intent mutually to assist one another against any who shall oppose them in the execution of some enterprise of a private nature, and afterwards executing the same in a violent and turbulent manner, to the terror of the peace, and to the damage of the property of any person or public person or public authority lawful.' The assembling together therefore in a case where the law authorises parties to meet and use force in concert, as for the purpose of suppressing rebellion or opposing the enforcement of some public law, cannot constitute a riot. Neither will a sudden quarrel occurring among a number of persons who have met together at a fair, or on similar occasions, constitute a riot. But if on the occasion of a meeting, lawful in itself, some act of violence in disturbance of the peace is afterwards proposed, and executed in concert by those who are assembled, they will be guilty of a riot. The enterprise must be of a private nature, not necessarily relating to an individual, but still having some moral or general object. Thus it may concern the interest or disputes either of some one person or of the inhabitants of some one town or district. The object may be, for instance, to redress a grievance said to be suffered by such person, or to pull down inclosures on land which are claimed in a public object. Thus it may concern the interest or disputes of some one person or of the inhabitants of some one town or district. The object may, for instance, to redress a grievance said to be suffered by such person, or to pull down inclosures on land which are claimed in a right of common. But if the enterprise is for the purpose of redressing grievances generally throughout the kingdom, or to pull down all inclosures, the offence is not a riot, but amounts to a levying of war against the king, and the parties guilty in it claim a right of common. But if the enterprise is for the purpose of redressing grievances generally throughout the kingdom, or to pull down all inclosures, the offence is not a riot, but amounts to a levying of war against the king, and the parties guilty in it claim a right of common.
present at a riot who instigate or encourage the rioters, are themselves also to be considered as principal rioters.

Two minor offences of rout and unlawful assembly, which are similar to riot, are generally treated on under that head.

A riot is where parties have commenced but not accomplished an enterprise, and in such a way that if the enterprise had been executed, they would have committed a riot.

It is an unlawful assembly when great numbers of people meet together with such circumstances of behaviour as to raise the fears of their fellow-subjects, and to endanger the public safety. A superficial theory of law as a force to defend his person against violence threatened to him if he spurn in a public place is unlawful, as such conduct tends to produce a breach of the peace. But an assembly in a man's own house to protect him, while there, or to defend the possession of it, is not considered an unlawful assembly. At common law the sheriff and all peace officers are bound themselves to make every effort and to command all others to assist them to suppress a riot. It seems also that where the emergency is great and immediate, private persons on their own authority may act, and even use arms for the same purpose. On such occasions it has not been usual for the military to take any part except in the presence and under the direction of a civil authority. They are not however by law compelled for any duty or for any public necessity to take it.

Various acts of parliament have been passed for the purpose of giving, as a remedy for any such unlawful assemblages, the power of licensing, restraining, arresting, and punishing rioters. These are collected and commented upon by Hawkins (1 P. C. c. 1, s. 625) and Burn (5 vol. 'Riot,' &c.). The most important is 1 Geo. I. st. ii. c. 5, commonly called the Riot Act, which declares it to be treason for any person, without the consent of the number of twelve or more, or being unlawfully, riotously, and tumultuously assembled together to the disturbance of the public peace, shall continue so assembled for the space of an hour after a magistrate has commanded them by proclamation to disperse, they shall be considered felons.

The form of proclamation is given in the Act, and is as follows:—'Our sovereign lady the queeneliaceth and commandeth all persons, being assembled, immediately to disperse themselves, and peaceably to depart to their habitations or to their lawful business, upon the pains contained in the Act made in the first year of King George for preventing tumults and riotous assemblies.

God save the Queen.'

This is directed to be read with a loud voice and as near as possible to the rioters; no word must be omitted. Persons who do not disperse within the hour may be seized and apprehended by any magistrate or peace-officer or any private person, and then a special riot officer to assist. In case of resistance, those who are attempting to disperse or apprehend the rioters will be justified in wounding or killing them. It is felony also to oppose the reading of the proclamation; and if the reading should be prevented, those who do not disperse are still guilty of felony, if they know that the reading of the proclamation has been prevented.

A prosecution under this Act must be commenced within a year after the offence has been committed. By the 7 & 8 Geo. IV. c. 30, s. 8, rioters who demolish or begin to demolish a church or a chapel, a dwelling-house, or any other of the various buildings or machinery mentioned in that Act, are to be considered as felons. By 7 & 8 Geo. IV. c. 31, persons committing similar offences are to be punished by an indemnity against the hundred in case of damage done by rioters.

By that Act compensation may be recovered by action against the hundred for any injury done to buildings, or furniture, &c. contained in them, to the amount of 30l. Where the damage is not of such a description as may be made on oath of the claimant, or other witnesses, before justices at a petty session, who are authorised to make an order for payment of damages and costs. An inhabitant of the hundred is entitled to an indemnity for any damage he may have sustained.

In order to recover in either of these proceedings, it is necessary to show that a riot has been committed; and in case the building, &c. has not been demolished, to show that the rioters had begun to demolish it; that is, that their intent was to demolish, although from some reason that intent has not been carried into execution. Unless this

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RIPON, an ancient borough, parish, market-town, township and bishopric, is situated on the west bank of the River Wharfe and the Riding of the county of York. It gives its name to an extensive liberty which has its peculiar courts. It is 208 miles north-north-west of London, 27 miles north of Leeds, and 24 miles north-west by west of York.

The corporation and the township of Ripon and a part of the township of Aislands by cum Bondgate, including a population of 6725. It returns two members to parliament. The municipal borough has the same extent: the corporate body consists of fourteen aldermen and twelve magistrates, with a吏 of 13,991 acres, and a population of 1293 and 8990 acres, were separated from this liberty.

Besides extending over the liberty of Ripon, the parish is partly in the lower division of Claro wapentake, where it has 13,591 acres, and a population of 3222. The bishopric of Ripon was created in 1836, out of the liberty of York and Chester; it extends over a great part of the more populous districts of the West Riding, and over the liberty of Richmondshire in the North Riding.

According to the first historical notice of Ripon, Eatabb, bishop of Melrose, in the time of St. Wilfrid, gave this monastery to Wilfred, archbishop of York. Under his auspices both the town and the church flourished, and received many marks of royal munificence. He died in the year 711, and was buried in his monastery. The town is said to have suffered much by the incursions of the Danes in the ninth century, but it was made a borough by Alfred the Great. King Athelstan granted the monastery various immunities, among which was the privilege of sanctuary, which it possessed till that privilege was wholly abolished in England.

The town suffered reverses in the wars against the Northumbrian Danes, in the devastations of the Normans, and in the invasion of Robert Bruce. Henry IV. fixed his residence here whilst he was driven out of London by the party of the Black Prince. The civil war under Charles I. the town was occupied by the parliamentarians under Sir Thomas Mauclercow, who was expelled by the royalists commanded by Sir John Mallory.

The collegiate church of Ripon, commonly called the Minster, is dedicated to the Virgin Mary, St. Wilfrid; it is parochial as well as collegiate. Rickman speaks of this edifice as ' containing various parts well worthy of attention, particularly its west front, which is a fine specimen of the late Early English architecture, the battlements and pinnacles, without alteration.' The first stone of the present building was laid in 1331, but the choir was probably not finished till 1494. It is said to be one of the best-proportioned churches in the kingdom. Its length from east to west is 566 feet 8 inches, the transept is 132 feet long, the nave and aisles 87 feet broad, and the choir and
RIP

8

RIP
asies 66 feet 8 inches broad. It has two uniform towers at the west end, each 110 feet high, besides the great tower, called St. Wilfrid's tower; each of these towers originally supported a spire of wood covered with lead. Under the chapter-house is a vaulted charnel-house, which is much visited by tourists; it contains an immense collection of human remains in good preservation, piled in regular order round the walls.

Trinity Church was built and endowed in 1836, at a cost of 13,000L, by its first incumbent, the Rev. Edward Kelvington. The other places of worship are three Methodists' chapels and an Independent chapel. St. Mary Magdalene's Church, built at a cost of 14,711L, is now divided into six dwellings for poor widows, who receive a small annual stipend. A chapel is attached to this building. In the hospital of St. Anne eight poor women are similarly maintained. The hospital of St. John the Baptist is occupied by two poor women, and the chapel formerly attached to it is now a national school with 200 boys. Jephson's Hospital is for the education and maintenance of poor orphan boys; the funds have been increased by a small bequest, and now amount to 200L a year, which supports and educates ten boys. There are also few minor charities. The free grammar-school was founded in 1546 by Edward V., and afterwards endowed by Philip and Mary. Its income is at present 370L per annum. The property is let for the renewal of 21 years at 35L, and receives about 10L a year on payment of certain fines; these fines amounted in 1811 to 1069L, and in 1818 to upwards of 1200L. The master is allowed to take boarders, and other boys not on the foundation. The school is free, for Latin, Greek, and English grammar, to those who are in receivers of the county; a charge is made for writing and arithmetic. There is a girls' national school, which was built by Miss Lawrence of Studley; this and the boys' national school are supported by subscriptions. The Public Register of Ripon contains a Diary of the Mechanics' Institute, a Subscription Library and a News-room; the edifice thus occupied was erected in 1834, at a cost of 250L, in 200L proprietary shares; an extensive pleasure-ground and garden is attached.

Ripon was once celebrated for its manufacture of spurs, which were in such high repute, that 'as true steel as Ripon rowels' became a proverbial expression to denote honesty and courage; it was also noted for its woolen manufactures, which however left the banks of the Ure for those of the Aire and Calder some centuries ago. The present manufacture is chiefly saddle trees; it also produces linens and masts. The market-place is a spacious square, surrounded chiefly by shops and good houses; in the centre stands an obelisk 80 feet high, which is surmounted by the arms of Ripon; a statue of a yeoman, erected by William Aslaby of Studley, who represented the borough for sixty years in parliament. The fairs of Ripon are six in number, and are chiefly for leather, cattle, and cloth. One of these, the 'carlet fair,' is held in the market-place at the market days, and was built in 1801, at the cost of Mrs. Allanson of Studley; it comprises a suite of rooms for the magistrates, assembly-rooms, and other commodious apartments. Four beautiful Ionic columns in front support a handsome pediment. The streets of Ripon are neither spacious nor regular, but they are generally clean. The Ure navigation was brought up to the town by means of a short canal in 1747. The fine domain of Studley is situated about three miles from Ripon, and includes the venerable monastic remains of Fountain's Abbey.

(Allen's Yorkshire, and White's History and Gazetteer of the West Riding.)

RIPPERDA, JOHN WILLIAM. Baron, afterwards DUKE OF, a descendant from an ancient and honourable Spanish family, which had settled at Groningen during the period that the Low Countries were attached to Spain, was born in that district in the latter part of the seventeenth century. His father being a Roman Catholic, young Ripperda was educated at the university of Leipsic, where he distinguished himself in the course of his education, Ripperda returned to the United Provinces, and having soon after entered the Dutch army, served during the whole of the war of the Succession, and rose to the rank of colonel. He then married a Spanish lady, very consanguine to obtain which he first renounced the faith of his fathers. Appraising to political distinction, he eagerly sought a seat in the States-General, and was returned towards the end of the war as deputy for his own province. In 1715 the States

appointed him envoy extraordinary to the court of Spain, with instructions to arrange definitively a system of commercial intercourse between the two powers. On his arrival at Madrid, Ripperda immediately attended himself to Alberoni, the all-powerful minister of Philip V. (Alarcon), whom he assisted with memorials and plans of improvement for the commerce and finance of Spain, and whose protection he secured. During his residence at Madrid, Ripperda carried on several intrigues by no means creditable to his character either as an ambassador or a man; for whilst conducting the negotiations of his native country, Holland, he maintained a secret correspondence with the French court, by which the unworthy government of Louis XIV. was indirectly assisted in its atrocious policy against the British nation. On the death of Alberoni, Ripperda was appointed to succeed him, and having obtained the royal favour, he was immediately sent to Madrid, in 1715, to receive the appointment.

In the meantime Ripperda rose high in favour both with Philip and his minister. By his exertions fifty masterworkmen from Holland were induced to settle in Spain, and to establish extensive cloth manufactories, first at Azcos, and afterwards at Guadalaxara. Some time after this, to facilitate the negotiations for his country, he purchased a large tract of land in England, which he afterwards sold to the Spaniards at a large profit. His influence at court was so great that he was pensions and extensive grants of land. The fall of Alberoni, which was hastened by Ripperda, opened to this ambitious man the way to power, and he was immediately entrusted, in 1724, with the formation of a secret treaty with the British court.

To reward his services in that memorable transaction, he was soon after created duke, and raised to the dignity of grandee of Spain.

On his return to Madrid, Ripperda was appointed secretary of state in the place of the marquis of Grimaldi. Having succeeded shortly after in gaining the entire confidence of Philip, he was raised to the post of prime minister. His administration however was not of long duration. Unable to fulfill the secret engagements entered into with the house of Austria, or to accomplish the vast schemes laid down by the treaty of Vienna, such as the recovery of Gibraltar by force of arms, and the seizing of the Pretender on the throne of England, schemes which the exhausted state of Spain could never have even attempted, he was forced to resign. His fall was the result of a intrigue instigated by Great Britain compelled him to relinquish, Ripperda fell into disgrace with the Spanish monarch.

On the 25th of May, 1727, he was arrested at the house of Camarillo, and confined in the convent of the fortress of Segovia, where he remained in close confinement, until, having eluded the vigilance of his keeper, he made his escape, and arrived safely in Lisbon, where he embarked for Cork. After spending some time in England, he set sail for his native country in 1731, and settled at the Hague. Whilst there he became acquainted with an envoy from the court of Morocco, the name of Perez, who was a Spanish renegade, and who, perceiving the violent hatred which Ripperda bore to the Spaniards, and his love of adventure, informed him to try his fortune in that region. Ripperda accordingly set sail for Tangier, and was well received by the emperors of Morocco (Muley Abdulah), who gave him the command of an army destined to repel a threatened invasion from Spain. Ripperda was however defeated before Oran, which city fell into the hands of the Spaniards in 1732.

About this time Ripperda is said to have abandoned the Roman Catholic creed, and to have embraced the Muslim sect. He died in Tangier in 1735.

He lived for some time at Seville, surrounded with all the gratifications and luxuries that wealth could supply, and then removed to Tangier, where he remained until his death in 1737.

It is said that for some time previous to his death he believed himself inspired, and endeavoured to propagate a new religion—a mixture of Christian, Jewish, and Mohammedan doctrines, which however had no followers. Shortly after the death of this extraordinary man there appeared at Am-
several an account of his life and adventures, under this title: *La Vie du Duc de Ripperda*, par M. P. M. B., 8vo., Amst., 1739. The same work was translated into English, by John Campbell, and published as *Memoirs of the Battle Duke of Ripperda,* London, 1739, 8vo. There is also a Spanish translation of it, Madrid, 1748

RIPPLE-MARK. In geology, the undulations on the surface of many rocks, which resemble the ridges and hollows left on mud and sand by the small waves of water, are thus termed.

The progress of geological induction has given an unexpected importance to the study of these undulations; for it is now certain that the right understanding of their origin is a necessary element in reasoning on the deposition of stratified rocks and the displacements of the ancient bed of the sea.

The formation of small ridges and furrows, under the influence of water which ripples or undulates in small waves, may be conveniently witnessed and studied on the shores of comparatively quiet seas, on the margins of lakes, or along the sides and shallow beds of rivers. The *ripple-mark* thus produced is more or less permanent, according to the nature of the sediments on which it is impressed, and the relative velocities of the water and the particles that compose and succeed the withdrawal of the water which formed it.

Loose coarse sand easily receives impressions from the superfluoucating water, which momentarily change under the varying influences of the waves: muddy sediments are less easily disturbed, but a deposit that has been often that on the gradual retreat of the tide from broad muddy surfaces like those in the bay of Morecambe, or along the shores of the Thames, the small rippling waves of the receding tide leave marks sufficiently durable to allow of being investigated. Many gradual operations new sediments were gently overlaid.

A very small ripple leaves its mark on the subjacent sand or mud at only very small depths; larger waves are felt to a greater depth, and apparently the depth at which ripple-marks are formed may be judged of, within moderate limits of error, by the breadths of the ripple-marks. Wherever then we find among marine stratified rocks or sediments, of whatever date, undoubted ripple-marks such as shallow water leaves them to the true paleontologists on the *impressionata* of the Neposelian Sea, and Philippi recorded its generic characters in his *Enumeratio Molluscorum Siciliis,* from observations made upon two other Mediterranean species.

**Generic Character.**—Animal with a subtriangular foot, truncated posteriorly by a small postocular process. Head produced, with a subulate tentacle on each side, at the external base of which the eye is placed on a little convexity; mouth prolonged into a short and truncated proboscis.

*Eurybranchia* elongated, turriculate, sometimes shield-subglobular; aperture of operculum lower; tentacle subulate, having the right lip thickened, and nearly always projecting forwards, and arched longitudinally; operculum horny, closing the aperture exactly.

M. Deshayes acknowledges the difficulty of fixing the relations of *Rissa*; but, upon a comparison of the characters observed by Delle Chiaje and Philippi with those of *Cerithium,* he thinks it evident that *Rissa* approaches the *Melania* as closely as the *Cerithia,* and that it may be considered as intermediate between these two genera. In the last edition of Lamarck, he has placed it between *Melania* and *Melanopsis.* M. de Blainville had previously placed the genus in his family, *Euphoestomatata,* between *Melania* and *Phtioria.* M. Rang arranged it between *Melania* and *Littorina,* in the family of De Férussac, observing that he does not think that *Rissa* can be admitted as a genus, though it may well hold the rank of a sub-genus, in which case it may take its place at the side of the *Melania,* and near the genus *Paludina* of De Férussac.

M. de Blainville divides the genus into the following sections:

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<td><strong>Turricitellated and Ribbed.</strong></td>
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<td><strong>Example, Rissa acuta.</strong></td>
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<td><strong>B.</strong></td>
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<td><strong>Subturricitellated and Ribbed.</strong></td>
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<td><strong>Example, Rissa costata.</strong></td>
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<td><strong>C.</strong></td>
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<td><strong>Subturricitellated; perfectly smooth.</strong></td>
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<td><strong>Example, Rissa hyalina.</strong></td>
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D. 

Subglobular.

Example, Rissa canariensis.

The same divisions are adopted by M. Rang.

Seven species only appear to have been known up to the time (1830) when M. Michaud published, in his illustrated memoir, sixteen new species; and to these are to be added the thirteen described and figured by Philippi. M. Deshayes, in his Tables, gives the number of recent species as twenty-three, and of fossil (tertiary) twenty-two, of which last two, Rissa lactea and cochenillea, are recorded as both living and fossil (tertiary). In the last edition of Lamark, the number of species recognized, and of which a spirited pelagic race, the Deshayes's amount to forty-four; but he states that there are other materials for this genus, and that his own collection alone contains more than eighty species, living and fossil.

M. Deshayes divides the Rissae into three groups: in the 1st he places the subglobular species which approach the Turbipes and Littorina (the Turbiniform); in the 2nd, those which are elongated, and whose aperture approaches that of the Melampus (the Melampodida); and 3rd, species whose seminatural aperture is subrounded at the base, and which are approximated to the Cerithia (the Cerithiform).

Localities. - The Mediterranean Sea, principally; but species are recorded from the coasts of Great Britain and France, and from the East Indian Seas and Senegal.

Mr. Th. Müller (Synopsis) seems to be of opinion that Fistula nigra, Turbo minutus, and Acteon tridens of Totten, belong to this genus.

Fossil Rissa.

M. Deshayes, in the last edition of Lamark, observes that for a long time Rissa were found fossil in the tertiary and quaternary; but that M. J. J. Desnoyers, in his 

Mineral Conchology, has published four species from the great ooathe; whilst it is remarkable that no species of this genus have been found in the formations between the great ooathe and the tertiary strata: it is to be presumed, he adds, that hereafter they will be found in those beds.

We have seen that the number of fossil Rissa of (including two living species) found in the tertiary formations is given by M. Deshayes in his Tables as twenty-two. The two species recorded as both living and fossil are R. lactea and cochenillea. In the last edition of Lamark, R. lactea is not noted as occurring in a fossil state; nor do we find any mention of R. cochenillea, excepting under the head of Rissa striata, where it is stated that this species, described by Quoy and Gaimard, in the last edition of the Voyage of the Astrolabe, bears much resemblance to living individuals of R. cochenillea; but Rissa canariensis, labiola, oblonga, costata, monodonta, pusilla, pulchella, and Bruguieri, are all recorded as both living and fossil (tertiary). The number of names are fossil only, including the species from the ooathe and R. decussata, in the same work, is eleven.

RITSON, JOSEPH, a poetical critic and antiquary of the eighteenth century, was born at Stockton in Durham, and some of his pieces were published there before he came to settle in London. He was by profession a conveyancer, with chambers in Gray's Inn, but being appointed deputy high bailiff of the dukedom of Lancaster, he did little in his profession, living on the income which his office yielded him, and spent his leisure time in literary pursuits. During the twenty years between 1762 and 1802, he poured the results of his studies and researches on the public in books in quick succession; yet not so rapidly that it can be said that they were improperly executed, or unworthy. On the contrary, he appears to us to have been a most valuable member of the literary fraternity, and to have done perhaps more than any man to introduce a spirit of curiosity respecting our early poets, and of critical exactness for the remains.

The trifling works which he printed before he became settled in London need not be particularised; and the first work which we need to mention, and indeed the first work which brought him into any notice, was his Observations on the three principal kinds of the English Poets, published in a familiar letter to the author (Warton, 4to. 1782). This was the first serious attempt to call the attention of the public to the many inaccuracies and faults of that celebrated work; a bold and useful service, but dangerous to him who undertook it, as Warton had many and powerful friends, who could not bear to see him so roughly handled, even though they could not deny that almost every one of Ritz's attacks was just. However it must be owned that Ritzon addressed himself to the work in a very unambiguous spirit, and wrote like a man who was not much accustomed to the subtlecourse of refined society. The work has become, perhaps, a by-word when men would speak of critical abuse. In the next year he published some Remarks on the Commentators on Shakespeare, which is to be distinguished from a larger work published by him in 1792, entitled Curious Criticisms on the Edition of Shakspeare published by the Oxford University in 1733. He also published A Select Collection of English Songs, with an Historical Essay on the Origin and Progress of National Song, of which a second edition was published by Mr. Park in 1813. In 1790 he published his volume of his Poetical Songs, entitled the time of King Henry III. to the Revolution, reprinted in 1829. This is regarded as one of the most valuable of his works. In 1791 he published Pieces of Antient Popular Poetry, from authentic manuscripts and old printed copies; in 1793, The English Anthology, in three volumes; in 1794, A Collection of Scottish Songs, and in 1795, the very remarkable poems of a forgotten poet, Minot, on events in the reign of Edward III., which have also been reprinted. In the same year he published his large collection of songs, well known by the title of The Yorkshire Minstrels, a collection of songs of the twelfth, thirteenth, fourteenth, fifteenth, and sixteenth centuries, with a short account of their writings, a work very imperfect, but to which succeeding writers in this department have been indebted.

To enumerate however all the works produced by Mr. Ritzon in his twenty years' literary career would carry out this article to an unreasonable extent. It may be sufficient to add that there are several small works of his under the names of Ritzon, of Galten, and of the Yorkshire Minstrels, all of which were particularly connected. In 1802 he published an Essay on Abstinence from Animal Food as a Moral Duty.

He died in September, 1803. Since his death several tracts have appeared attributed to him, and a collection of his correspondence has been published. Some account of his life was given by Mr. Hatton in 1842, through the the reputation of a sanguine critic, which his attack on Warton gained for him, and he was more shunned than courted by his literary contemporaries.

RITTON HOUSE, DAVID, was born on the 8th of April, 1723, near Germantown. His father, who was a farmer in that province, intended that he should follow the practice of husbandry, and being apparently in narrow circumstances, he could give him no other education than that which usually falls to the lot of persons who are engaged in such occupations.

But the elasticity of genius is often superior to the pressure of adverse fortune, and young Rittenhouse, before he was seventeen years of age, displayed a taste for mechanical sciences, of which his father and neighbours could not have been aware, although he is said to have executed a wooden clock, and, similarly to what is related of Pascal, to have covered the ploughs and fences on his father's farm with geometrical figures.

This exhibition of uncommon talent, joined to a conviction of the utility of what he pursued, so engaged the youth that his constitution would render him unfit for the labour of cultivating the ground, induced the father to procure for his youth the tools of a watch and mathematical instrument maker, and enabled him in performing the duties of the farm. Grateful for this favour, the young man worked diligently with his hands during the day, and at night devoted a portion of the time which should have been passed in taking repose, to the prosecution of his studies. Thus he cultivated mathematics, and was great, for his biographers assert that, before the age of twenty, he was able to read the Principia, and that he had discovered the method of fluxions, being aware that this had been already done by Leibnitz. He
also constructed two orreries exhibiting the movements of the planets and their satellites. These machines are said to be still in existence, one in the university of Pennsylvania, and the other in the college at Princeton.

In 1769, Mr. Rittenhouse was made one of a Committee appointed by the American Philosophical Society to observe the transit of Venus, which was to take place in that year, and he was so fortunate as to witness the phenomena in a temporary observatory which he built for the purpose. His observation and the calculations relating to it gained him the approbation of the astronomers of Europe, and the title of Doctor in Laws was subsequently conferred on him by the University of Pennsylvania. He was also one of the Commissioners from Pennsylvania for adjusting the territorial dispute between the states of Pennsylvania and Virginia; in 1786 he was employed in fixing the line which separates Pennsylvania from the state of New York, and in the following year he assisted in determining the boundary between New York and Massachusetts.

Dr. Rittenhouse was a member of the American Academy of Arts and Sciences at Boston, in 1782, and of the Royal Society of London, in 1795. In 1791 he succeeded Dr. Franklin as president of the American Philosophical Society, to whose 'Transactions' he contributed many papers, chiefly on astronomical subjects. In 1777 he was appointed treasurer of Pennsylvania, and this important office was held with much honor and ability. At the request of the United States government, he undertook the compilation of a complete list of the public debts of the United States. In 1813, a Memoir of his life was published by his relative, W. Barton, Esq. of Lancaster.

(R. A. B.)

RITUAL and ritualism. (In the sense of consuetudo,) the book which directs the rites and ceremonies to be observed in celebrating divine service in any particular church.

RIVIÈRE DE GIER. [Loire.] 39.24.11 An ancient and legal river. Rivers are divisible into fresh and salt-water rivers. Salt-water rivers are those rivers or parts of rivers in which the tide ebbs and flows. Rivers are also divisible into public or navigable rivers and private rivers.

The property in fresh-water rivers, whether public or private, is presumed to belong to the owners of the adjacent land: the owner on each side being entitled to the soil of the river and the right of fishing as far as the middle of the stream. But this presumption may be rebutted by evidence of special usage to the contrary. For instance, it may be shown that the property of the river is in one person, and is not shown the adjacent land in another; or that one party owns the river and the soil of it, and another the free or several fisheries of the river. If a fresh-water river between the lands of two owners is navigable, the senior owner continues to retain half the river, and the insensible addition by alluvium belongs to the land to which it attaches itself; unless the lands of the proprietors, or their tenants, have extended the navigable boundaries, such as stakes, &c., in the river. This part of the law as to the acquisition by alluvia, is stated by Bracon in the chapter 'De acquirundo dominio' (vol. 9), and his statement both in substance and in the details of the account of the law, is equally applicable with which Gaius may be compared (bk. 70). But if the course of the river is changed suddenly and sensibly, then the boundaries of the lands will be, as they were before, in the midst of the deserted channel of the river. Special cautions are taken to guard against cases in which the property of the river is taken from a river owner by the low water of a navigable boundary line. It is said that below Gloucester bridge the Severn is by common custom always held to be the boundary of certain meadows, however suddenly or sensibly the course of it may be changed. Though fresh-water rivers are presumed to be the property of adjacent landowners, yet such owner cannot not set up a ferry and demand a toll unless by prescription or by charter from the king.

In early times also the king by his prerogative might prescribe all persons for fishing on any river until he had first taken his pleasure there. This was effected by issuing a precept to the sheriff commanding him to cause all persons to abstain from approaching the banks. By the 16th chapter of Magna Charta the enjoyment of this prerogative was restricted to the Duke of Lancaster, and to the King in the time of Henry I. Subsequently the custom was to name the rivers in the precept to the sheriff; among those was the Avon, at least that part which flows through Worcestershire. Eventually the prerogative fell into disuse. In those rivers which are navigable and in which the public have a common right to passage, the king is said to have 'an interest in jurisdiction,' and this is so not only in those parts of them which are the king's property, but also where they are come to be private property; such rivers are called 'river gales,' 'haut streams le roy,' 'royal rivers'; not as indicating the property of the king in the river, but because of their being dedicated to the public use, and all things of public safety and convenience being under his care and protection. Thus a common highway on land is called the king's highway, and navigable rivers are in like manner the king's highway by water. Many of the incidents belonging to a highway on land attach to such rivers. Accordingly any nuisances which arise upon them may be indicted even though the nuisances be of the private interest, or the king's; or the nuisances and obstructions may be abated by individuals without process of law. It must not however be inferred that all the incidents of a land highway attach to such rivers. That is not the case, if the higher interest is in the river, which is the king's. The King's royal toll is such an act. Callis says that the soil of the second of royal rivers belongs to the king. But the expression, if intended to apply to all parts of the rivers where the public have a right of passage, appears too comprehensive. But there is no doubt that in some such rivers the property may be in the crown; as it was in the river Thames, the property in which, both as to the water and the soil, was conveyed by charter to the lord mayor and citizens of London.

And in all rivers as far as the tide flows, the property of the soil, and of the king's fisheries, is, by prescription. In navigable rivers where the tide flows, the liberty of fishery is common and public to all persons. (Hale, De Jure Mariae et Brachiorum ejusdem; Callis, On Seaworms.)

River running water is in no one; but the proprietor of adjoining land is entitled to the reasonable use of it as it runs by his land. And consequently no proprietor can have the right to use the water to the prejudice of any other proprietor. Without the consent of the other proprietors who may be affected by his operations, no proprietor can either diminish the quantity of water, which would otherwise descend to the proprietors below, or throw the water back upon the proprietors above. Every proprietor who claims a right either to throw the water back upon his neighbors, or to diminish its quantity is water which is to descend below, must, in order to maintain his claim, either prove an actual grant or license from the proprietors affected by his operations, or must prove an uninterrupted enjoyment of twenty years. (Judgment of Sir J. Leach in Wight v. Howard; Sim. Stuart, 109; Gale, On Easements.)

RIVER HORSE. Since the article Hippopotamus was written, Dr. Andrew Smith has published his interest in the animal, in the work, 'The Natural History of South Africa,' together with the most accurate figure hitherto engraved: of this we have endeavoured to give some idea below; but the reader should refer to the work itself, where, with all the advantages of size and description of the animal, the portrait of the female Hippopotamus and her young one have all the air of life.

As Dr. Smith has evidently paid very great attention to the characters and habits of this curious quadraped, we proceeded to notice the result of his observations. He describes the Hippopotamus Capensis of Desmoulins:——
as having the anterior and lateral parts of the head, and the upper parts of the neck and body brownish red, the former rather lighter. The brown red of the back passes insensibly into a light brownish purple red, which is the colour of the sides and limbs; the belly, the sides of the lips, and the eye-lids, light wood-brown, with a faint flesh-coloured blush; the hinder parts of the body and the thighs from the umbo to the anus, with some brownish ground colours, only of darker tints; hairs of tail and ears black; pencils of hairs on lips, &c., yellowish brown; eyes a clear orange-coloured brown; hoofs dark horn-colour.

The male and female, as far as colours are concerned, are hardly distinguishable, but in size and materiality, the male being always considerably larger than the female.

Dr. Smith, who gives a most elaborate description of the form of the animal, to which, in the interest of the reader, we shall return, says that previously to the establishment of the Dutch colony at the Cape of Good Hope, Hippopotami existed in abundance in all the larger rivers of South Africa; but no one did the colonists direct their attention to hunting them, than their numbers began to decrease, partly from destruction by fire-arms, and partly by migration from the scene of danger. 'At present,' continues Dr. Smith, 'scarcely one exists in any of the rivers of the Cape Colony, and even but very few in streams within a moderate distance of it. On the river Cango in East Griqualand, we have been told to have been reached by hunters furnished with fire-arms, every large river was found to abound in specimens, and in those the animals appeared, as they probably did some two hundred years ago, much nearer to the southern extremity of the colony, was not common, and comparatively speaking, was generally prepared to survey with curiosity any intrusion upon their haunts. To convey some idea of the numbers in which they were found in several of the rivers towards the time of their greatest abundance, it may suffice to state, that in the course of an hour and a half a few members of the expedition party killed seven within gun-shot of their encampment. Several other individuals were in the same pool, and might also have been killed, had it been desirable. One of the survivors was observed to make his way across to an adjoining pool, and in accomplishing that he walked with considerable rapidity along the bottom of the river, and with his back covered with about a foot of water.'

The hippopotami, according to Dr. Smith, feed chiefly on grass, resorting occasionally near the banks of rivers which supply that food. 'In districts freely inhabited by man,' says Dr. Smith, 'they generally pass the day in the water, and seek their nourishment during the night; but in localities now unoccupied, they have been observed to feed at the end of the day as well as the night upon dry land. In countries in which the night-time constitutes the only safe period for their leaving the water, they are generally to be seen effecting their escape from it immediately before dark, or to be had a considerable distance from the river when the day has passed, and according to the state of the surrounding country; they then either directly commence feeding, or begin a journey towards localities where food may exist. When, previous to nightfall, they may have been in pools or rivers, they are generally at once enabled to commence feeding on reaching the dry land; but when they have passed the day in the sea, they require commonly to proceed some distance after leaving it, before they find the grass which appears congenial to their palate. It is not every description of grass that hippopotami seem to relish: they often pass over, in search of food, luxuriant green swards, which, would strongly attract many other animals which feed upon grass. Besides having a peculiar relish for the grasses of certain situations, they appear to have a predilection for districts supporting brushwood; and owing to the latter peculiarity, they are often to be found wandering in localities on which but little grass exists, when they might have it in the neighbourhood in great abundance, but without the accompaniment of woonies. The will of the sea is probably not more than is necessary to admit of the hippopotamus acquiring sufficient food for its wants; but if that be otherwise, it certainly prefers to pass what portion of the night may be necessary for procuring nourishment upon the dry land, rather than in the sea, which is generally only seen to retire to the latter upon light returning.'

Dr. Smith thinks it difficult to decide whether these animals prefer the pools of rivers or the waters of the ocean for their abode during the day. When an opportunity for choice existed, he found that some individuals selected the one, and some the other. During a journey which he made some years ago to Port Natal and the coast, he was informed by the inhabitants of the country that they had many opportunities of observing the footsteps made by them while entering and leaving the sea; and on one occasion his party observed a female with her young one on their way to the sea.

The extremity, like that of the elephant and rhinoceros, is voided, according to the same accurate observer, in immense cylindrical masses; and those which came from the hippopotamus seemed principally to consist of comminuted grass, apparently but little altered by the process which it must have undergone, in a direction different from that in which it could have entered the stomach.

The disposition of this huge creature is described by Dr. Smith to be peacable and inoffensive: not that when the animal is wounded, or happens in its excursions on dry land to be accompanied by its young, it does not manifest much ferocity, instantly giving chase, if in any way interrupted in its course. The mother which his party endeavored to intercept immediately became the assailant on discovering the object of the party, and she rushed open-mouthed on the man nearest to her. 'The display of her enormous mouth, armed with formidable teeth, caused the most advanced of the hunters to retreat, and those in the rear to pause. The flight of the hunters seemed to encourage the animal in her perverseness; and after pursuing them, to retire from the sea which she had intended to enter, she persevered in giving chase, until one of the party, who from his situation had not had occasion to fly, fired a bullet into her mouth. Immediately after the wound was received she became an instant at rest, and then reappeared with precipitation to the sea, in which she was afterwards shot, having, contrary to the usual custom of her kind, manifested a disinclination to retire into deep water, a disinclination no doubt arising from sensations experienced from the wound she had received.'

Dr. Smith is of opinion that the sagacity of the hippopotamus, though doubtless inferior to that of the elephant, is nevertheless very considerable, and that its memory may be considered tenacious, certainly superior to that of the rhinoceros, and possibly equal to that of the elephant. After noticing its adroitness in guarding against assailants, and in avoiding pits dug to entrap it, the Doctor remarks that when once a hippopotamus has been assailed in its watery dwelling, and has been injured from inauspiciously escaping itself, it will rarely be guilty of the same indiscretion a second time; and though its haunts may not again be approached by hunters till after a long period has elapsed, it may be observed to pass a very considerable part of its course necessary for its respiration with a degree of caution, which clearly shows that it has not forgotten the misfortune to which an opposite course has exposed it.

**RIVERS. (Geology.) [VALLEY.]**

RIVERS are the flowing waters, which bring to the sea, and sometimes to a lake, the waters which are collected within a certain portion of the earth's surface. The country which is thus drained by a river is called its basin, as the river runs in the lowest part of it, and the country rises on all sides with greater or less steepness, in the fashion of the
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bends which form acute angles. In the last-mentioned case it is, almost without exception, observed, that the mountain-ravines have been eroded by the waters descending on both sides towards their respective basins, which are separated by them, and hence the whole line of these margins is called a watershed. The basins of rivers vary greatly in size. A brook is the smallest description. When such a river rises near the sea or near a large river, into one of which it flows after a short course, it consequently drains a very small area. If the waters should be conducted by a series of brooks, the name of brook is changed for that of rivulet. The basin of a rivulet is therefore more complicated than that of a brook. One or more brooks descend from the margin of the basin, and by uniting their waters with those of the rivulet, increase its river. Whence, and rivers about an acre produces considerable volume of running water, this watertake assumes the name of river. But all such rivers do not reach the sea or even a lake; most of them join other rivers, and thus a large river is produced. This last-mentioned large river is called the principal river, and those which increase its water are called, with respect to it, affluents or tributaries, and sometimes feeders or branches.

The first waters of a river are generally derived from a source. This is generally found at the foot of a mountain, or from the side of some hill or mountain, and sometimes from a swamp or a lake. This is called the source of a river. From this source the river descends through the lowest part of its basin until it terminates its course in the sea, a lake, or into a large river. This is called the mouth of the river. The cavity in which the running water flows is called the bed of the river, and the solid land which bounds this bed is called its banks.

It was formerly thought that the elevation at which a river originates must be in proportion to the length of its course, and accordingly geographers assumed that there are elevated mountain-ranges in those regions where large rivers take their rise; but modern researches have shown that this is not always the case. Thus the Volga, which is the largest river in Europe, has two thousand miles in length; in a district the most elevated part of which does not exceed 1100 feet above the sea; and the Mississippi, which is still larger, originates in a tract which can hardly be called hilly, and at an elevation probably not much exceeding 1500 feet above the sea.

But still most large rivers have their origin in very elevated mountains or on high table-lands, in descending from which a great difference with respect to the rapidity of their current is observed, in consequence of the sudden change of the slope of the river, which is observed. Accordingly geographers divide the whole of the course of such rivers into three divisions, the upper, middle, and lower course.

The upper course of such a river lies within a mountain region, and consequently at a great elevation above the sea. The waters run with greater or less velocity, according to the greater or less extent of the mountain-region, and the greater or less rapidity with which the whole region declines towards the country to which the course of the river is directed. When the elevation of the mountain-region decreases with great rapidity, the current of the river is extremely rapid, and presents a quick succession of cataracts and rapids. The force of the current is in great places of rocks of considerable size, which are frequently detached from the overhanging masses, cannot resist it, and are carried down by the current, until they reach a point where the rapidity of the descent begins to diminish. The mountains, which constitute the banks of the river, are in general elevated several thousand feet above it, and their bases are united by slopes forming an angle, over which the water runs on bare rocks, without the least covering of earth. The river, as it flows, carries with it these rocks, which are often detached from the overhanging masses. Sometimes there is space enough for a path between the water and the mountains, but in many places this space is only obtained by artificial means, as by cutting away a projecting portion of the rock, or by making a tunnel through it; if the latter method be applied, the path is continued over the bed of the river by a wooden bridge of greater or less extent, until a place is reached which offers sufficient space for a path on the sides of the rocks. The course of the river is generally in a straight line, but sometimes it makes short and abrupt
mountain called the Platau. At Faido the Ticino enters the middle valley of Levantina, in which it flows with great rapidity to Gionnico, a distance of about fifteen miles, without forming any falls. The valley is less than half a mile wide, and often interrupted by rocks. Above Gionnico the river enters a short narrow, almost outlet-like, which forms extractars, and then reaches the wide valley called the Lower Valley of Levantina, in which it flows with a comparatively gentle course to Lago Maggiore. The greater number of the rivers which originate in the Alps and discharge into the Ticino and this latter stream. Their course, which occurs in the river-valleys, may at some remote period have been filled with water, and this may have been drained off by the rivers forming an outlet for the waters by the narrows which now connect their basins with one another. In some places the elevated mountain-ranges border immediately on low plains. In such cases the rivers cannot be said to have a middle course; for as soon as they reach the plain their character is changed, and the rapid torrent is converted into a gentle stream. Thus the Marne, after issuing from the Pongo de Mansierche, and entering the great plain, flows slowly through the alluvial level; and the Ganges, after leaving the Himalaya Mountains at Hardwar, leaves the bed of the Ganges river in Hindustan. All the rivers which descend from the southern declivity of the Alps to the plain which the river Po traverses are of the same description. In most cases however the mountain-regions are not in immediate contact with the plains, but are separated from the latter by hilly tracts, and that portion of the course of a river which lies through such a hilly region is called the middle course. The rocky masses rarely approach the bed of the river which has a middle course; and sometimes, from these masses, to form between the higher grounds and the valley, which the inundations of the river have covered with a thick layer of alluvial soil. It is remarkable that the highest ground of these valleys occurs, without exception, on the very banks of the river, and the land slopes towards the river; on one side, from the higher ground, and on the other. Thus great changes are produced in the course of rivers in the lapse of time. Major Rennell surveyed a large portion of the lower course of the Ganges about fifty years ago, and his maps were very exact at the time. He also showed the changes which the Ganges which had made in the bed. A few years ago the course of the Ganges was again surveyed, for the purpose of establishing a steam navigation, and it was found that the course of the river hardly in three places corresponded with them lower down. A remarkable circumstance however is, that a river frequently divides into a number of arms, each of which runs to the sea, though some branches reunite and again detach themselves from one another. Thus the Danube reaches the sea by seven arms, as the Nile formerly did, according to the ancient accounts, though there are now only five arms in the Nile. Our best maps represent the number of the mouths of the Ganges as amounting to ten at least. This division of a river into several arms is easily understood when the soft soil is considered: and if we suppose that the river, in its operation of changing its bed, finds in its way a piece of rock or other matter harder than the alluvial soil, by setting against whatever part of the bed it meets on the sides of it: the following inundation removes still more of the alluvium, and thus, in course of time, a new arm is formed.

The course which is enclosed in the arms of a river is called its delta, from the form of the Greek letter delta, which the delta of the Nile, that which was best known to the antients, greatly resembles: but the term is generally appropriate, as most river deltas have that form. It is a common conjecture that the space which is now occupied by the delta of a river was a part of the sea, which was filled up by the debris and earthy matter brought down by the river from the mountainous and hilly country through which its upper and middle course lie. This supposition is supported by the fact that the soil, which evidently consists of matter brought down by the river, and not of such as the sea leaves behind when, from any cause, it retires. It may be added, that this operation of rivers going on during the inundations, for after the waters have subsided the course of the river is generally more extensive than those which are formed by rivers whose inundations are only produced by the melting of snow.

There is a river of first-rate magnitude which has no delta, though it seems to possess all those qualities which are supposed to be requisite to the formation of such an alluvial tract: the St Lawrence in North America reaches the sea by a kind of bay, which extends upward of 400
miles, and gradually increases in width from three to above 200; in the latter case, the mouth of this
bay would require it to be easily filled up
by the earthy matter brought down by a river whose
course exceeds 1800 miles; and yet we do not find that
an alluvium of any extent has been formed along the banks of
this wide water, and the right bank is quite
not Quebec. This single instance might throw some doubt on
the opinion that deltas are formed by rivers in the way
above mentioned, if the peculiar nature of the St. Lawrence
did not suggest an explanation of this deviation from the
common course. It is probable that such a river, which
drains the region west of the St. Lawrence, is not the
first large river which traverses a great number of lakes.
After having left the five great Canadian lakes, it
passes through those of St. Francis, St. Louis, and St.
Peter's. In each of these lakes the current ceases, and it is
only perceptible where the river again issues from the
lake. All the earthy matter therefore which the river col-
lects and keeps suspended in its course from one lake to the
other is deposited in these lakes. Thus this large river brings no débris and earthy matter, or very little, to its wide
estuary, which cannot therefore be changed into a delta by
the accumulation of such matter.

Most large rivers, as already observed, admit of this
division of the current, into an upper, middle, and lower course; but the exceptions are far from being
rare. It sometimes happens that the characteristic fea-
tures by which the middle course is distinguished, occur in
the upper course. This takes place when a river originates on
some large snow-covered lake, and the direction of its
course is very oblique to the surface of the lake. Thus the Indus, the Sutlej, an affluent of the Indus, and
the Sampo, rise on the elevated table-land of Tibet, and drain a portion of it: in this part of their course they resemble the middle course of the Ganges. But when they enter into the mountain-region of the Himalaya, they resemble the mountain-streams of the
Alps, except as to the volume of water. When the Indus and the Sutlej have descended into the plains of the Panjab, they pass through a vast alluvial plain of Bengal. There are
other rivers, in which only the characteristic features of the middle course can be recognised: the number of
such is considerable, and some of them are of the first mag-
nitude. Thus the Volga and the Mississippi, neither of
which rises in a mountain-region, but in a hilly tract, in the
greater part of their course present the characteristics of the
middle course. They flow in England among towns with 12° or 17° mouth, whose course is partly through a low plain. There are also
erivers which in their whole course traverse a mountain-
region, but they are all small; such are some of the rivers in
North Scotland and in Sweden, and nearly all the rivers of
Norway, and those on the west coast of South America.

The number of rivers which do not reach the ocean is
not great, if we except those which fall into the Caspian
Sea and into the lake of Aral. The other rivers without
an outlet always terminate their course in a lake. It was
formerly supposed that the water of some of them was ab-
sorbed by a dry soil, and that they were lost in the sand;
and this opinion still prevails as to some rivers which
descend from Mount Atlas southward to the Saharan. But
as none of these rivers have been scientifically studied
on this point, we cannot be very doubtful. Among other rivers which have no communication with the sea, some few traverse elevated table-lands, consisting of plains surrounded by continuous mountain-ranges, through which the waters cannot find an exit. Among these the plains of the Delta of the Nile, and the plains, and form lakes large enough to part with all
their surplus water by evaporation. Such rivers occur in
the valley of Tenochtitlán in Mexico. The most remarkable
is the Desaguadero, in the valley of Titicaca in Bolivia, which
flows through a basin about 30 miles in diameter, and
support it.

The Yurkan or Yerkan, in Chinese Turkestan,
is still larger, but its character is imperfectly known. An-
other kind of such lakes occurs in the plains of Mexico and
of South America, and almost exclusively in those parts
where the rain or very little. On the table-land of

Mexico the greater number of rivers between 24° and 30°
N. lat. terminate in lakes; and in the states which compose the
Argentine Republic, rivers of this kind are seen between
28° and 34° S. lat., west of 64° W. long. As very
little rain falls in some of these countries, and in others
none at all, the rivers are supplied with water by the rains
which fall at certain seasons of the year. The river is itself
originated, and by the springs which exist there. But as the
supply of water is very moderate, it does not give force
currents to the currents to carry them through those
extensive tracts which separate them from the sea. It is
not possible that these rivers can be salt; and it is
therefore probable that this is the case also with most of those on
the Mexican isthmus.

Most rivers overflow the low countries which are adjacent
to their banks, either at regular seasons of the year or oc-
casionally. This takes place when the supply of water is
greater than the bed of the river can contain. In this
respect rivers may be divided into three classes: the first
comprehends those whose inundations are produced by
the melting of snow and ice; and the second comprehends
those which are annually swollen by regular rains; and the
third those which only occasionally cause inundations.
All large rivers that drain countries of which the mean
winter temperature is below 30°, are subject to these
great risings when the snow and ice melt. In such coun-
tries snow falls for several months, and as only a small part of
it is dissolved, it accumulates to a great amount. As soon
as the frost ceases, the snow begins to melt, and runs off by
successive and sudden waves, without the intervention of
the usual supply of water to the principal river, whose volume
being thus increased to three or four times its ordinary
magnitude, overflows the adjacent low country. These in-
undations, though they generally impress the mind, are very
injurious to agriculture, They destroy the crops grown on
this large alluvial deposit and covering extensive tracts with
sand, gravel, and other coarse earthy matter. Embankments are usually made
to prevent these inundations, but after a very long winter,
when the river is rising, the embankments are usually
overflown, and the injuries of the inundations are increased by the mass of earthy ma-
terials of which the embankments consist, and which are
dispersed over the adjacent lands. In some rivers these
inundations last only from two to four months; in others
for two or three months; and in some even five or six months.
Where the inundations are long, they are less violent, and
cause less damage than when they are short; in the latter
case the whole mass of the inundation is usually flushed out,
and the embankments are often destroyed, and the injurious effects
of the inundations are increased by the mass of earthy ma-
terials of which the embankments consist, and which are
dispersed over the adjacent lands. In some rivers these
inundations last only from two to four months; in others
for two or three months; and in some even five or six months.
are generally most extensive, is much greater, and the inundations are much more extensive and attended with more mishap. But still they cannot be compared with the inundations of those rivers which run from east to west, or from west to east. In countries which are drained by such rivers, the whole mass of snow is dissolved in a few days, and the ice which is accumulated by rain, and all the waters thus produced pass through the principal channel in the course of a week or two. In such rivers the volume of water during the inundations is three or four times larger than it is in the middle of the spring, or the beginning of such a season, and the great distance of the lowlands, frequently cause great loss of property, and sometimes also of life, especially when the winter has been unusually long and the falls of snow very heavy. [Niem.] But the river St. Lawrence forms an exception here also. As its general course is from west to east, one would suppose that a large extent of country within its basin would be actually subject to inundation, but this does not appear to be the case in any part of its course. If any portion of it is swollen by the melting of the snow within the basin, the river must also one of the lakes through which its course lies, and thus the addition of a comparatively small volume is not sufficient to raise the surface of the lake to any large amount. Thus the same cause which prevents its filling up the wide seas, prevents the river from overflowing the adjacent country.

Rivers whose inundations are produced by regular rains have the greater part of their course either within the tropics or at least between 30° N. lat. and 30° S. lat. It is a known fact that heavy rains are daily from six to eight months in the year. These heavy rains commence when the sun in its progress from one tropic to the other approaches the zenith of a country, and they continue till it has passed a certain distance from it. In the beginning of each season, and this part of the year is called the rainy season, the rains are so heavy that the course of a day the level country is covered with water, a foot deep. The rivers of course soon begin to increase in their volume of water, and after some time they rise to the tops of the banks, and begin to run over. These inundations generally last from two to four months. They are more regular than those which are produced by the melting of the snow, and in general do not exceed a certain height. The rural economy of those countries in which they take place, is founded on the knowledge of this periodical event, and on the certainty that the inundations will fertilize the fields by depositing on them a fine mud, which enriches the soil more than the best manure. Whenever the inundations do not occur, or occur only of a much less height, which is sometimes the case in a great part of the country which is not covered with water, the yield of crops is little or nothing, and the consequence is death and famine. When, on the other hand, the inundations rise higher than usual, they are also injurious to rural economy, by destroying the crops which are necessary for the consumption of plants, which cannot bear so much moisture as the districts that are regularly flooded. Thus, in 1831, the river Menam in Siam rose to an extraordinary height: the inundations reached the large orchards which for many miles in extent cover the more elevated tracts along the banks, and afford subsistence to a numerous population. Several kinds of fruit-trees were almost destroyed, and for some years the mangustins and durians were scarce.

All the rivers between the tropics which are swollen by perennial rains, lie only in one hemisphere, the northern or the southern. In the countries through which they flow the waters are low and the ground dry, during part of the year, and the cultivation of land and agriculture of the fields are fertilized by the inundations. The Amazonas alone is an exception. Though the course of this river is in the southern hemisphere, it affluents extend far to the north, and it has affluents into both hemispheres, and probably three-fourths of the tributaries which find their way to that large river. To this circumstance are owing its immense volume of water and its great depth. The Amazonas, properly speaking, is never at its lowest level, in which it flows, but always in that in which the rivers. When the northern rivers cease to bring down the supply which is owing to the perennial rains, the southern begin to bring their contributions. This fact seems sufficiently to explain the immense tracts of alluvial soil which extend along the river to a great distance, but the same circumstance also keeps the soil in a state of continual moisture, and in the is favorable to the growth of the vegetation. Accordingly we find that the banks of that river, which admits of a more extensive navigation than any other river in the world, remains nearly destitute of agricultural settlements, and are still in possession of savage tribes.

The rivers which flow through countries between 30° N. latitude and those in which the mean temperature of the winter season does not rise above 30° are subject to occasional inundations. But these overflowing do not occur only in those rivers whose upper course lies within mountain-ranges, which are subject to great rains and great discharges, but also to those of which the valleys rise and fall as the level of the sea, and in which the water is more or less stagnant, and the capacity of the river is increased by the overflowing of the banks. In such cases, when the snow covers the mountains, the rivers rise and fall with great force. Such inundations are very sudden, and sometimes also extensive, but they are of short duration.

In advertising to the advantages which a country derives from its rivers, we must first observe that the water is extensively used for the purposes of domestic economy. It is much purer than that of wells; for, with the exception of a few which are salt or brackish, river water contains only earthy particles in suspension, which may easily be separated by the process of distillation. The water of many of these rivers is so pure that when it is left to stand for a short time the water of wells generally contains a small quantity of some minerals in chemical combination. The water of rivers is nearly equal to rain water for all domestic purposes. Rivers accordingly constitute the principal resources of the consumption of water of the New River [Middleton, Hugh], which supplies a large part of London, and the Schuykill, which supplies Philadelphia. Many rivers also supply abundance of fish. The upper course of rivers, which take their rise in mountains, are inhabited by small numbers of species of fish, and the whole amount is not great. But towards their mouths the number both of species and individuals increases. The importance of a river fisheries may be estimated when we consider the quantity of salt and fresh water fish which are caught in the neighbourhood of Astrakhan. Many rivers, which are not adapted to the purposes of navigation, are converted into powerful instruments for assuring the industry of a country by the moving-power which they supply. They support the navigation of vessels in the advantage of such a natural moving-power, primarily determines the seat of manufactures, as was the case in South Lancashire, where this advantage is combined with abundance of coal. The Atlantic States of North America are generally provided with abundance of streams, a circumstance which favours the establishment of manufactures.

The greatest advantages which a country derives from its rivers are the facilities which they supply for carrying the produce of agriculture and of manufacturing industries to the greatest parts at as low cost as possible. To respect the rivers may be compared to the arteries and veins of the human body, which diffuse life and strength through all parts. Navigable rivers supply, maintain, and excite the commerce of all countries, and in proportion as the rivers are neglected, it is estimated that the transport of goods by land is four times as expensive as by means of navigable rivers, and thus many heavy and bulky commodities could not be brought to market but for the cheap conveyance of the goods. And upon some rivers, the exceedingly frequent navigation, two circumstances mainly require notice—how far seafaring vessels may ascend, and how far the river is navigable for river boats.

Seafaring vessels can ascend many rivers as far as the tide ascends; but when this limit is applied to rivers, as the Amazons, may be navigated by large vessels to a much greater distance than the tide ascends, but in others the waters below long before the limit of tide water may be navigable for small vessels. In such case the navigation of rivers, not only by
producing a current contrary to that of the river, but also
by temporarily increasing the depth of water so that vessels
can pass over shallows and sandbanks, which at low tides
are nearly or quite dry. This is frequently the case in
rivers where the tides rise more than 12 feet. The tides
in rivers are not of equal duration, as is the case in most
parts of the sea, but they last six hours and a half, or about
as long as the flowing tides. At Rotterdam the tides flow
for about 4 hours and 5 minutes, but the ebb lasts 7 hours
and 35 minutes. The Meerweide at Dordrecht flows against
the current of the river for about five minutes, and
returns for about 6 hours and 9 minutes. This difference is easily explained,
when the force of the river current is taken into account.
The same circumstance explains the difference in the ve-
locity of the ebbing and flowing tide. Between the North
Sea and Hamburg, the flowing tide takes 5 minutes to run
up a mile, but the ebb tide performs the same distance
in less than four minutes. But it is difficult to explain
the well-established fact that the tides advance much far-
ther into a river than might be expected. When the tide
at the mouth of a river rises four feet, we might suppose
that it would advance only to such a point in the river, where
the surface is four feet above the sea, but it has been ascer-
tained that it advances farther. It seems that the volume
of water which is carried up by the tide is pulled on by
the stronger current of water at a greater distance than the
inclination of the river bed would seem to allow. It
has also been observed, that during the flowing of the tide the surface
of the water in the river presents a somewhat convex
form; and the banks or sandbanks in the middle of the river, and that during the ebb the con-
brary takes place. The flowing tide raises the water from
below, and thus sooner affects the main body of the river,
where it has more room to operate, than the water near the
margin of the river in narrow places. In narrow places it is navigable for a longer time than
that the flowing tide is perceptible in the middle, while it is
still ebbing along the banks, and that vessels which are at
anchor near the banks are turned round before the water
on the surface of the river near the banks begins to flow
upstream.

In a few rivers the tide ascends to a great distance from
the sea. In the Amazonas it is perceptible in the Narrow
of Pauxis near Oyebos, a distance of nearly 500 miles from
the mouth of the river, measured along its course. If we suppose that the tide in this river advances at the same
rate as it runs in the Elbe between the North Sea and
Hamburg, namely, nearly a mile in five minutes, the tide
can only reach the Narrow of Pauxis in 42 hours, or in a
speed of 160 miles a day. This has been observed, that the tide
changed seven times at its mouth. It is therefore evident
that the current of the Amazonas between the sea and the
Narrow of Pauxis must, at the same time, in three or four
different parts of its course, follow the impulse given to it
by the sea, which is a very strong one, and that however that the tide in the Amazonas advances more slowly
than in the Elbe, owing to the stronger current of the
Amazonas, and that the number of high tides in the Amazonas,
between the two above-mentioned points, will
probably be found to be five or six. The tide rushes into
some rivers with great impetuosity, and produces what is
called a bore. [Boar.]

Human ingenuity, even in the lowest state of civilization,
has perceived the use of canoes as means of conveyance.
People use all rivers which have water enough to carry
the smallest boats of any shape or form are navigated, except
where the nature of the current opposes insurmountable ob-
stacles. These obstacles consist of cataracts or of rapids.
When it is found that their value is such, a bridge is
erected perpendicularly, it rushes down in a broken sheet
of water, and is said to form a cataract. When the water de-
scends with great velocity over an inclined plane of rock,
it is said to form a rapid. A cataract may be descended
when the waters are high, and ascend when the waters are
low; and descended in most cases with great labour and some-
danger, when they are not very long, and the bed of the river
is free from projecting rocks, which however is rarely the case.
The ascent of rapids is effected either by poling or by
drawing the boat over the tides by means of long ropes.
Sometimes ropes are also used in the descent, as
in the Rhine at Luzenberg in Switzerland. But gen-
ernally either the whole cargo or part of it must be taken
out of the boat, and carried a certain distance by land.
Such a track, over which goods must be carried, is called a
portage. At long and dangerous rapids, the boats them-
sele must be carried or dragged over land.

River boats offer greatly in shape and construction, being
always adapted to the nature of each river. Most rivers
contain numerous shoals, on which the water is very shallow,
and accordingly flat-bottomed boats are used, like the coal-
boats which can only be used where there is a depth of a few
feet, and is free from shoals and sand-banks. When a river is shallow and rapid, but of con-
siderable width, rafts are substituted for boats. Rafts gene-

erally consist of large logs, fastened together with ropes or the
flexible branches of trees. In warm climates, where there are
no trees or plants; goods are placed upon the raft. When these rafts
with their cargoes have arrived at their place of destination,
the raft itself is sold, either as timber or as fire-wood, ac-
cording to its dimensions and quality; and the cargo returned
by land. When a river is too full of cataracts and rapids to
allow either boats or rafts to descend, it may still be used for
floating down timber or fire-wood. The trunks of trees,
after being deprived of their branches, are thrown singly
into the current, and towards the mouth the chains are laid
across the river, above which the trunks collect, and whence
they are carried to their destination. This is frequently
done in the rivers of the southern districts of Norway.

Rivers which traverse mountain-regions in some parts
of their course, such as the Ganges, and some of the rivers
in some places. Thus the Amazonas and Ganges, where they
respectively flow within the ranges of the Andes and
Himalaya Mountains, are not navigable, but the Rhine and
the Danube are navigable even within the mountains, in some
parts for a considerable distance, and the whole system of
internal navigation is presented by those rivers which have a long course, and whose sources are situated
at a comparatively small elevation above the sea. The
Mississippi up to the Falls of St. Anthony, a distance
of about 1800 miles, measured along the river. Both these
rivers, as already observed, have the greater part of their
course between hills of small elevation, and they do not
treach a mountain-region.

The rivers of England supply the means of an extensive
system of inland navigation, a circumstance partly due to
their small fall, their sources being only a few hundred
tent higher than their mouth, and partly to the abundant
supply of water from rain, snow, and moisture. If two rivulets unite, they generally form a small navigable
river; and such as are not navigable, become useful as
feeders to canals. The navigation of most of the rivers of
England has been greatly improved by means of locks for
raising and descending the channels.

The Thames is navigable for large sea-vessels to London
Bridge, a distance of 45 miles from the Nore, though the
entire course of the river, measured along its windings,
hardly exceeds 200 miles. No river in the world, perhaps
not even the Mississippi, is so well adapted to navigation
as the Thames, in respect of its dimensions for one-fourth of its course. This circumstance is not due solely to the height of the tides, which is about 19 feet at London Bridge, but mainly to the fact that there are
no sand-banks at its mouth which prevent the access of
large vessels. The river probably brings down sufficient earthy
matter to form a bar, but owing to the direction of the tide,
which is kept off from the mouth of the river by the pro-
jecting coast of Kent between the two Forlands, and there
being consequently no points to oppose the current of
the river at its mouth, the earthy matter is carried farther
from the coast, and deposited in deep water.

The advantages hitherto enumerated are common to rivers in
all parts of the globe, but there are some countries in
deep seated within the tropics, where the sea is much increased by the
heat, and from which is made of the water for irrigation. This occurs in those
countries in which it either does not rain at all, or in which
rain occurs only at a certain period of the year, and even then
only for two or three months. The first class of such coun-
tries comprises those, for instance, which extend the greatest
distances between 50° and 28° S. lat., would be uninhabitable but for the
rivers which descend from the western declivity of the
Andes, and in their course to the sea have furrowed the sur-
face with deep depressions or vast, and large
canalized, which is carried on by means of canals as far as the water
of the river can be dispersed over the level part of the valleys by
small canals. In those warmer climates where the rains oc-
cur periodically, though only in two or three months of the
year, the fields would certainly produce a crop, even without
irrigation; but for more than half the year the soil would
produce nothing for want of water. By using the water of the rivers for irrigating their lands, the inhabitants of those countries are enabled to get two and in many cases three crops annually. Even in the most arid countries of both hemispheres, where rain is very scarce in summer, and not sufficient to maintain vegetation, whilst the heat is excessive, irrigation is practised, and two crops of Indian corn are thus annually obtained, one of wheat and one of cotton. 

In those countries in which the temperature for three or four months is under the freezing-point, the rivers during that time are covered with ice, and in this state they afford to the inhabitants, in some degree, the advantages which other rivers give to those nations. Travelling by ice, the transport of goods on the smooth ice of the rivers are much less expensive, and are performed in a shorter time than in summer in the ordinary way. This is the case on some of the rivers of New Brunswick and Lower Canada.

It has been observed that the outer borders of river-basins are the most elevated parts which occur in some given places between their respective beds, though it is not always the case that the watershed is formed by mountain-ridges. Owing to such a disposition of the surface, the waters which are collected on or near the borders, run to one or the other of the two rivers. Up to the commencement of this century it was thought improbable, if not impossible, that the two systems of rivers here could be united by a natural water communication. But it is now ascertained that a low tract of country or a deep depression of the surface may occur, by which a portion of the water of a river, after being diverted from its own channel, may join a river which is at some distance and is not connected with that river from which the water branches off. The instances in which this occurs are very few, and we shall therefore enumerate those whose existence is beyond all doubt. The river Arno in Tuscany, in that part where it runs between the high ridges of the Apennines and the approach of the Apennine, sends an arm southwards through a narrow valley, under the name of Chiana, which falls into the Chiaie, an affluent of the Tiber. The Chiana had been filled up with sand, but its course has now again been opened up, and it is navigable. Another example is in the kingdom of Hanover, where the river Haase divides into two branches, of which one, running west to Osnabrück, preserves its name, and after a course of many miles joins the Elbe; the other, running east under the name of Elbe, falls after a short course into the Werre, an affluent of the Weser. In Sweden, two large rivers fall into the northern extremity of the Gulf of Bothnia, the Tornea Elbf and the Calix Elf. About 100 miles from the sea, the last-mentioned river takes an arm to the north, which after a course of about twelve or fifteen miles falls into the Tornea Elf: this arm is called Tarenda Elf. In those cases the river thus united by a natural water communication flows in the direction of the main valley of the two, and is called by the name of that valley, and is navigable. Two large rivers, the Orinoco and the Amazonas, are united in this way in a part of their extensive courses, where the Orinoco runs west and the Amazonas east. The branch of the Orinoco by which this natural water communication is effected, is called Casiquiare. [CASSIQUEARE]

It is a kind of established rule that the whole course of a river should bear the same name, and that this name should be continued to that branch whose sources are farthest from the mouth. But practice is very variable. Some rivers are divided at the mouth, and its branches are so called. The inhabitants of a country preserve the name of that river which does not undergo any deflection of its course. At the confluence of the Mississippi and the Missouri, the latter is the larger river, and has had a course of about 1000 miles more than the former, but it does not deflect the course of the Mississippi by its junction, and the name of the last-mentioned river is preserved. The same occurs in South America as to the Amazonas and Madeira, where we find the Madeira branched, but the branch does not deflect the course of its course to meet the Amazonas, whose name is preserved. In Europe, the Rhine is joined by the Aar in Switzerland, above Laufemburg. The Aar is the larger river and brings down a greater volume of water, but the Rhine, where it is joined by it, continues its westerly course, and its name is preserved.

The extent of a few river basins is here given in round numbers, but they must only be considered as rough approximations:

<table>
<thead>
<tr>
<th>River</th>
<th>Square Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thames</td>
<td>250,000</td>
</tr>
<tr>
<td>Rhine</td>
<td>89,000</td>
</tr>
<tr>
<td>Euphrates, including the Tigris</td>
<td>243,000</td>
</tr>
<tr>
<td>Brahmaputra</td>
<td>270,000</td>
</tr>
<tr>
<td>Danube</td>
<td>312,500</td>
</tr>
<tr>
<td>Indus</td>
<td>410,000</td>
</tr>
<tr>
<td>Ganges</td>
<td>483,000</td>
</tr>
<tr>
<td>Volga</td>
<td>653,000</td>
</tr>
<tr>
<td>Nile</td>
<td>707,500</td>
</tr>
<tr>
<td>Yang-tse-kiang</td>
<td>742,000</td>
</tr>
<tr>
<td>Mississippi</td>
<td>1,100,000</td>
</tr>
<tr>
<td>Plata</td>
<td>1,560,000</td>
</tr>
<tr>
<td>Amazonas</td>
<td>1,920,000</td>
</tr>
</tbody>
</table>

RIVESALTES. [PYRENEES ORIENTALES.]

RIVIERA, a name given by the Italians to certain long narrow strips of land extending between mountains and the sea. The most familiar instance is that of the Riviera of Genoa, which is divided into Riviera di Levante, or Eastern Riviera, which extends from the city of Genoa to the Gulf of La Spezia, and Riviera di Ponente, or Western Riviera, which extends from Genoa to Nizza. The Western Riviera is the more fertile and populous; but in the Eastern Riviera, which is generally more rugged and barren, there are some delightful spots, especially about Nervi, Rapallo, and Chiavari, sheltered by the mountains from the north winds, and where the orange, lemon, and other southern plants derive in the open air. [SARDINIAN STATES] There is also a tract along the western shore of the lake of Garda which is called Riviera di Salò, from the town of that name. [GARDA LAKE OF]

RIVIGNO, a small post town, a town situated about ten miles west of Turin, on the road to Mont Cenis. A wide and straight avenue, lined with fine elm-trees, leads from Rivoli to the capital, through a rich plain irrigated by canals. Rivoli has 5000 inhabitants, and a royal palace situated upon a height.

There is another small town or village called Rivoli in the province of Verona, situated at the southern entrance of a defile through which the Adige coming from the Tyrol makes its way into the plain of Lombardy. Rivoli is on the right bank of the river, but not on the bank of the Adige, but on a part of the bank of a little river called Monte Bello, which extends between the river and the lake of Garda. A hard-fought battle took place at Rivoli between the French under Bonaparte and the Austrians under General Alvinzi, on the 4th of January, 1797. The village was several times taken and re-taken by the two armies.

At last General Massena, coming up with his division, carried the day, and Alvinzi was obliged to retire with great loss. Massena obtained afterwards, under the empire, the title of Duke of Rivoli.

RIZZIO. [MARY STUART, VOL. IV., p. 477.]

ROACH. [LUCIUSCUS.] 

ROAD. Under this head it is proposed to embrace road-making, with a brief sketch of the history of roads, referring for more detailed statistical information to the statistical and historical works. The importance attached to roads by the great nations of antiquity is abundantly testified by historians, though, except in the case of the Roman roads, there are few remains existing. The Carthaginians are said to have been the inventors of paved roads, which were much used by the Romans, who were made use of by the vast extent of road and construction of their highways, of which several thousand miles were made in Italy alone, while every country which was brought under their sway was more or less intersected by these channels of communication. Though formed mainly to facilitate military movements, the Roman roads were more productive of the greatest civil benefits. Being made by a power whose resources were almost unlimited, these military roads were usually laid out in straight lines from one station to another without regard to natural obstacles, which were frequently passed by means of very extensive works, as excavations, bridges, and, in some instances, tunnels of considerable length. The solidity of their construction was full of importance to the people of the time. A fact proved by the existence of many that have borne the weight of more than two thousand years without material injury. The Roman an老人家 were very particular in securing the bottom, which was done when necessary by rami ground with small stones, fragments of brick, and care—
fully prepared foundation pavement of large stones was fixed in case; the stones were generally squared, but more commonly of irregular shapes, though always accurately fitted to each other. For this purpose many varieties of stone were used, but the preference seems to have been given to Basalt, where it could be had, it being used in Campanian roads. It is still in existence. The strength of their pavements is illustrated by a fact, related by a modern traveller, who states that the substratum of one stone in use has been so completely washed away by a current of water without the surface being at all disturbed, that a man may creep under the road from side to side, and carriages pass over the pavement as over a bridge. The Roman roads were generally raised above the ordinary surface of the ground, and frequently had two carriage tracks separated by a raised path in the centre.

In some parts of the continent of Europe, especially in Italy, the Roman system of road-making has beenimitated, particularly in city pavements; but in Britain the attempts to follow the Roman model appear to have been very feeble. The materials were generally practised till within a few years. Many of the existing highways were originally mere paths or tracks from place to place, their course having been determined more by accidental circumstances than by any previous system. The deviations were made from the direct course in order to cross rivers at fordsable points, and the road was conducted over a hill in preference to a more level course round its base, to take advantage of natural elevation. In the provinces road-making was well established in the systems of construction and repair, and the direction and levels have been frequently left unaltered, to avoid the temporary inconvenience and expense attending a deviation from the established course. The scanty information we possess of the state of roads in early times, and the state of roads, it was that it was very bad; and after the introduction of turnpikes, and even down to the commencement of the present century, the greater part of the roads were, owing to injudicious modes of construction and repair, in a state very unfit for traffic.

The inefficiency of the system of construction and maintenance by parish and statute labour was proved before the passing of the first Turnpike Act in 1653; yet the necessity of improvement, and a better and more extensive length of level roads, with the abandonment of tolls, did not lead to the extensive adoption of the turnpike system for about a century after that time. In the latter half of the last century turnpike-roads multiplied rapidly, and superior principles of construction also made some progress.

During the last forty years the attention of government has been repeatedly directed to the importance of this class of public works, and the Highland and Holyhead roads, formed by Telford and others, have done much in improving and extending the science of road-making. The Highland roads alluded to were made under the commission of 1803, and originated in the military roads formed in consequence of the rebellions of 1715 and 1745, which had been found very beneficial to the districts to which they afforded the means of access. The roads made and improved under the management of the Highland-Road Commissioners extend to more than 900 miles, the whole being in a mountainous district, but so well laid out that their inclinations are always easy to ascend. The works executed in the formation of these roads are very extensive, and comprise upwards of 1100 bridges. The Holyhead road improvements were commenced in 1815, and in these Telford and his able assistants had the opportunity of carrying into effect, under the government of road-making suitable to a great traffic, on principles generally considered to be nearly perfect. The principles on which these important works have been executed are very fully detailed by Sir Edward Telford in his "Treatise on Roads," to which work the writer of this article is indebted for much of the following information. The name of Mr. Adam must not be passed over without notice in this place, as his exertions have done much towards attracting public attention to the improvement of roads, even where his peculiar principles have not been acted upon.

Though much remains to be accomplished, and the philosophy of road-making is yet very imperfectly understood by a large proportion of those to whom it is a subject of business, no one can be committed, it is impossible to compare the past and present state of roads without feeling grateful for their improvement, and observing in how great a degree that improvement has been beneficial to the agricultural, commercial, and moral interests of the community.

Designing a Line of Road; Earth-works, &c.—Though formerly little attended to, the design of a line of road is a subject which requires extensive knowledge and mature consideration. It is evident that the quality of the line depends upon many factors, and the best way of determining the line, in order to the selection of that which, on careful comparison, appears to have the preponderance of desirable qualities. To be theoretically perfect, a road should combine the qualities of straightness and level, and its surface should be smooth and hard; and the best road, practically, will be that which makes the best compromise between unavoidable deviations from this theoretical perfection. It may be observed however that although some writers speak of the absolute perfection of each of these qualities as essential to the idea of a good road, it may be questioned whether it is desirable of any, excepting the first. Of these qualities the two first belong to the design or laying out of the line, and the last two to the execution of the road itself.

The qualities of straightness and level, or the line of direction and line of draught, should be very carefully adjusted to each other. Some remarks on this subject will be found in the article RAILWAY, p. 250, which apply equally to the laying out of roads. The right line, and the proportionate retardation due to a given ascent is very different, owing to the great comparative resistance of a common road. Among the circumstances that may authorise a deviation from the right line, are the desire of obtaining suitable materials for the road, avoiding valuable property or difficult ground, and including towns or villages in the route.

It seems to be a prevailing opinion with modern engineers, that the line of direction has not generally been attended to subordinate as it should be to the line of draught; and it will be well to remember, in laying out a new road, that while the effect of gravity must ever remain the same, the resistance occasioned by imperfections in the road and carriages will be reduced by every successively improving in their construction; thereby increasing the proportionate effect of gravity, and making the line of direction still more subordinate to that of draught, or, in other words, increasing those lines that may be traversed at the same expenditure of power as would raise the load up a given elevation. Curves: the resistance to the motion of carriages, and add to the risk of accident; but if slight, they increase the length of the road much less than might be supposed. Edgeworth, in his "Essay on the Construction of Roads and Carriages," says, "A road ten miles long, and perfectly straight, can scarcely be found anywhere; but if such a road could be found, it would prevent the eye from seeing farther than a quarter of a mile of it, in any one place, the whole road would not be lengthened more than one hundred and fifty yards."

The principle explained in p. 330 of the article RAILWAY, so arranging the inclinations on each side of the summit, or highest point unavoidably passed over, that there may be no unnecessary rise and fall, is equally deserving of attention in the design of a common road, although it has been much neglected. The following statement respecting an old road in the Isle of Anglesey, which was altered by Telford, shows how very much a road may be improved by judicious alterations; not only by shortening the line and lowering the summits, but also by diminishing the minor undulations:—

<table>
<thead>
<tr>
<th>Summit above</th>
<th>Total rise</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>high water</td>
<td>339 feet</td>
<td>3,540 feet</td>
</tr>
<tr>
<td>and fall</td>
<td>193</td>
<td>2,257</td>
</tr>
<tr>
<td>Difference</td>
<td>146 feet</td>
<td>1,283 feet</td>
</tr>
</tbody>
</table>

However desirable a perfect level may be in the theory of a road with moderate inclinations, as of 1 in 100, is found to be in practice, because without such a slope it is difficult to get rid of water fast enough, unless the road be
raised a few feet above the surrounding land, and thereby exposed to the free action of sun and wind. Slight undulations are also considered, by most authors, to be desirable in all cases where animal power is employed; frequent changes in the amount of labor being considered favourable to the horse. On this principle it is recommended that where an undulating road is reduced to a uniform gradient, occasional levels should be introduced to ease the draught. Any inclination exceeding the angle of repose, or that beyond which the carriage would roll, occasions a loss of power; but all below it are attended with a compensating effect when the traffic in both directions is taken into account; the advantage gained by descending carriages being equal to the additional expenditure of toil required in the ascending ones. The angle has been fixed by Lardner to be about 1 in 40, with a good carriage on a broken stone road of the best quality; but the inclination allowed on the Holyhead road is 1 in 35, a slope which may be ascended at a good rate of speed, and descended at twelve miles an hour without risk. A steeper slope not only occasions much additional resistance in the ascent, but, by rendering it unsafe to drive down at full speed, causes a loss of time in the descent also. Modern engineers consider it unavoidable in any case, and an inclination of 1 in 45 is not rarely found where there are hills at least twice as steep on some turnpike roads. The following table shows the effect of various inclinations in increasing the draught of a stage-coach at different velocities on the same road of description, as indicated by a dynamometer constructed by Mr. Macnutt for experiments on the draught of carriages:

<table>
<thead>
<tr>
<th>Inclination</th>
<th>6 m. per hour</th>
<th>8 m. per hour</th>
<th>10 m. per hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 in 20</td>
<td>268 lbs.</td>
<td>296 lbs.</td>
<td>318 lbs.</td>
</tr>
<tr>
<td>1 in 25</td>
<td>213 lbs.</td>
<td>249 lbs.</td>
<td>283 lbs.</td>
</tr>
<tr>
<td>1 in 30</td>
<td>185 lbs.</td>
<td>216 lbs.</td>
<td>250 lbs.</td>
</tr>
<tr>
<td>1 in 40</td>
<td>160 lbs.</td>
<td>186 lbs.</td>
<td>212 lbs.</td>
</tr>
<tr>
<td>1 in 60</td>
<td>111 lbs.</td>
<td>120 lbs.</td>
<td>128 lbs.</td>
</tr>
</tbody>
</table>

It should always be borne in mind that the occurrence of one steep hill on a line of road affects the working of the whole line, as the number of horses required for ascending it must be used, although a portion of their power may be unnecessary on the greater part of the descent. The inconvenience of a steep inclination may be diminished by laying a stone tramway for the use of ascending vehicles; a measure which has been adopted with success on the Holyhead road, where, on a slope of about 1 in 30, the power required to maintain them has been reduced by this means from 294 lbs. to 132 lbs.

In arranging the works necessary for obtaining the required level, the preference should be given to embankments; and, wherever it is practicable, the bed of the road should be made two feet above the level of the ground, to ensure sufficient drainage. Tunnels are very rarely introduced on common roads, being very costly, and, when of considerable length, inconvenient from their darkness. When the road is so exposed that the side-slopes should never be steeper than two horizontal to one vertical, and it is desirable to have those on the south side three to one; because, though many materials will stand at steeper inclinations, it is essential to the preservation of the road, and the comfort of horses travelling upon it, that the sun and air should have free access to its surface. Where stone can be readily procured, the erection of walls at the bottom of the slopes gives a neat and finished appearance to the road, and prevents earth, which may be loosened from the sides, from falling upon the carriage道路. The use of embankments on the Arche Brook Road affords a good example of the great difficulties that occasionally attend a deep excavation, owing to the accumulation of water; the remedy for which is described hereafter. Where embankments are required, strong forcings should be employed to prevent the appearance of accidents. Some of the roads formed by Telford are conducted across deep valleys by bridges or viaducts of great magnitude, in order to maintain the desired level without the inconvenience and expense of large earth embankments.

In old roads the bridges erected for the passage of rivers are frequently made much smaller than is advisable, so that

*This useful instrument, which its ingenious inventor denominates a Road Inducer, is mounted on a light platform, and is fixed on every ten or twenty yards, paves out the disturbance, and the rates of vehicles are kept in continual practice, the improvement of the road. A full description of it is given in Parry's "Treatise on Roads."

the level of the road is made too low, and the water is impeded by the contracted arches to such a degree as to occasion much damage during floods. Modern engineers, by adopting bolder dimensions for the bridges, and forming raised approaches, avoid these inconveniences, and secure their roads from the risk of obstruction by floods. The raising of the road wherever it passes through marshy or low land is a very necessary measure. Many old roads still in use are sunk several feet below the surface of the country by they were originally extended to the destructive action of water, and the materials thus softened have been ground into mud and cleared away, until, b. the repetition of these operations, the roads have been converted from a cause of travel to a hindrance to it in winter. Of the extent to which this process has been occasionally suffered to go on, an idea may be formed from the following statement of Edgeworth, that 'the stag, the hounds, and the horsemen have been known to leap over a loaded wagon in a hollow way, without any obstruction from the vehicle.'

In conducting a road through a mountainous district, it is necessary to numerous bridges for the purpose of crossing ravines for which purpose suspension bridges have been introduced into the mountainous districts of Scotland, and designed by the engineers in the service of the Duke of Edinburgh in London; and others, the boldness of which commands universal admiration. When the slope of a precipice is so steep, the road embankments may be formed by building a wall thirty feet high, based on steps cut into the rock, and cutting into the rock to the depth of ten feet on a level with the top of the wall, the sperrings being made and the surface levelled in with earth or stone. By this means a platform twenty-five feet wide is obtained. Many works of this character have been executed by Telford and other engineers, in various parts of Scotland, in the Highland roads, and the roads formed by the communication between Edinburgh and London; and others, the boldness of which commands universal admiration, occur in the great mountain-passes of the Simpion and Mont Cenis, which form imperishable monuments of the talent and energy of the engineers of Scotland, by whom they were executed.

When the works are completed to the proper level for receiving the hard materials that form the surface of the road, the earth should be formed into the intended width and a nearly level surface, the footpath or paths being formed slightly higher, the retouched few inches above the road. Thirty feet is the ordinary width of the carriage-way, exclusive of footpaths, of the Holyhead road; but owing to the diminution of traffic since the opening of the London and Birmingham railway, a recent Report suggested the propriety of reducing this to twenty-five feet wide, leaving only twenty-five feet. This width may be more or less exceeded in the vicinity of large towns, according to the amount of traffic, but should be exactly adhered to in other situations, as there the carriage-way occupies the greater part of the appearance of a road, and also contributes to economy, both to the land and materials, and the cost of maintenance.

Some engineers recommend that the bed should be made convex, in the same degree as the finished surface of the road; but it is quite flat in the Holyhead road, by which means a greater depth of materials is allowed in the centre than at the sides of the road. Much has been said on the subject of the best form for the transverse section of a road. Formerly it was common to make it very convex, the sides of the road being vertical or nearly so, and the outer edge of the surface being of the same height as the road. The advantage of this is that it allows of throwing off water; but this notion is very fallacious, because if a road be allowed to wear into ruts, no degree of convexity that can be given is sufficient to keep it dry; while, if the surface be good, a very moderate slope in the contrary direction can prevent the escape of water from the road, and cause it to run with such velocity as to wear away the road materials. Another disadvantage of too great an inclination is, that, by throwing the weight of a carriage on the outside of the vehicle itself, the wheel of the carriage is cut up the road more than necessary. Some have gone so far in opposition to this practice as to advocate perfectly flat or even concave roads, in favour of both of which much may be said; but the general practice of modern roadmakers is to make the surface of the road slightly convex, with a fall of one inch at four feet from the middle of the carriageway to the middle of the footpaths on each side.
exclude sun and wind; and for the same reason trees or buildings that overshadow the road should be removed when practicable. The situation of toll-gates must be regulated by circumstances, but it is very desirable to avoid placing them either on or at the bottom of a hill, an arrangement inadmissible. Toll-gates, when, single, may be fifteen feet, or, when double, thirty, and any post, twenty-four to thirty feet wide, are usually painted white, that they may be readily seen at night. They should be well lighted, and supplied with comfortable toll-houses, extending at the very least from the main roads to the gate, on some of the longer toll roads over natural or ornamental style. Parnell advises the use of milestones of light-coloured stone, and of larger dimensions than usual; but cast-iron posts have been extensively used, and on some roads cast-iron tablets mounted on stone. A convenient arrangement is a post with a board on it, the top being held steady by the iron ring that serves as a gauge. A sitting posture is considered best for those engaged in breaking road-metal, an operation which, under the modern system of road-making, gives employment to a great number of men. The employment is a heavy one, and a bad operation by machinery, but mechanical contrivances have not been found equal to manual labour. Pronged shovels are made of iron in the broken stone into barrows and heaps, as they save much labour by entering the heap with less resistance than ordinary shovels, and also prevent the admixture of earth with the metal.

The depth of metal on a paved foundation should be not less than six inches, and it should be laid in two or three distinct layers, the surface layer being worked up with a roller to a uniform height. All hard stones that can be had, and are required by the work on each till it is in some degree consolidated before another is laid over it. While the metallising is fresh, men should attend to rake in the ruts as fast as they are formed, and to pick off any large stones that may have previously escaped notice and been produced with such stones. The sides of the road may be covered with the smaller portion of the metal, separated by a sieve with meshes of an inch square; and a layer of about an inch and a half of clean gravel, or of ashes, supplied as soon as possible, as it is too fine to be used for the surface. This draught while the road is new, though its effect on the road is rather injurious than otherwise, nothing being needed to bind the metal together. Rolling a road on which fresh materials have been laid is a measure of doing it a further good, and it is requisite to be performed by the working of carriages which are compelled to vary their tracks, and to run on the new metal, by placing wooden trestles across the road, and altering their position when necessary; the road is frequently raked as long as and before setting the trestles.

Where the traffic is not sufficient to justify so expensive a mode of formation as that which has been described, good roads may be formed with broken stone only, increasing in thickness from six inches at the sides to twelve inches in the middle, the gravel being better than gravel can be procured. Parnell recommends that a coat of four inches be laid on the prepared bed, and worked over till pretty firm; then a layer three inches thick, once screened, and finally three inches of gravel. The first coat, on the tracks, between two rows of steps made of clay, or stones exceeding an inch and a half diameter; the road, when completed, to be ten inches thick at the sides, and sixteen in the centre, where the strongest and best part of the gravel should be laid. The drainage must be particularly attended to in a gravel road. Among the inferior materials occasionally used is limestone burnt to a vitreous state; but, though formerly often used in districts where coal is abundant, it is not approved for carriage-ways by modern road-makers.

In completing a road it is necessary to form the side channels with care, and to provide against their being interfered with by branch or field roads. The footpath, which is usually about five feet wide, may be made of gravel or broken stone, and be from eighteen inches to two feet wide, its specifications to be level with the centre of the road, which is six inches above the sides. For fencing, walls are preferred where stone is plentiful, as they occupy less space than hedges, and have a neat appearance. If the stone is of inferior quality, such as mill-stone as a convenient fence, and these, as well as hedge-banks, are approved in appearance and durability by being rusted. All fences should be kept low, that they may not

P. C., No. 1235.
them. Mr. Stevenson, in the 'Edinburgh Encyclopædia,' recommends the use of smaller stones, as being cheaper and less likely to suffer injury from vibration than those of the usual size. The dimensions recommended by him are fourteen inches deep, eighteen inches wide at the base, twelve inches wide at the top, and six to nine inches long. The increased accuracy required in the numerous joints might probably counterbalance the advantage gained by the adoption of small stones.

The great saving of power effected by the use of tramways for ordinary carriages is shown by numerous experiments, some of which, tried on the granite tracks of the Connecticuít canal in London, proved that a well-constructed tramway will run with increasing velocity, by the force of gravity, down a mean slope of 1 in 155. On this road a loaded waggon weighing ten tons has been drawn with apparent ease, and the speed has been brought up to an ascent of 1 in 274, for a distance of about two miles. On an iron tramway laid in 1816 by the Forth and Clyde canal company at Port Dundas, near Glasgow, a horse has taken a load of three tons on a cart weighing nine cwt., up an acclivity of 1 in 15, without difficulty, that is, the score of miles in progress, when the carts agree that the horses take up three tons on the iron tracks as easily as they did twenty-four cwt. on the common causeway previously used.

The railway builders claim the comparative durability of different kinds of stone for tramways, and for paving generally. Mr. Walker tried some experiments on blocks laid in a toll gateway on the Commercial Road tramway, the results of which were satisfactory. The blocks were eighteen inches wide and twelve deep, and were laid down in March, 1830; and the loss given in the table was ascertained after they had been in use seventeen months, in August, 1831—

| Loss of brick. | Absolute | Comparative.
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<td>Blue Aberdeen</td>
<td>0.225</td>
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Stone tramways have been adopted in many street pavements throughout the United Kingdom, particularly on some of the narrow streets in the city of London, with much advantage; but their application to activities on ordinary roads has hitherto been more limited than their merits deserve. By their judicious introduction on a few streets, a certain number of heavy roads might, in time, be made nearly equal to level lines; and it is probable that such a measure would tend, in an important degree, to enable turnpike-roads to meet the formidable rivalry of railways. The Imperial and other reports to the House of Commons in 1839, Mr. Macnoll strongly recommends the application of stone or iron tracks to several hills, and states that an iron tramway laid down along the whole length of the road would reduce the expense of horse labour fully one half. If he writes, 'a tramway were constructed of iron plates, the whole way from London to Birmingham, a coach carrying sixteen passengers might be drawn at the rate of ten miles an hour with only two horses, and one horse would be able to drive a post-chaise more easily than two now.' The expense of tramways might be reduced one half, and a similar reduction might be made in the charges for carrying goods. The expense of forming such a railway would be about £3000 a mile, making the whole expense from London to Birmingham £70,000. In addition to the immediate advantages of such an improvement, it would remove one of the greatest obstacles to the successful use of steam locomotives on common roads.

Pavements.—The formation of paved roads on correct principles would have been thoroughly understood by the Romans, whose pavements show great care in their essential features, a good foundation and accurate fitting of the stones. Some of the modern imitations of the Roman system in the street-pavements of Italy show the like attention to the same important points, the better loose in mortar on a concrete foundation with a degree of accuracy that has led some writers to designate these roads as horizontal walls. In some instances the blocks of stone used are of considerable depth; but they are often thick and being of large dimensions, have the character of flag-stones or ordinary paving-blocks. At Naples and Florence, stones two feet square and six inches thick, laid diagonally across the road, and neatly set in Pozzolana mortar, are used; the surface being chipped where declivities of more than three inches in a yard occur, to prevent pedestrians from becoming very close to the sidewalk. Occasionally, as at Milan, different kinds of paving are laid for the wheel-tracks and horse-road, so as to produce the effect of a stone tramway. These pavements have been recommended by Mr. Walker, as well as the durability with which they are constructed would form a disadvantage in a place where the pavement has to be frequently disturbed for the purpose of laying down steam-pipes, gas-pipes, or district heating systems. It is probable that pavements which answer well for light vehicles and limited traffic of many of the continental cities, would be found quite inadequate to bear the number of heavy carriages traversing the principal thoroughfares of the metropolis; of which various materials may be formed from the facts that upwards of 11,000 vehicles were observed to pass along King William Street, near London Bridge, on the 12th of August, 1840, between the hours of eight a.m. and eight p.m., being at the rate of more than fifteen per minute for a few minutes.

Another description of paved road, the origin of which is commonly referred to the Romans, is the chaussée, or roughly-paved causeway used in the principal highways of France which are some portions of the roads laid has been recommended for its durability which well made, but, unless laid with a degree of care that would render it too expensive for general adoption, it causes a very unpleasant and fatiguing jolting. In such roads the pavements consist of the heaviest stone, being, in a part, placed on the roadbed with the sides available for the use of light carriages, in dry weather; and it has been suggested, that where the depth of the roadway would allow, it might prove advantageous to form, in all great roads, a track of pavement of hard broken, stone for winter use, and another of dressed materials for the summer, both to save the wear of the hard road and increase the comfort of passengers. Such an arrangement is convenient in the principal approaches to great towns, where it is considered best to have the pavements at the side, that carriages may walk either on the footpaths, and that foot-passengers may not be molested by the dirt of the metalled road.

In Holland, pavements of brick, which are also probable to be used in the practice of Roman engineers, are extensively used, not only for the ordinary roads, but for light vehicles, which run on them with great facility. The bricks used for this purpose are thin, and well bedded in sand.

Common stone pavements are, by most writers, divided into two classes: rubble causeway, in which the stones are of irregular shape, and very imperfectly dressed with the hammer; and asler causeway, which is formed of stones of larger size accurately squared and dressed. In both kinds the excellence of the pavement depends greatly on the screened and evenness of the bed, and the careful fitting of the stones to each other, which may be accomplished with very irregular stones by judicious selection. If one stone be left a little higher or lower than those adjoining it, or if at some on one side of the pavement, the difference is considerable in consequence of defective bedding, the joints of carriages in passing over the defective place will quickly damage the pavement; the wheels acting like a rammer in driving the depressed stones deeper into the earth, while the derangement of the pavement is increased. Each stone should receive from those adjoining it, occasions the distraction of the pavement to a considerable distance, and the consequent working up of the earth through the disturbed joints. Defective joints form another fruitful source of injury to the pavement, and the usual practice of making the vehicles jolted over it. If, as is often the case in inferior pavements, the edges of two adjoining stones do not meet with accuracy, narrow wheels will have a tendency to be drawn to one of the two parallel surfaces, and by doing so, to wear the edges of the stones, till, as may frequently happen, the stones become worn into a convex form that renders the footing of horses insecure, and causes the motion of vehicles driven rapidly over them to consist of a series of bounds or leaps from one stone to another, accompanied by a degree of
lateral slipping highly injurious to the carriage, while the irregular percussion produced tends greatly to the destruction of the pavement.

In order to procure a firm foundation, and to prevent earth from working up between the stones, it is advisable in the first instance to form a good carriage-way of gravel or broken stone, and to allow it to be left uncovered for a few years, consolidated, before laying the pavement. This plan is stated by Edgeworth, in his 'Essay on the Construction of Roads and Carriages,' 1817, to have been practised successsfully by the Paving Board of the City of Dublin, and it is strongly advocated by more recent road-makers. Where broken stone is laid to a considerable depth, it should, as in the case of metalled roads, be applied in thin layers, each being separately worked into the ground. When the pavement has been in use for a few years, and the stones in Fleet Street afford an illustration of the necessity of this precaution, as the stones were well shaped, laid, and fixed, and the earth was removed to the depth of from twelve to eighteen inches, its place being supplied by broken stone, but the broken stone, being thrown in by cart loads, and merely levelled, was not united into a compact mass, and therefore very soon gave way, causing the pavement to sink into hollowness. In streets of very great traffic, it is a good plan, when the pavement has been completed, to throw some broken stone as a foundation for the surface pavement, a measure which has been practised with advantage in Paris. The bed of the pavement should be formed into a slight convexity, the slopes being about two inches in ten feet. A mixture of gravel or sand, with water, is sometimes used. The latter is of use in filling up slight irregularities in their level, and enabling them to form a compact bed.

For the paving stones hard rectangular blocks of granite are preferred, though whinstone, limestone, and even freestone from other districts being carriage-way suitable are also freely used; and the table in a previous column appears to be the most durable, but it is more liable to become inconveniently smooth than some stones of inferior hardness. The stones may vary, according to the comparative weight of the puddlings, from eight to eighteen inches long, and four to eighteen inches wide; but it is very essential that the depth of all the blocks in one piece of pavement should be alike, and that where the width is unequal, the stone be so sorted that all used in one course are uniform in this particular. The accurate dressing of the stones is a point often too little attended to; and an injudicious mode of forming contracts for paving, in which the present has been by the square yard of paving laid, has, in connection with the effect of competition in bringing prices too low, led to much waste, and in which the base is smaller than the upper surface, and which, when laid, scarcely come in contact with each other except at their upper edges. In some pavements the stones are sometimes left long enough to have been filled up with stone-chips, concrete, or an asphalt composition; and in those of the more common construction the sides of the stones are occasionally hollowed, so as to receive a small quantity of gravel or mortar, which serves as a kind of dwelling. Ramming the stones with a heavy wooden rammer is a practice that has been much recommended, and it is considered that a more efficient application of the process, by means of a ramming-machine, or portable monkey, would remove some of the defects arising from imperfect bedding; but when the stones are well laid and bedded in strong mortar, as the best recent pavements are, a few blows with a wooden maul of about fourteen pounds weight are sufficient to fix them firmly in their place. A little of the mortar should be thrown over the pavement facilitates the binding of the whole together, and fills up the joints, so as to effectually prevent the working up of the substratum. The blocks are commonly laid in rows across the road, the joints in each row being staggered from those of the adjacent ones; but pavements of superior smoothness have been laid in courses stretching diagonally across the street, by which means all the loads are passed over by carriages with greater ease. This arrangement is particularly desirable at the intersection of streets, a deficiency of which has been largely remedied by pegging or dowelling the pieces together, though their form is not very suitable for the purpose. Some specimens have been laid on a flooring of planks, to avoid this inconvenience.

Of the numerous other plans proposed, but one has yet been tried on an extensive scale, and it appears likely, in point of smoothness, quietness, cleanliness, and very effectual, is represented in the annexed diagram, in which the stones are so inclined as to present a series of steps. The chief objection to this plan seems to be the jolting caused to carriages, which produces so deafening a noise that, in a recent instance, such a pavement was taken up at the request of the inhabitants of the street. Many plans for paving have been proposed, and in a few instances the stones in which the pressure of carriages might be simultaneously distributed over several stones, by various contrivances for dovetailing and otherwise fitting the stones together; but such plans are generally too complicated, requiring an accuracy of formation that would be very expensive, owing to the hardness of the stone. Thin blocks of stone, bedded in asphalt, have been tried, and appear to make a good pavement.
The solid lines represent part of one course or transverse row of blocks, which all incline in one direction, each block having on one side two projecting pegs, and on the other two holes. The adjoining course is laid in like manner, but sloping in the opposite direction, as indicated by the dots at the ends.

The dispositions also allow of a block entering two distinct blocks in the adjoining row, while the holes on the other side receive in like manner the pegs of two other blocks; so that each block is pinned to four others, besides receiving support from the adjoining blocks of the same course. Where the principle of construction is fully carried out, the whole pavement of a street becomes, as it were, one mass, being so pinned together that no block could be raised without breaking the dovetails; but as this cannot always be done, sometimes blocks are attached by iron clamps, in order to get at the gas and water pipes. Some specimens have been laid down in masses of twenty four or thirty-six blocks, so united by iron clamps that the blocks thus connected may be laid down and taken up, whenever necessary. A pavement of this kind on this plan the Oxford Street is all pinned together in the manner first described, and consists of blocks six inches deep laid on a well-formed concrete foundation.

As far as a judgement can be formed at present, wooden pavements appear likely to prove exceedingly durable; and it is stated by Mr. Finlayson, who in 1825 suggested the adoption of wood paving the streets of London, that a few blocks of wood placed vertically in a granite pavement were less reduced by twenty-five years' wear than the stone itself. The principal disadvantage of wood appears to be its becoming slippery in wet weather, to obviate which, in some instances, the upper edges of the hexagonal blocks have been bevelled, so as to form zigzag grooves when laid down; but as a zigzag pattern seems to lessen the width of useful space, and the grooves along the centre of each block, by which the stability of the joints is not at all affected.

Another description of road that has lately attracted much attention is that consisting of an asphaltic composition. Many attempts have been made of mixing asphaltum with various earthy substances, and the nature of the asphaltic preparation. The asphaltic mastic of Seyssel, as prepared for use, consists of native asphaltum and seven parts of bitumen; the two being melted together, and a little fine gravel or sand stirred in with the mixture. The composition is ready for use when it simmers with a consistence similar to that of treacle, and it is spread while hot as a coating about an inch thick upon a gravel foundation of concrete. The thickness of the asphaltic is regulated by slips of wood or iron, which are often so disposed as to divide the pavement into compartmented parts, the asphalt being made of various colours by the admixture of different kinds of sand or other substances. Where the ornamental character of the pavement forms a distinguishing feature, beautiful imitations of mosaic work may be executed with asphaltum. The genuine asphaltum possesses a degree of elasticity that renders it exceedingly durable; but artificial compounds in imitation of it generally require too much bitumen, and are injuriously affected by great degrees of temperature. Some experiments have been made, but, as far as the writer is aware, with very indifferent success, on the formation of carriage-ways with large blocks of asphaltic composition containing a considerable quantity of gravel or broken stone.

Foot-pavements of flagstones require very little remark. The curb-stones should be very hard, and firmly set in cement on a bed of gravel. They usually are about six inches above the surface of the carriage-way, which may be made to rise immediately upon the construction of a gutter. Where gutters are introduced, those of cast-iron are to be preferred. The flagstones, which should never be less than two inches thick, and a half thick, are commonly bedded in mortars a layer of gravel; but sometimes, when there are no cellars under the buildings, the appearance of many of the new streets of London is greatly improved by the use of flagstones of extraordinary dimensions, extending the whole width of the pavement; and a similar appearance at much less cost may be obtained by a very much smaller degree of slope, given to the pavement, to conduct water to the gutters, for which purpose a fall of one inch in ten feet is sufficient, while a steep inclination is objectionable from its danger in slippery weather.

Among the substitutes for common flagstones that have been recommended, may be mentioned slate, which appears to be very durable. Some pavements or floors of the material have been laid at the London Docks, where, among other advantages, it has the advantage of the cleanliness. Trackways of slate two inches thick are found strong enough to bear waggonage or carts with four or five tons of goods; and some are laid of only half that thickness, on an old wooden floor.

"Roads," &c., by Sir Henry Purcell, of which a second edition was published in 1838, may be consulted with advantage by those desirous of obtaining further information on the theory and practice of roadmaking. The works of Sir A. Salusbury, Edgeworth, and several others, are variously recommended. Reports from the several Commissioners, from the commencement of the present century, as well as those of the High-road Commissioners, also contain much valuable matter on this subject.

It may be interesting to add a concise statement of the extent of turnpike and other roads in each of the counties of England and Wales, condensed from the Appendix to the Report of the Commissioners for inquiring into the State of the Roads in England and Wales, 1834. Over the greater part of the counties it will be seen that the statistics are distributed into districts, the statement can only be received as an approximation to accuracy; and this circumstance, combined with some differences in the kinds of road embraced in the returns of different years, must account for some discrepancies.

The columns giving the mileage for 1812-13 show the average of the returns for those years, a circumstance which must account for a small agreement between the items and the totals. It must not be forgotten that the value of the statute duty performed on them. Of this sum about 36d. per mile has been expended on mere repairs and 3d. per mile on improvements. The money expended on improvements is about 129,12124. per annum, being nearly 6d. per mile, and raising the total annual expenditure about 14d. per mile. The number of tolls is about 111,065, averaging 9 nobles, 5 farthings, 28 sous, and 1 yard each; the number of gates and side-bars about 7796, and of surveys 1300. Of the parish highways, extending rather more than 10,200 miles, the average annual cost of maintenance, 1830, 1831, is about 3l. 13s. per mile; and the number of parochial surveyors or waywardens about 29,000.
Table showing the numbers of miles of turnpike roads and other highways in England and Wales:

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<th>Average of</th>
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</thead>
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<td>2,790</td>
</tr>
<tr>
<td>W. Riding</td>
<td>946</td>
<td>4,054</td>
<td>4,674</td>
</tr>
</tbody>
</table>

**Total of England**: 17,500, 81,100, 18,955, 94,760, 50,380

**Total of Wales**: 2,200, 9,000, 3,007, 10,012, 7,423

Respecting the roads of Scotland and Ireland there do not appear to be published data for an equally minute statement. The following account of the number of miles of turnpike roads in each county in Scotland, given on the authority of a paper presented to a Committee of the House of Lords in 17-33, shows their total length to be 3666 miles, which, divided by 190 the number of trusts, indicates the average length of each trust to be about three furrows less than in England and Wales:

<table>
<thead>
<tr>
<th>County</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen</td>
<td>232</td>
</tr>
<tr>
<td>Arran</td>
<td>486</td>
</tr>
<tr>
<td>Banff</td>
<td>129</td>
</tr>
<tr>
<td>Barrow</td>
<td>129</td>
</tr>
<tr>
<td>Berwick</td>
<td>126</td>
</tr>
<tr>
<td>Clackmannan</td>
<td>71</td>
</tr>
<tr>
<td>Dumbarton</td>
<td>57</td>
</tr>
<tr>
<td>Dumfries</td>
<td>251</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>273</td>
</tr>
<tr>
<td>Forfar</td>
<td>257</td>
</tr>
<tr>
<td>Haddington</td>
<td>120</td>
</tr>
<tr>
<td>Kincardine</td>
<td>96</td>
</tr>
<tr>
<td>Kirkcudbright</td>
<td>216</td>
</tr>
</tbody>
</table>

**Total**: 3,366

ROANNE, a town in France, capital of an arrondissement in the department of Loire, 238 miles south-south-east from Paris by the road through Fontainebleau, Montargis, Nevers, and Moulins. It is mentioned by Ptolemy, and in the Peutinger Table; its Latin name appears to have been variously written Rodumna and Rodumna; it belonged to the Segusians. In the middle ages it was a free town, subject to a district, Roannensis, but had sunk into insignificance at the beginning of the last century, from which commerce has since revived it.

The town stands in a tolerably fertile district on the left or west bank of the Loire, which here begins to be navigable by small boats down the stream; boats can descend from Bourrebert, more than 40 miles above Roanne, but they cannot ascend as they diverge, and as they are not very lofty the town presents the appearance of a large village rather than of a town. The interior is well laid out, with wide and straight streets and well-built houses. Several of the genteel families of the surrounding district have fixed their residence here.

There is a fine wooden bridge over the river, and a good quay along the river. The church is a very inferior building, but the college is handsome; and there are good inns, a fine hospital, a handsome theatre, and public baths.

The population, in 1831, was 8890 for the town, or 9260 for the whole commune; in 1836 it was 9910 for the commune. There are manufactures of woollen, cotton, and linen yarn or thread, woollen cloths, muslins, velvets, and other cottons, leather, glue, and earthenware; there are some brick-houses. The trade is considerable, and is carried on not only by the Loire, but by the lateral canal to that river, which extends from Roanne to Digon; it comprehends the manufactured goods of Lyon, which are sent here on their way to Paris, the coals of the coal field of St. Flour, the wines of the Loire and other provinces, and of the south of France, and the imports from the Levant. Some of the wines grown round the town are of fair quality, but the greater part are ordianary.

Many boats are built here for carrying on this trade, and many have a college or high school, with a cabinet of natural philosophy attached to it, a public library, a subordinate court of justice, and some fiscal government offices.

The arrondissement has an area of 668 square miles, and comprehends 108 communes; it is divided into ten cantons or districts, each under a justice of the peace. The population, in 1831, was 121,817; in 1836 it was 124,671.

ROBBERY is theft aggravated by the circumstance of the property stolen being taken from the person, or whilst it is under the protection of the person, of the owner or other lawful possessor, either by violence or putting in fear. This offence appears to have been formerly confined to cases of actual violence to the person, but in later times it has been extended to constructive violence by putting in fear, and not to cases where the property has been taken or delivered under a threat of bodily violence to the party robbed or to some other person, but also where the fear has resulted from apprehension of violence to his habitation or to his property, or where it has been occasioned by threats of accusing the party of the commission of any infamous crime.

Robbery was formerly regarded not as an aggravation of the crime of theft, but as a distinct and substantial crime. Latterly however robbery has been treated as an aggravation of theft, and it has been held that if, upon the trial of an indictment for larceny, it appear that the taking...
 amounted to a robbery, the party may nevertheless be convicted of the larceny charged.

The stealing is said to be by violence when it is effected by doing any injury, however slight, to the person of the party robbed, or the act of taking is accompanied by any degree of force for the purpose of overcoming resistance.

A snatching or taking of property suddenly or unaware from the person without some actual injury to the person done by violence to a robbery, generally, if it is not used, sufficient to constitute robbery, although resorted to under the colour of executing legal process or of the exercise of some other lawful authority. It is not essential to the offence of robbery that the violence should have been at first used for the purpose of obtaining the property, provided the violence be unlawful and the property is yielded up, or permitted to be taken, in order to prevent further violence.

Stealing is considered to be effected by threat of violence to the person, when possession of the thing stolen is obtained by any threat, menace, or any other act calculated to excite fear or apprehension of violence, present or future, to the person or party threatened or of any other party in whose welfare the party to whom the threat is addressed may feel interested. It is immaterial whether the threat, &c. be direct or indirect, or whether conveyed by words, gestures, or signs, or whether made under pretext of lawful claim or of acting under legal process or other lawful authority, or of asking charity, or of making a pastoral visitation.

The excitement of such actual fear in the mind of the party robbed is not material; provided the act of stealing be accompanied by such threats or other acts as are calculated to create the expectation that force will be used in case of resistance. Where no actual violence is used, and there, &c., it will not create any apprehension of violence or expectation that force will be resorted to in case of resistance, or if such apprehension or expectation has ceased to exist at the time when anything is taken, the offence of robbery is not committed.

If property be taken by violence or by threats, &c., it is robbery, although the owner may have voluntarily exposed himself to the attack for the purpose of apprehending the offender. (Fourth Report of Commissioners on Criminal Law).

At common law, robbery was a felony punishable by death, without regard to the quantity or value of the property stolen. The offender was entitled to benefit of clergy [Benefit of Clerks], until this advantage was taken away in cases of robbery and larceny, under different circumstances of aggravation, by several statutes.

The offender was liable to be punished at the suit of the king after a trial upon an indictment, and, in certain cases, with death at the very suit, upon a bill of indictment. The party robbed was entitled to bring his criminal action or appeal [Appeal] against the robber, for the purpose as well of punishing the offender as of obtaining restitution of the property stolen.

The appeal was taken to the house of lords, and the appeal was decided by the lords, and the sentence of death ordered. The appeal was allowed to the king in cases of murder, and all cases of larceny, as well as cases of felony.

The appeal was also available to the king in cases of larceny, and the sentence of death ordered. The appeal was allowed to the king in cases of murder, and all cases of larceny, as well as cases of felony.
to his creditor. *Furtum* was to use a thing that had been lent, for a different purpose from that for which it had been lent. Furtum was either manifestum or nee manifestum. It was *furtum manifestum* beyond all doubt when the thief was caught in the act; but there was a difference of opinion as to whether it was *furtum manifestum* or *ne manifestum* in a variety of cases. According to some writers, it was *furtum manifestum* if the thief was taken with the thing before he had reached the place to which he intended to carry it. *Furtum* which was not *manifestum* was *ne manifestum*. The Twelve Tables made the punishment of *furtum manifestum* greater, that is, the penalty for which affected a person's caput or status. The edict changed this into an actio quadripilis. The remedy in the case of *furtum ne manifestum*, which the Twelve Tables gave, was an actio dupilis, which the edict retained. All persons could have the actio turri who had an interest in the preservation of the stolen thing; consequently others besides the owner might bring the action, a bailee for instance: and sometimes the owner could not bring it, as in the case of bailements, provided the bailee was a responsible person. If he was a responsible person, he was bound to make good the loss to the owner, and consequently could bring the action, and the owner could not. Condensation in an actio turri was followed by infamia. This shows that the thing might also bring his action for the recovery of the thing itself or its value.

The law of the Twelve Tables permitted a person to kill a thief who was detected in the act of theft in the night; and a thief might be killed in the day time, if he defended himself against the theft, or if he was caught with the theft. The civil law was gradually mitigated by the edict, and the offence of theft was, as already observed, only punishable by amputation of *furtum*, and the consequent pecuniary penalties. Thieves were sometimes given a great deal of credit for good conduct in the civil wars of the later republican period, and it is said they were not so much to repress robbery as all acts of violence committed by bands of armed men. Accordingly its terms comprehended those who carried off any thing (quid rapuerint), or resisted the claims of Charles le Simple. [CHARLES III.] He was recognized as king in an assembly of his partizans, held at Soissons (A.D. 922), and consecrated in the church of St. Remi, at Reims, by the archbishop of Sens. He fell in battle against Clovis II., king of the Franks, at the battle of Soissons, 13th of June, 922, having reigned scarcely a year. He was grandfather to Hugues Capet, founder of the third or Capetian race of French kings.

Robert, king of France, surnamed le Sage (the wise), was grandfather to Hugues Capet, whose son succeeded on the throne, A.D. 996. He was born about a.D. 970, and had been twice crowned in the lifetime of his father; at Orleans, A.D. 988, and at Reims, A.D. 991. The character of Robert was devoid of shining qualities, but he was a brave warrior, and his exploits at the battle of Tolbiac was a scarify of four years of life, arising from the injuries to the harvests, and the war was followed by a pestilence, which again appeared in 1010, and a third time in 1030-37. These calamities were said to have reduced the population of France a third.

Robert was early embroiled with the church; he had married, A.D. 997, Berthe or Bertha, widow of Eudes, count of Blois, but there was no settlement. After the death of Queen Bertha, the dispute was again renewed; and it is said that this great sentence his palace was deserted by all except two menials, who after every meal purified by fire the utensils employed at the royal table. Robert at length yielded; he put away Bertha (A.D. 998), and married Constance, daughter of the count of Toulouse and Ventadour, a woman, but one of the greatest beauties of her time. Robert and Constance may be compared in point of character to Henry VI. of England and his consort Margaret of Anjou.

In A.D. 1001, Robert engaged in a war to secure the succession of the duchy of Bourgogne, of which he was lawful heir; and, being supported by Richard, duke of Normandie, succeeded, after a struggle of thirteen years (A.D. 1002-15), in gaining possession of it. He bestowed it on his son Henry. In A.D. 1006 he marched to the assistance of the count of Flanders, one of his great vassals, attacked by the emperor Henry II., who was obliged to retire. Peace was concluded next year between the two princes. Robert possessed a taste for music, and, prompted, as he was, by his fervent love for St. Denis, and composed hymns for monastic use. He is charged with having his treasure upon mendicants, conveying at thefts from his own person, and truckling to the fierce and cruel temper of his queen, who presumed to order him to procure her divorce from the countess, Huguette de Beavous, to be murdered in his presence.

Robert visited all the shrines in France, and went to Rome (A.D. 1019) to visit the tombs of the Apostles; perhaps also, to make a tour of pilgrimage, or for the view of inducing the pope to annul his marriage with Constance, and to sanction his reunion with his first wife, Bertha.

He persecuted the Jews, and procured, in a council held, A.D. 1022, at Orleans, the condemnation of some priests accused of having done with heretical puppets or 'Armistic cotique'. It appears that under the empire, when order was established, the provision against armed men was not wanted, and the word *armista* seems to have been dropped from the edict. Still the edict was directed against *assemblages* of men, and it became of comparatively little use in the peaceful times of the empire. Accordingly the jurists were led to make the discovery that the edict applied to individuals as well as to bodies of men, and it was ultimately an offence which might be maintained under the edict at any time by the person who had been the victim of *rapina*. Finally, damnum, against which the edict was originally mainly directed, disappeared from the edict, as we observe in the Institutes and the Code, and the action was brought against *tutela* and not against *funerarium*.

The Roman law of *furtum* is stated in Gaius, ii. 153-269. The following references will be useful: Dig. 47. tit. 2; Inst. 4. tit. 1; Savigny, Zeitschrift, &c. vol. iv. Utet Coercio pro Tullio, &c.; Dirksen, Ueber das Zofif Tifia Fraquentia.

ROBERT I. of Normandie. [Normandie.]

ROBERT II. of Normandie. [Normandie.]

ROBERT, king of France, was elected king on the death of his brother Eudes, by that party of the F. nobly rejected, the claims of Charles le Simple. [CHARLES III.] He was recognized as king in an assembly of his partizans, held at Soissons (A.D. 922), and consecrated in the church of St. Remi, at Reims, by the archbishop of Sens. He fell in battle against Clovis II., king of the Franks, at the battle of Soissons, 13th of June, 922, having reigned scarcely a year. He was grandfather to Hugues Capet, founder of the third or Capetian race of French kings.

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and died in 1309 at the age of sixty-six; and he, by his son Walter, the father of Robert II. This Walter was one of the commanders of the Scottish army at the battle of Bannockburn; and early in the following year, 1315, Bruce gave him in marriage his daughter and then only child Margaret, provided he would marry with the consent of her father; or, after his death, with the consent of the majority of the community (or states) of the kingdom. The crown had been settled, feuding the heirs male of her father and of his brother Edward, in a parliament held at Stirling the 26th of January; but that same day Robert was the only issue of this marriage. Lord Hailes (Annals of Scotland, vol. ii., Appendix i.) has sufficiently refuted the tradition that Marjory was killed by being thrown from her horse when big with child, and that she bore the child dead. The legend is supported by the latter part of the calendar, but it appears that she died either in giving birth to the infant or soon after her delivery. Her husband died 9th April, 1326, after having had another son, Sir John Stewart of Ralstone, by a second marriage with a sister of Graham of Abercon.

Bruce was succeeded by his son David II., born of a second marriage, 5th March, 1324; and his unfortunate reign—marked by a long minority and a succession of regencies, during which the kingdom was overrun by Edward III., and his ally Edward, Duke of York—was obliged to make his escape to France, and after that by the defeat of Neville's Cross, when David was taken prisoner by the English—fills up the interval from 1329 to 1371. Here, the Stewart ascended a pinnacle that was to be the last through which he was to pass, until his ultimate fall; and he was the first to uplift again the standard of the national independence. In 1334, he and the earl of Moray assumed the regency of the kingdom, and, although not formally invested with the government by any assembly of the states, or formally elected in the sense of the people, he was king, and, as such, exiled by the English, to wield all the authority of the crown. Fordun's description of the Stewart at this time, as Lord Hailes (Annals of Scotland, vol. ii., Appendix i.) has sufficiently refuted the tradition that Marjory was killed by being thrown from her horse when big with child, and that she bore the child dead. The legend is supported by the latter part of the calendar, but it appears that she died either in giving birth to the infant or soon after her delivery. Her husband died 9th April, 1326, after having had another son, Sir John Stewart of Ralstone, by a second marriage with a sister of Graham of Abercon.

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his birth makes him to have been wounded in one of his eyes by the surgeon who cut him from his mother's side.

The war was to last for some months with considerable vigour; but both parties were in constant action so that the Stewarts were defeated at the battle of Southack, and therefore at peace when Robert II. died, after a short illness, at his castle of Duddonland in Kylie, on the 19th of April, 1390. Besides his six sons and ten daughters by his two wives, this first of the royal Stewarts had a numerous illegitimate progeny by various other women. His six lawfully begotten daughters married into the families of the earl of March, Lyon of Glunza (now earls of Strathmore), Haig of Errol (now earls of Errol and earls of Kinross), and of the Isles, Douglas of Nithsdale, Lindsay of Gleneagles, the earl of Douglas, Keith earl Marischal, Logan, and Swinton. From these illegitimate sons the Stuarts of Bute, Carse, and other families of that name deduce their descent.

Robert II. was succeeded by his eldest son Robert III.

Robert III. King of Scotland, the eldest son of Robert II., relinquished his original name of John on succeeding to the crown, on account, it is said, of a popular superstition of his countrymen which regarded that name as unlucky and disastrous. But it is known also that it was long as Edward III. lived, the two countries remained at peace. In 1377 however, immediately after the accession of Richard II., a war arose out of what appears to have been a dispute between King David II. of Scotland and Edward III. of England over the possession of Carlisle and the earldom of March. Hostilities continued, with a few short interruptions, till November, 1380, when a truce for twelve months was arranged, which was afterwards extended to the summer of 1382. In 1384 however, the war broke out with more violence than ever, and being now assisted by a body of French auxiliaries, who arrived in May, 1385, under the command of Jean de Vienne, admiral of France. In the summer of that year, while the young English king led his army in person into the heart of Scotland, the two kings met at Strassfrath, where they made a truce, and village and castle came to his progress [Richard II.], a force of Scots and French, entering England by the western marches, ravaged Cumberland and laid siege to Carlisle, but withdrew when the enemy returned southward, without having effected an entry into that town. Soon after this, the French, who had found the Scots and everything in Scotland very little to their mind, and had also made themselves cordially disliked by the people they came to assist, had been met with a severe reverse, and returned home, though not till they had agreed to pay the expenses of their maintenance, and had been forced to leave their leader Vienne as a hostage for the performance of that engagement—a conclusion of the business which had drawn from the French no great benefit, and which was not considered the real object of the French in this expedition, which was certainly more to annoy the English than to benefit the Scots. A truce for another year followed the departure of the foreigners; but the fighting was renewed in 1387. That year the town of Carlisle in Ireland was plundered and burned by a force under the command of William Douglas, recently created Lord Nithdale, and married to one of the king's daughters; and in 1388 the famous battle of Otterburne, or Cheve Chace, was gained from the Percies, though at the expense of his own life, by the earl of Douglas. [Richard II.] By this time however the reins of government had nearly dropped from the hands of king Robert. Froissart tells us that, before his death, he had been offered the crown; and, as any more to war, he was no longer consulted in public affairs by the nobles, by whom and also by the nation in general the king's second surviving son, Robert, earl of Fife (afterwards expelled from Scotland), was chosen as the true ruler of the country. In 1389 indeed, the earl of Fife was formally recognised as governor of the kingdom by an assembly of the estates held at Edinburgh. After this the old king appears to have lived almost entirely on his ancestors' estates near the castle of Duddon, where he devoted the habit of secluding himself for some years previous. It was probably now, in his old age, that his originally engaging personal appearance was deformed by the breaking out of an inflammation in his eyelids, from which he derived the popular appellation of Blew-Eye. The fable about

P. C. No. 1235.

ROB

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main Roa. Now, it so happened that such was the case on the death of James V., leaving only a daughter, Mary, in 1542. At this moment the pretender of Robert II., on the supposition of his family by Elizabeth Mure being illegitimate, was the earl of Menteith, the lineal descendant of Euphemia Rose's eldest son. David earl of Strathearn; and it is a remarkable fact that in the early part of the seventeenth century the pretender of both powres pretended a right by the then earl of Menteith, who was justice-general, and president of the Scottish privy council, occasioned no small uneasiness to Charles I., and brought down ruin upon himself. For the latter part of the most learned and acute discussion of this question, the reader is referred to 'Tracta, Legal and Historical, with other Antiquarian Matter, chiefly relative to Scotland,' by John Riddell, Esq., Advocate, 5vo, Edinburgh, 1853: dissertation iii., entitled 'Scotland laymen in the 15th and 16th centuries.' Matrimonium, the Nature of our Antient Canons, and the Question of the Legitimacy of the Stewarts,' pp. 185-211. Mr. Riddell, we may add, states that the undoubted representative of the earls of Menteith, and of the eldest son of Robert II. by his second wife, is the present Mr. Barclay Allardyce of Ury, the head, we suppose, of the once famous Quaker family: a singular enough destination for the trusty hereditary right to the sceptre of Robert Bruce.

A truce for fourteen years had been concluded with Eng- land in 1381, but soon after it was broken as Edward III., long as Edward III. lived, the two countries remained at peace. In 1377 however, immediately after the accession of Richard II., a war arose out of what appears to have been a dispute between King David II. of Scotland and Edward III. of England over the possession of Carlisle and the earldom of March. Hostilities continued, with a few short interruptions, till November, 1380, when a truce for twelve months was arranged, which was afterwards extended to the summer of 1382. In 1384 however, the war broke out with more violence than ever, and being now assisted by a body of French auxiliaries, who arrived in May, 1385, under the command of Jean de Vienne, admiral of France. In the summer of that year, while the young English king led his army in person into the heart of Scotland, the two kings met at Strassfrath, where they made a truce, and village and castle came to his progress [Richard II.], a force of Scots and French, entering England by the western marches, ravaged Cumberland and laid siege to Carlisle, but withdrew when the enemy returned southward, without having effected an entry into that town. Soon after this, the French, who had found the Scots and everything in Scotland very little to their mind, and had also made themselves cordially disliked by the people they came to assist, had been met with a severe reverse, and returned home, though not till they had agreed to pay the expenses of their maintenance, and had been forced to leave their leader Vienne as a hostage for the performance of that engagement—a conclusion of the business which had drawn from the French no great benefit, and which was not considered the real object of the French in this expedition, which was certainly more to annoy the English than to benefit the Scots. A truce for another year followed the departure of the foreigners; but the fighting was renewed in 1387. That year the town of Carlisle in England was plundered and burned by a force under the command of William Douglas, recently created Lord Nithdale, and married to one of the king's daughters; and in 1388 the famous battle of Otterburne, or Cheve Chace, was gained from the Percies, though at the expense of his own life, by the earl of Douglas. [Richard II.] By this time however the reins of government had nearly dropped from the hands of king Robert. Froissart tells us that, before his death, he had been offered the crown; and, as any more to war, he was no longer consulted in public affairs by the nobles, by whom and also by the nation in general the king's second surviving son, Robert, earl of Fife (afterwards expelled from Scotland), was chosen as the true ruler of the country. In 1389 indeed, the earl of Fife was formally recognised as governor of the kingdom by an assembly of the estates held at Edinburgh. After this the old king appears to have lived almost entirely on his ancestors' estates near the castle of Duddon, where he devoted the habit of secluding himself for some years previous. It was probably now, in his old age, that his originally engaging personal appearance was deformed by the breaking out of an inflammation in his eyelids, from which he derived the popular appellation of Blew-Eye. The fable about
he might have had in this affair was granted by the king to Albany; and has been published by Lord Hailes, in "The History of Scotland," Edinburg, 1772. In this remarkable paper it is stated that Albany admitted the capture and arrest of the prince, but justified what he had done by reasons which the king did not then hold it expedient to publish to the affair. No express denial of the fact of the murder is ventured upon; it is merely recited that the prince departed this life in his prison at Falkland, through divine providence, and not otherwise—"ubi ab hac luce, divina providentia, et non alia, locum factum spectat," the residuum, says Hailes, "will determine as to the import of this phrase. If by a natural death was intended, the circumlocution seems strange and affected." It ought to be added that Archibald, the young earl of Douglas, the brother-in-law of Roxsay, who had acted throughout the affair along with Albany, was equally charged by the voice of common fame with the murder, and was included in the same acquittal or indemnity. It is conjectured that Roxsay had made the proud baron his enemy by his infidelity to or neglect of his sister.

This same year, on the 22nd of June, the Scots, commanded by Patrick Hepburn of Hales, were defeated with great loss, at West Neilston in the Merse, by the English under the Earl of Northumberland and the renegade Earl of March; and on the 14th of September following the Earl of Douglas received a still more disastrous discomfiture from the Lord Henry Percy at Hinton Holme in Northumberland. When immediately after this the Percies rose in rebellion against Albany, and Albany himself became a petty house of numerious force and set out for the south with the design of taking advantage of the embarrasing circumstances of the English king; but the news of Henry's victory at Spalding reached him back before he had got across the border. In the course of the two following years several attempts were made to arrange a peace, or long truce, between the two countries, but without success. Hostilities however had been for a considerable time suspended by negociations, which had awakened to a strong suspicion of the designs of his brother Albany, resolved to send his only surviving son James, styled earl of Carrick, to France for safety; and the prince, then in his eleventh year, was on the 30th of March, 1403, captured at sea by an English vessel on his way to that country. [JAMES I.] His detention by King Henry is believed to have broken the heart of his father, who expired at the castle of Roxsay in Bute, on the 4th of April, 1400. He was succeeded by his son James, who carried on the line of the Stuarts.

ROBERT KEMPIS. [NAPLES.]

ROBERT OF GLOUCESTER is supposed to have been a monk in the abbey there, but of his personal history not much is certainly known. Its main body of the text was collected from a passage in his work, that he was living at the time of the battle of Evesham, and he seems to have lived not very long after that event, as the history of English affairs which he has left us ends before the beginning of the reign of Edward I.

This history is the only writing that is attributed to him, and is, in more points of view than one, among the most curious and valuable writings of the middle period that have come down to us. It is a history of English affairs from the beginning, including the histories of Geoffrey of Monmouth, and ending with the death of Sir Henry of Almaine, valuable in the latter portions for the facts which it contains, whether peculiar to itself or correlative with the statements of other chronicles, and in the abruptness with anecdotes or minor historical circumstances peculiar to itself, and sometimes of an interest if not useful nature.

It is in the vernacular language of the time; that is, in the language in which we find the Anglo-Saxon passing into the language of Chaucer and Wilckes, this work and the similar work of Robert of Bonne being the best specimens which remain of the language. It is in verse, and is remarkable more as a specimen of the poetry of the time. It consists of more than ten thousand lines.

The work was popular in the middle ages, as appears by the number of manuscripts that still exist of it. The principal are the Bodleian, the Cottonian, and the Harleian. There is one in the library of the Herrad's College. There are slight variations in the text of each, and that at the Herrad's College appears to have had the language modernised by some earlier hands. Little is said in the Rotherham preface to the text of persons who, in the reign of Elizabeth, collected and printed the manuscripts of the best English chroniclers, though Omiden, in his 'Britannia,' and still more frequently in his 'Remains,' has citations from him. We are, in his 'Ancient Monuments,' has many quotations from him: and Selden quotes him on several occasions. The work was given at large to the public in 1724, by Hearne, in two octavo volumes, of which there was a reprint in 1816.

ROBERT (GROSSESTE), bishop of Lincoln, a very eminent jurist at once the rudiments of Henry III. The exact time and the place of his birth and the family from which he sprang, are alike lost in the obscurity of those remote times; but it may be calculated from the data given, that he was born about the year 1175. He studied at Oxford like most of the very eminent of the English theologians of that period, he went from thence to Paris. There he applied himself to the study of the Hebrew and Greek languages, both of which he attained the mastery, and distinguished himself by his attainments in the whole course of study presented to the students in that learned university. He returned to England skilled not only in the five languages, English, French, Latin, Greek, and Hebrew, but skilled also in lorr...
made; but yielding to the boy's decided inclination for the art, sent him to Paris to study engraving under Girardet, an artist known by his print of the Transfiguration, after Raphael. His progress was so rapid, that in 1812 he obtained the second grand prize at the Ecole des Beaux-Arts, after which he began to study painting in the school of David. In 1814 he exhibited a work at the Salon; and, in 1818, together, devoted himself entirely to his pencil, leading a life of solitude and privation, without either patrons or friends. But though his enthusiasm for his art was great, it was outweighed by severe application than by that promptitude which is generally supposed to characterize genius. Though he did much, he executed few productions, being not only remarkably slow with his pencil, but in the habit of destroying or laying aside picture after picture until he could satisfy himself with the subject, the artist had commenced. He is said to have spent between three and four years on a single picture; for instance, that of the "Reapers," which excited so much admiration when first exhibited at Paris in 1821. In that piece, in the "Napoleonic Imaginings," the "Madonna dell' Arco," and other subjects, he succeeded in delineating Italian life and character in the happiest manner, with perfect fidelity, but also with a touching refinement and grace, at the same time without any of the artificiality of composition, in opposition to the severe rules for refinement. His last work was "The Venetian Fishermen," a picture that has served to raise his name as that of the greatest artist of his age in the peculiar walk which he had chosen. The general admiration which it excited when exhibited in Paris, that artistic policy which he illustrated, as a poet at the fate of the artist, himself; for he had previously put an end to his life at Venice, where he had resided several years, and where he drowned himself, March 20th, 1831, in his 38th year. ROBERT, an artist, celebrated for his admirable architectural compositions and subjects of that class, was born at Paris, in 1733.

On quitting school, Robert applied himself assiduously to his studies. He never was known for a tippler, but, generally in making his views and views of nearly all the numerous architectural monuments, but studying their character completely. Thoroughly impressed with the poetry of such subjects, he enabled others to feel it likewise, by the peculiar charm with which he invested them and by his felicitous treatment, so different from that whose chief merit consists in literal exactness and cold correctness. On his return to Paris, he was immediately elected by the Academy, and his reputation became established. In addition to his useful and the like, he performed an epoch in that department of the art which he had selected.

Among his numerous works are many chefs-d'œuvre of first-rate excellence. Two of the most remarkable for his art, he passed into Italy, where he resided several years, and views of nearly all the numerous architectural monuments, but studying their character completely. Thoroughly impressed with the poetry of such subjects, he enabled others to feel it likewise, by the peculiar charm with which he invested them and by his felicitous treatment, so different from that whose chief merit consists in literal exactness and cold correctness. On his return to Paris, he was immediately elected by the Academy, and his reputation became established. In addition to his useful and the like, he performed an epoch in that department of the art which he had selected.

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ROBERTSON, WILLIAM, was the son of a clergyman, who for some time had the congregation in the old chapel of London Wall, and afterwards was one of the ministers of Edinburgh, where Dr. Robertson was born in 1721. His mother was a daughter of Mr. Deacon Drummond. In 1743 he was presented to the living of Oldmin to East Lothian. He distinguished himself as a preacher, and also as one of the most powerful speakers and most eminent leaders in the General Assembly of the Church of Scotland. In 1751, he became one of the professors of mathematics in the University of Edinburgh, where he resided till 1789, when he was appointed to the chair of Mathematics at the University of St. Andrews.

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processes to himself, in order that he might have a superiority over his rivals in solving such problems as were proposed to them. The statement may be correct, but if so, it happened that the French mathematician, by his reserve, like many others in similar circumstances, lost the honour which he might have earned, and he was, at a punishment, on the Montesquieu. For whom, from such unworthy motives, make a mystery of their discoveries. At the end of the treatise of Roberval on this subject, there is explained a method of finding the areas of squares comprehend between curves, by the rule for the composition of forces or momenta; but he applied it only to the conic sections in which the component forces are supposed to act in the directions of lines drawn from the point in the curve to the foci. It appears that Torricelli laid claim to the first discovery of the method, which he had made in 1644, but Roberval states, in a letter to the Italian philosopher, that he was acquainted with it in 1636, and that in 1640 he communicated it to Fermat.

As early as the year 1616, P. Merenne suggested the idea of finding and having made some fruitless attempts to find its area, he proposed the subject to Roberval in 1626; the latter, not succeeding immediately, abandoned the research, and apparently thought nothing of it during about ten years. At the end of that time, the question being revived, Roberval did not appear to have the advantage of greater experience, and Fortunately discovered a method by which the area might be determined. Descartes afterwards proposed to Roberval and Fermat to determine the position of a triangle, and the solution of the problem, but the former appears to have failed, or to have succeeded with difficulty, and only after many trials. He subsequently however discovered the rules for finding the volumes of the solids formed by the revolution of a cycloid about its base and about its axis.

In 1646, Descartes, Roberval, and Huyghens attempted at the same time to investigate the duration of the oscillations made by planes and solids moving about an axis; and here Roberval appears to have been more successful than his opponents, although the method he proposed was not sufficiently advanced to allow any of them to attain a solution which should be applicable to every kind of vibrating body. The works of Roberval's were printed during his life, except a treatise on Statics, which was inserted by Merenne in his Harmonie Universelle. The others were published by his friend the Abbé Galois, in 1693, among the mathematical and physical works in the old Memoires of the Academy of Science. Of his ideas these were chiefly relative to the subject above mentioned, and included a treatise on the Recognition and Construction of Equations, a work of little utility, since it is formed agreeably to the ideas of Descartes and Fermat, and is expressed in the language and notation of Vieta. Among them also is an account of a new kind of balance (a sort of steel yard) which Roberval had invented, and which was thought to be useful in finding the weight or pressure of the air.

Roberval, unfortunately for his fame, appears among the opponents in matters relating to algebra; he is said to have made some objections to the theorems of his countryman in the construction of equations and concerning the nature of the roots; but the objections are without foundation, and serve only to expose his own jealousy and obstinacy.

To Roberval is ascribed the reply, 'Qu'est ce que cela prouve?' when, having been present at the representation of a tragedy, some one asked what impression it had made on him. From this it appears that his opinion as to the importance of science is not improbable, since, in those days, science was profoundly studied, and the mathematicians were so completely absorbed in their pursuits, that they had little time to spare for other subjects. It is said that Roberval could never read a newspaper or write except with great difficulty, and certainly readers well acquainted with the antient methods of investigation can with difficulty follow him in his tedious demonstrations.

He was elected a member of the Academy of Sciences when the latter was formed (1665), and he died in the year 1675.

ROBES, MASTER OF THE ROBES, an officer of the household who has the ordering of the king's robes. By statute 51 Henry III., the 'Gardein de la Garderobe de Robe,' the warden of the king's wardrobe, was to make account yearly in the Exchequer, on the feast of St. Margaret. Under a general grant, to be issued from the wardrobe, he was to buy for the mistress of the robes. The office has always been one of great dignity. High privileges were conferred upon it by King Henry VI., and others by King James I., who erected the office of master of the robes into a corporation.

ROBES, FRANCIS, COUNT OF JOSEPH ISIDOROE, was born at Arras in 1759. His father, a provincial advocate of no reputation, quitted France during the infancy of his children, who were not long afterwards left in a deplorable condition by the death of their mother. François Maximilien was the eldest, and August Bon Joseph the second son; the third child was a daughter. Augustin imitated his brother, and parodied him; the daughter lived in quiet respectability, and became the abbess of a nunnery.

Through the kindness of the bishop of Arras, Robespierre was well educated at Paris. He studied jurisprudence; and having returned to his native town, followed his father's profession, in which he gained some reputation. By his legal talents he was elected a member of the Academy at Arras, he obtained an influence, through which, on the summoning of the States-General in 1789, he was elected a deputy of the tiers-état. No sooner was he elected, than he went to Versailles to enter into the business of the revolution. During the session, he was one of those who opposed the abolition of the State General; but after his meeting, he was of little importance; without its doors he gradually gained authority by gathering idlers and adventurers round him in the coffee-houses, and haranguing them on the events of the day. He soon resolved on an attack on the authority of the old regime, and the coincidence or adaptation of the events which he expressed, to those of his low, discontented, and excited hearers, that this authority was raised. He had no physical advantages to assist him; he was a short insignificant-looking man; his features small, his nose prominent, his face deeply marked with the small-pox, and his voice harsh, shrill, and disagreeable. Notwithstanding these disadvantages, he increased in popular estimation. It was on the 17th of June, 1789, that he delivered his first address to the Jacobin Club, which俱乐部 was attended by more and more of the backwardness and reserve that he hitherto maintained: he clearly saw that the weakness and want of energy in the government were so great, that he might with safety assert in the National Assembly that the will of the people was capable of taking the place into excitement. His importance in the Assembly was in a great measure attributable to the prominent part which he played in the Jacobin Club. (JACOBIEN.) This club already contained so many members, that the large chair in which its meetings were held was continually filled, and it had corresponding affiliated societies throughout the provinces, which disseminates its revolutionary views and projects, and rendered its power most formidable. Here was developed Robespierre's principal source of renown; here he discoursed every attribute of monarchy, and denounced those who would control the people as conspirators against their country, knowing that the pikemen of the suburbs, bloodthirsty and ungrateful, took the speeches of the Jacobins for their own. It was of Robespierre that 'France must be revolutionised;' and for this object he laboured with a determination which his opponents could find no means of diminishing. It was certain that he could not be tampered with; a touch of Jacobinism daily overflowing with his praises, surmised him 'The Incorruptible.' His exclusion from the Legislative Assembly, to which he was rendered ineligible by a vote in which he himself had joined, enabled him to devote his whole time to the Jacobin Club. Its violence had somewhat diminished, but its power was increased by the enrolment of many of the municipal officers, who could carry out its projects by their authority. (THUR.) At this time he was named Public Accuser.

The attack was made upon the Jacobins (Aug. 10, 1792), Robespierre was not present the three days.
afterwards he forsook the Club and remained in seclusion. It was his custom neither to take an active part in the great overt acts of massacre or rebellion, nor to appear immediately after their commission; but the rumor that he might see by what means they might best be turned to the promotion of his political objects, and the increase of his own popularity. It was with joy that he saw the National Assembly suppressed the royal authority, and called upon the nation to adopt a constitution which should determine on a new form of government. He became a member of the Convention; and on its opening (Sep. 21, 1792), seated himself on the "montagne," or higher part of the room, occupied by the_scrutineers. It was no secret that Robespierre, a man of the most powerful party. It was now that Robespierre first appeared in the foremost rank, which comprised the most powerful men: until now, notwithstanding all his efforts, he had had superiors even in his own party;—in the days of the Constituent Assembly, the well-known leaders of the time; during the continuance of the Legislative Assembly, Brissot and Pétion; and, on the 10th of August, Danton. In the first assembly he could attract notice only by the possession of extraordinary talents, during the second he became more modest, because his rivals were innovators; and he maintained peace before the Jacobins, because his rivals called for war. Now, as we have said, he was in the first rank, and his chief aim was to annihilate the Girondins, who were the enemies of the revolution. Brand may be termed insecure as well as high, and that he might be overthrown himself. Barbaroux, Rebecchi, and Louvet dared to accuse him of seeking to be dictator. But the time had not come for accusations to be successful; the tide of his popularity had turned against him. He, indeed, was absent for his defence, and absented himself for eight days both from the Convention and the Jacobin Club. During this absence the Jacobins protested his innocence and intimidated his accusers. So he returned to the Jacobins, and on his re-appearance he was triumphantly exculpated.

At this time the king was in prison, but his days were drawing to a close. Robespierre vehemently combated those who either asserted the necessity of a trial or declared the king guilty; he demanded that he should be delivered up to the Convention, and promoted unceasingly the execution of his whole family. The death of the king augmented both parties and private bitterness; each faction and each leader had some rival to destroy. The Montagnards struggled with the Girondins for supremacy, gained their end, and massacred their opponents. The kingdom was chiefly governed by the Committee of Public Safety [Committee of Public Safety], of which Robespierre, Coutlon, and St. Just were members. The Convention, who supposed a new regeneration will be found in all the histories of the time, and also an account of Robespierre's presidency at the great public acknowledgment of the existence of a Deity. This took place when his career was nearly run, when there were foreign wars in Europe and North America, when France had many foes, though they had been rivals, had been likewise powerful allies, when Marat had been assassinated, when he had sanctioned the execution of Pétion and Danton and Desmoulins, when he had put a countless host of victims to death, and raised a proportionate number of enemies. In July, 1794, his adversaries became too strong for him: Élisée-Varennes, one of his own party, jointly with the rest of the Montagnards, who still were furious because of the execution of their leader, accused Robespierre of selling his own agrarian indemnity by the sacrifice of his colleagues. In vain Robespierre retired, in vain he took forty days to prepare his defence, in vain he strained every nerve to refute their charges. After a scene of frightful excitement, he was condemned to death, his brother, Coutlon, was beheaded at the same time, and Robespierre was separated from the other prisoners, and led to the guillotine. Here accident gave him a chance of escape. The guillotine was at that time so large and spreading, he had enough to employ in ship-building; but its greatest consumption is for making treills, by which the timbers of ships are fastened together, and for this purpose large quantities of this wood are imported from America.

Since its first introduction into Europe, this tree has met with very different treatment, at one time being esteemed as the most valuable of trees, at another time condemned as worthless. This has arisen in a great measure from the soil and situations in which it has been accidentally cultivated. It has always been known in America as affording an exceedingly hard and durable wood, and it is also recommended to be cultivated on this account, but the great tendency which this tree possesses to branching and its seldom attaining a great size render it impossible to obtain from it timber of a useful kind. In America it is used for making posts, and occasionally trees are found large enough to be employed in ship-building; but its greatest consumption is for making treills, by which the timbers of ships are fastened together, and for this purpose large quantities are imported from America.
bated in Great Britain more than a million of plants. His praises of the tree were extravagant in the extreme, and it has failed to answer most of the promises that he held out. The tree is of rapid growth when young, and forms heartwood at a very early age. In America it attains a height of 70 or 80 feet, but in this country it is seldom seen so high. Its tendency to form branches, even when young, prevents it being used for hoop-poles as recommended by Colbeck.

The roots and other parts of the plant, like many of its order (Leguminosae), contain a succaraneous principle, which accounts for the nutritive properties of the fruit. Dried peas and beans are used for making a distilled liquor, which is said to be very delicious. It folds up its leaves at the approach of night.

The tree grows best on a soil of sandy loam, rich rather than poor; it requires a great deal of water. It should not be planted in exposed situations, as, from the great brittleness of its branches, it is likely to be destroyed by winds. It may be propagated by cuttings from the roots or by planting large trunks or suckers, but producing it from seeds is the best mode. The seeds should be sown in the spring, and in the summer of the following year they may be transplanted. The seeds will not retain their vitality more than two years.

American seed should be always used, as it does not come to perfection in this country.

The other species found in the United States are cultivated in this country, R. vicosa, Clammy Robinia, and R. hispida, Hairy Robinia, or Rose Acacia. The former is characterised by the sticky secretion with which it is covered, and which has been long possessed by the vegetable people. The latter, which is the smallest of the three species here mentioned, has very large flowers, and forms a very ornamental shrub when grown on an espalier rail or against a wall.

ROBINS, or ROBYS, JOHN, an English astronomer and mathematician, who was born in Staffordshire, about the close of the fifteenth century or the beginning of the sixteenth, as it appears he entered a student at Oxford in 1516, and educated for the church. In M. Digby, 143, there are several indented treatises by Robins, and from a note at the end it appears that he was of Merton College. It seems that, in common with many others of that college, he devoted himself to the study of the sciences, and he soon made such a progress, says Wood, in 'the pleasant studies of mathematics and astrology, that he became the ablest person in his time for those studies, not excepting his friend Recorde,' whose learning was more general. Having taken the degree of bachelor of divinity, in 1516, he was the year following made a canon and chaplain of Henry VIII., to whom he was chaplain, one of the canons of his college in Oxford. In December, 1543, he was made a canon of Windsor, and afterwards one of the chaplains to Queen Mary, who highly esteemed him for his learning. In 1548, under the acts of uniformity, he was dismissed from the chapel of St. George at Windsor. He left behind him several works in manuscript, of which two, 'De Culinations Stirratim Fixature,' and 'De Ortu et Occaus Staetum Fixaturum,' are preserved in M. Digby, 143, in the Bodleian Library. According to Wood, Sir Kenelm Digby also possessed three other tracts by Robins, viz.: 1. 'Annotations Astronomicae,' lib. 3; 2. 'Annotations Edwardi VI.ii.; 3. 'Tractatus de Prognosticatio per Recipuum;' and Wood adds that these were also in the Bodleian Library. We suspect Wood is here in error, for in the sale catalogue of the library of George, earl of Bristol, sold by auction in April, 1809, a copy of which is in the British Museum, we find an account of several manuscripts said formerly to have been part of the Robert/Digby Collection; among these (MS. 56) is 'Johannis Robinis Annotationes Astronomicae.' We are inclined to think that Wood may have taken the titles from the catalogue of Thomas Allen's library in the Aschmorean MS., where a whole set of the annotations of Kenelm Digby, and that the two titles of 'Annotations' do in reality belong to the same book. We are not aware that any copy of this work of Robins's is now in existence, although there are some extracts from it in M. Bodd. 3167, and perhaps not much to be regretted. Wood slightly refers to a book by Robins under the title of 'De Portionum Consuetudinibus,' but he says that he had never seen a copy. Bale however mentions having seen one in the Royal Library at Westminster, and this copy is now in the British Museum. Sherburne, in the appendix to his 'Mani-
Robins added to the first, two or three other discourses expository of the calculus.

In 1738 he wrote a defence of Newton against an objection on the subject of the sun's parallax which occurs in a note at the end of Baxter's "Matho;" and, in the following year, he published some remarks on Euler's treatise of "Motion," on Smith's "Opticks," and on Dr. Jurin's discourse concerning light. Mr. Robins's principal work, entitled "New Principles of Gunnery," was published in 1742. To this is prefixed an account of the rise and progress of modern fortification, and a history of the invention of gunpowder, with a state of the buildings artificers which had been handed to a knowledge of the theory of gunnery. Having then determined the relative power of the explosive forces of fired gunpowder and the effect of the heat and moisture of the atmosphere on that force, he proceeded to the ballistics of sailing, both of which he had invented, with the manner of employing it in determining the velocities of shot when the guns are charged with given quantities of powder; and he treated at length of the resistance of the air on shot and shells during their flight, a subject till then but little understood. This work had the honour of being translated into German, and commented on by the learned Euler. Some of the opinions advanced in it is questioned by the author of the paper in the "Philosophical Transactions," and to Robins's reply to this. In 1743, he gave several dissertations on experiments made by order of the Royal Society in 1746 and 1747; for these he was presented with the annual gold medal. A number of experiments in gunnery subsequently made by young officers of the navy are in the work. The rest of his mathematical works, by Dr. Wilson, and the collection, which makes two volumes 8vo, came out in 1741.

Besides the pursuits of science, Robins appears to have been occasionally occupied with subjects of a political nature. A convention which had been made with the king of Spain, in 1738, respecting the payment of certain claims made by British merchants in compensation for the seizure of their ships and the destruction of their property by the subjects of Spain, and being of the opinion of the ministers, Sir Robert Walpole, made it the ground of an inquiry into his conduct, and Robins wrote three pamphlets on the occasion. These gained him considerable reputation, and a committee of the House of Commons being appointed to manage the inquiry, he was chosen its secretary; he did not however hold the post long, as a compromise took place between the opposing parties. About ten years afterwards (1749) Mr. Robins was employed in an invitation to the Board of Officers on their inquiry into the Conduct of Sir John Cope," an apology for the unsuccessful issue of the action at Preston Pans in 1745.

Great diversity of opinion exists concerning the share which Robins had in the account of Lord Anson's "Voyage round the World" (1740-1744). The work was certainly commenced by the Rev. W. Walter, chaplain of the Centurion, who was in that ship during the greater part of the voyage; but, on the one hand, it is said that the account of the reverend gentleman consisted chiefly of matters taken verbatim from the journals of the naval officers; and that Robins, using the statement of courses, bearings, distances, &c., as materials, composed the introduction and many of the dissertations in the body of the work. On the other hand, we are told that Mr. Robins was consulted only concerning the disposition of the plates, and that he left England before the work was published. It is scarcely probable that a clergyman professing to write the account of the voyage of a most important naval service's journal, and it may be reasonably supposed that the greater part of the work as it stood in the first edition came from his pen; while, with equal reason, it may be allowed that Mr. Robins added the introduction and the first chapter of the first edition, published in 1748, and four disquisitions of the course of that year.

Mr. Robins was offered, in 1749, his choice between two good appointments; the first, to go to Paris as one of the commissaires des guerres, and the other to be, by his own request, the engineer in general to the East India Company. He accepted the latter, and departed in December for Madras, where he arrived in July, 1750. His intentions were to put the fortifications in a good state of defence, and he had actually prepared plans for the purpose when he was taken ill with a fever. He recovered from this attack, but soon afterwards fell into a declining state, and died on the 20th of July, 1751.

He left behind him the character of being one of the most accurate mathematicians of his age; and the interest which he took in astronomy may be inferred from his having availed himself of his interest with Lord Anson to procure the establishment of a new mural quadrant for the Royal Observatory at Greenwich, and having taken with him to India a set of instruments for the purpose of making observations in that country.

Mr. Hutton relates that, in 1741, he was a competitor with Mr. Müller for the post of professor of fortification in the West Military Academy at Woolwich; and that the latter succeeded through some private interest in obtaining the appointment.

ROBINSON, JOHN, was born in 1739, at Boghill in the county of Stirling. His father, who had been a merchant at Glasgow, but who then resided on his estate, intended that he should enter the clerical order, and accordingly he sent him, at eleven years of age, to the university of that city. Here the youth studied the classics under Dr. Moore, and moral philosophy under Dr. Adam Smith; and at the same time he received instructions in mathematics from Dr. Robert Simson. He took his degree of M.A. in 1756, but his inclination was the church as a profession.

Being thus placed, and at an occupation in some other line, he went to London in 1758, with a recommendation from Dr. Simson to Dr. Blair, a prebendary of Westminster, who was then desirous of obtaining some person to instruct his son in navigation, and to accompany him on his royal highness in a voyage to sea, an intention being entertained that the prince should serve in the royal navy. The project was afterwards abandoned, but Mr. Robinson consented to embark on board the Neptune with a son of Admiral Knowles, who had been appointed admiral as a midshipman. This ship was one of a fleet destined to co-operate with the land-forces under General Wolfe in the reduction of Quebec; and during the voyage Mr. Robinson being appointed to the rank of lieutenant on board the Royal William, Robinson, who was then rated as a midshipman, accompanied him. In May, 1759, the fleet arrived in the St. Lawrence, and Mr. Robinson was employed in surveying the river and the neighbouring country; at the same time he had the opportunity of making observations concerning the effects produced by the aurora borealis on the magnetic needle.

The success of the expedition is well known; and on the return of the Royal William to England, Mr. Robinson accompanied Admiral Knowles to reside with him at his seat in the country.

In 1762, lieutenant Knowles being appointed to the command of a sloop of war, Robinson accompanied him in a voyage to Spain and Portugal, but after being absent six months he returned home, having had the honour of being appointed lieutenant in the naval service. His great friend and patron the admiral however recommended him to Lord Anson as a person qualified to take charge of Harrison's timekeeper, which, after the labour of thirty-five years, was considered fit to be used for the important purpose of determining the longitude of a ship at sea, and which it was proposed by the Board of Longitude to try during a voyage to the West Indies. In consequence of this recommendation, Mr. Robinson, accompanied by a son of Mr. Harrison, sailed to Jamaica, where, on January 26, 1763, the chronometer (whose rate had been determined at Portsmouth, November 6th, 1762) was found, after allowing for that rate, to indicate a time less by 5½ only than that which resulted from the difference between the longitudes of the two places; and on his return to England, April 2nd, 1763, that is, after an absence of one hundred and fifty-seven days, the whole error was found to be but 1' 54".

Mr. Robinson, being disappointed in his expectations of promotion from the Admiralty, set out for Glasgow in order to resume his studies. Here, enjoying the friendship of Drs. Black and Mr. Watt, the former of whom was on the point of developing his theory of latent heat, and the latter of whom was carrying out his important improvements in steam engines, he felt himself irresistibly impelled towards the pursuit of the physical sciences.

On the removal of Dr. Black to Edinburgh, Mr. Robinson was appointed to succeed him, and for four years he gave lectures on natural philosophy at Glasgow; but at the end
of that time he accepted (1770) the appointment of secretary to
admiral Sir Charles Knowles, who had been invited by the
empress of Russia to superintend the improvements which
that sovereign contemplated making in her navy.
Two years after his arrival at St. Petersburg, Sir Charles
became the president of the board of science and industry, and Robin-
son was inspector of the corps of maritime cadets at Cron-
stadt, with a liberal salary and the rank of lieutenant-
colonel in the Russian service. He gave no instructions,
but his duty was to receive the reports of the masters, and to
class or examine the work of the students. He continued to
be in that capacity for four years, but finding Cronstadt a dreary
place of residence during the winter, he accepted the professorship
of natural philosophy at Edinburgh, which had become vac-
bated on the death of Dr. Russell. He arrived in that city
in June, 1774, and he spent the three years with three of the
Russian cadets, whose education he had undertaken to super-
intend; and in the same year he gave a series of lectures on
mechanics, optics, electricity, astronomy, &c. This course
he continued to deliver annually during the rest of his life, ex-
cept when ill health obliged him to appoint a substitute for
the purpose, improving each subject from time to time
by the introduction of every important discovery which it
received from the researches of his contemporaries. The
lectures were written, and the results which he had been able
to define and clearness as well as brevity of demonstration;
and the experiments by which they were illustrated, to have
been performed with neatness and precision. But it has
been altogether in vain, for the students have not had the
speedy of utterance which made it difficult for the students
to follow him; that he supposed his pupils to possess a
higher degree of preparatory information than they had in
general attained, even when they had gone through the
work of the cadets, and his performance was so too
few in number to serve the purpose intended by them.

It may be thought that the second objection might have
been obviated by merely requiring, in the pupils who were to
attend the course of lectures, an adequate portion of mathe-
matical instruction. This was done in the case of the Russian
students; but it is probable that the ground of the complaint lay, partly, in the
difficulties inseparable from the communication of scientific
information by general lectures. The result attained after a
geometrical investigation on paper may be admitted by any
reader who can take the time necessary to satisfy himself of
the truth of the several steps and of their dependence on
each other; but this is seldom possible when the investiga-
tion is delivered from the mouth of a lecturer, who must go
over a subject without waiting for the audience; but it is prac-
tical that such lectures may only be useful as auxiliaries in
teaching the physical sciences, and probably the chief ad-
vantage to be derived from them is the opportunities they
afford for exhibiting experiments which are not in the
power of students individually to make.

It follows that such exhibitions should not be omitted
whenever they can be made conducive to the illustration of
the subject.

On settling in Edinburgh, Mr. Robinson became a member of
the Philosophical Society of that city. In 1785 he
was attacked by a disorder which was attended with pain and
depression of spirits, but he was only occasionally prevented from
studying and from visiting the members of the society. In 1798 he was made doctor in laws by the Univer-
sity of New Jersey; and in the following year, by that of
Glasgow; and in 1800 he was elected a foreign member of
the Academy of Sciences at St. Petersburg. In 1785 he
wrote a paper which was published in the first volume of the
Philosophical Transactions of Edinburgh,' on the de-
termination, from his own observations, of the orbit and
motion of the Georgium Sidus; and he afterwards wrote one
on the determination of the period of the second moon of
Jupiter, and on the motion of light as affected by reflecting and
reflecting substances which are themselves in motion. But his
most important works are the numerous articles which, in 1781 and the following years, he contributed to the third
edition of the Encyclopaedia Britannica' and its supple-
ment, a series of treatises which may be considered as forming a complete body of physical science for that time.

Mr. Robinson was prevailed upon to superintend the pub-
lication of Dr. Black's lectures on chemistry, and they
came out in 1803, but that science had undergone so great
a change since the death of the learned lecturer, that the
work excited little interest. In the following year he pub-
lished a part of another treatise, and a very important
book entitled 'Elements of Mechanical Philosophy,' but
the substance of it, together with that of some MSS.
which had been intended by the author to form part of the
second volume, and also the principal articles which had
been intended for another work of his, were published in
1807 by Dr. John David, Browser, under the title of
'A System of Mechanical Philosophy,' and published in
1832, with notes, in 4 vols. 8vo. This work is considered
as containing the character of Mr. Robinson for scientific attainment.

While Mr. Robinson was on his journey to Russia in 1778,
he was hospitably entertained by the bishop of Liége, who,
with all his chapter, constituted a lodge of freemasons; and
into this society our traveller was induced to enter. It
is unknown from what source he obtained his information
respecting its proceedings, but twenty-nine years afterwards
he published a remarkable work containing 'A History
of the German Illuminati,' whom he describes as the agents of
the French Revolution, and who had subverted the monar-
chies and governments of Europe. The work met with
little attention, and Robinson was charged with a degree of
credulity scarcely to be expected in a person so well ac-
quainted with the learned world.

Having taken a slight cold, and suffered an illness of only
two days' duration, Mr. Robinson died on the 30th of Jan-
uary, 1805, in the 66th year of his age, leaving a widow and
two children. He is said to have been a person of pre-
eminent gentleness and kindness, a man of博学 genteel
manners, and an accomplished musician; and it is added that his con-
versation was both energetic and interesting.

ROBERTELLO, FRANCIS, was born of a noble
family, September 9th, 1516. He was educated at Bologna
under the Jesuits, and after three years advanced to
1538 to teach the belles-lettres at Lucca. Five years after-
wards he went to Pisa, where he lived during the next five
years, and laid the foundation of his fame, which was soon
spread over the whole of Italy. In 1549 the senate of Venice elected him successor to Batista Egopoli, a professor of
rhetoric there, whose advanced age obliged him to retire
from public duties. In 1552 Robertello was promoted to
the chair of Greek and Latin literature in the university of
Bologna, and in the year 1556, he was given the sinecure of
Tagliamento, which he held about twenty years. He died at
Padua, March 18th, 1567, in the fifty-first year of his age,
so poor that he did not leave enough to defray the expenses of his funeral, which was celebrated by
the University in a style of great magnificence.

Robertello seems to have been naturally pugnacious,
and he was continually involving himself in disputes with men
superior to himself. He could not refrain from attacking
such writers as Erasmus, Paulo Manuzio, Moretus, and
others. He displayed a singular talent for learning, and,
and his published several books of great utility. The following
are his principal works: 1. Variorum Lociorum Annotations tam in Graecum quam in Latinam
Auctorum, Venice, 1548, 8vo.; 2. De Historia Facultate.
&c., Florence, 1548, 8vo.; 3. De Combatu Epistolae
et Roman literature, all of which are inserted by Gruter in his
Theaurus Criticus; 4. De Conveniens Suppurationum
Laurario Annonum cum Marmoribus Romanis gnam in Capil-
ibus antiquis, Venetia, 1551; 5. De Commentario of the second
Disputatio, Padua, 1557, folio; 6. De Vita et Vitae Populi
Romani sub Imperatoribus Cæsar. Augustus, Bologna, 1559,
folio. Besides these he published editions of Aristotle's
Poetics, the 'Tragedies' of Aeschylus, the 'Tactics' of
Alkius, and Longinus' 'On the Sublime.'

(Weim in Biographie Universel' p. 348.)

ROBULINA. [FORAMAS. p. 348.]
ROBUSTI. [TINTORETO.]

ROCCA, in Italian, means a strong hold or fortified place, perched upon a rock or steep hill, a position common to many provincial towns in Italy. Rocca, properly speaking, means the castle or keep, but it has also become an appellation for the town or village which generally adjoins it. The appellation of the early English style, with a few remains of Norman character in the interior. The nave and south aisle, and the tower, which is embattled and crowned with pinnacles, are of later date. The windows of the choir have rich tracery; and the font and many of the monuments are very ancient.

St. Mary's church, situated in 1746, is a chapel of ease to the parish church; it is a plain brick building. St. James's, built in 1814, is a Gothic stone edifice, with a square embattled tower. There are other churches or episcopal chapels (some of them erected of late years) in the outskirts of the parish. There are in the town chapels for Presbyterians, Baptists, two, Methodists (Wesleyan, New and Primitive), Independents, the countess of Huntingdon's connexion, Unitarians, and Roman Catholics; all these, except the Presbyterian chapel, have been built or rebuilt in the present century.

The manufactures of this place are very important; they comprehend woollen goods, as baize, flannels, coatings, and friezes, and strong calicos and other goods in cottons; but the woollen fabrics for the staple. Horses are also made, and cotton yarn is spun. Coal is dug, and slates, magnesite, and freestone are abundantly quarried in the parish, and there are iron-works in Butterworth township. Steam power is extensively employed by the manufacturers. There are two weekly market days Monday and Saturday, and fairs are held on market day: Millers, wool, oil, dye-stuffs, and grain; and on Saturday for provisions. There are three yearly fairs: on May 14th; on Whit Monday; and on November 7th, all for cattle, horses, and pullets. The Rochdale canal, which unites the duke of Bridgewater's canal at Manchester with the Calder and Ribble navigation near Halifax in Yorkshire, passes near the town on the south-west side of it.

The town is in the jurisdiction of the county magistrates. The lord of the manor holds a court baron every week for the recovery of debts under 40s. There is a neat town-hall, used also as a news-room, and a commodious gaol called the New Bailey.

Rochdale was erected into a parliamentary borough by the Reform Act; and the boundary, as defined by the Boundary Act, coincides with the boundary laid down in a previous local police act, and is a circle drawn with a radius of three-quarters of a mile from the old market-place in the very heart of the town. Rochdale returns one member to parliament: the number of voters on the register for 1834-5 was 746; for 1835-6, 695.

The borough of Rochdale is a vicarage, one of the richest in the kingdom, at present in the archdeaconry and dioce: of Chester; but it is about to be transferred to the archdeaconry of Wakefield, and the see of Wakefield that see is erected. Its clear yearly value is estimated at 1730l., with a glebe-house: it is in the gift of the archdeacon of Chester. The glebe comprises 200 acres of land, a part of it built upon.

There were, in 1833, in the three townships of Castleton, Wardleworth, and Spottland, sixty-eight schools of all kinds for daily instruction, with 2289 scholars; and twenty-eight Sunday-schools, with 4363 scholars. Some of these schools are probably out of the town in the outskirts of the townships. We have not included Wuerdale and Wardale township, as only a very small part of the town is in it. Four of the day-schools are endowed; one is a national school, the children of which attend also on Sunday.

Acrehouse, in the parish of Rochdale, was a Roman post, but the remains of it have nearly or quite disappeared. Roman coins, and part of a statue of Victory, of silver, have been dug up. The mound of an ancient castle, said to be of the early English original, to which the township of Castleton over its name, is mentioned in the 'Beauties of England and Wales.' In the chapelry of Saddleworth, in the Yorkshire part of the parish, are some Druidical remains. (Baines's *Hist of Lancashire; Parliamentary Papers."

ROCHFORD. [RICHFORD.]

Rochford is a town, and a parochial centre, and the capital of an arrondissement in the department of Charente Inferieure, 300 miles south-west of Paris by the road through Orleans, Tours, Poitiers, and Niort; in 45° 56' N. lat., and 0° 59' W. long.

Rochefort was in the middle ages in the power of the English, from whom it was taken by Charles VII. Its
capabilities as a naval station having attracted notice, works were commenced, in the reign of Louis XIV., in A.D. 1666; since which time the immense works carried on have rendered it one of the most important naval stations of France. An expedition was sent out from England in A.D. 1757, but from cowardice or mismanagement it ended in a disgraceful failure.

The town stands in a low marshy district, which in the summer and autumn renders the town unhealthy: it is on the northern shore of the Channel, about ten miles from the sea; the river, though not very large, affords sufficient depth of water at all times to float the largest vessels. The town is regularly fortified, and the approach is defended by forts on the Isle of Aix, and at the mouth of the river. The houses here are generally of stone, and the streets are wide and straight, and well lighted with lamps and reflectors: they are watered daily in the summer months by a forcing-pump from a large reservoir. Some of the streets are planted with pollard trees, and the principal of them terminate on the parade. The houses are well built, but low, so as not to impede the circulation of the air. The harbour is formed by the Charente. The arsenal is one of the most extensive and finest in Europe; it contains the necessary stores, armory, dock for building, basins for repairing, and immense storehouses, extending more than 1300 feet, of every necessary for equipping vessels, a cannon-foundry, a ropewalk about 2350 feet long, a virtual-office, barracks, a depot for cordage, &c. A military establishment of 3600 men besides the town. In the port, the houses are well built, with their chimneys high, and form a fine sight. The inhabitants, some of whom are rich, are tolerably well fed, and are occupied in the fisheries, in the manufacture of calico, and in other trades.

The town of Rochefort, in 1831, was 10,532 for the town, or 15,649 for the whole commune. In 1835 it was 15,441 for the commune.

Besides the above, there are other products which are fitted out for the cod fishery, and a considerable coasting-trade is carried on. The chief exports are wine, brandy, corn, and salt. There are three yearly fairs. Rochefort has two churches, three chapels, a hospital, a few private houses, a public hospital, besides that for the navy, a foundling hospital, a school of natural history, a botanical garden, and a theatre. A consistory of the Reformed (or Calvinistic) church is established here; and there is a Protestant Bible Society.

The arrondissement of Rochefort contained, in 1831, forty-seven communes, and was divided into four cantons or districts, each under a justice of the peace. Its population at that time was 48,536.

ROCHFEOUCAULD, or ROCHEFOUCAULD, La.

ROCHFEOUCAULD, FRANCOIS, DUC DE LA, of a distinguished noble family of France, was born in 1613. He appeared early at the court of Louis XIII., and showed some talents and ambition, but was kept out of employment and favour by the jealousy of Cardinal Richelieu. In the early part of the subsequent reign of Louis XIV. he figured in the civil war of La France. He attached himself to the party of the Duke of Longueville, whose avowed admirer he was, and took a part in the decisive battle of the Tysonnes, and in the battle of Sainte-Adresse, in the battle of Sainte-Adresse, in the battle of Sainte-Adresse. After Louis XIV. had firmly established the monarchical authority, La Rochefoucauld withdrew to private life. In this second part of his career he held private Virtue, when summoned for the folly and violence of his younger years. He was intimate with Madame de la Fayette, and with Madame de Sévigné, who speaks of him, in her correspondence, in terms of real esteem. He died in 1686, in calm and cheerful retirement.

La Rochefoucauld left several works, the principal of which are, 'Memoires de la Regence d'Anne d'Autriche,' and his 'Maximes,' 'Or Penes,' for which he is best known as an author. This book has made much noise in the world; it has been abused, criticised, controverted, and yet none can deny that it contains a great deal of truth, though it generalises too much. La Rochefoucauld attributes all the actions of men, good or bad, to the moving-springs of self-interest. Friendship is an exchange of good offices, generosity is the means of gaining good opinion, justice is the mode of retaining the good opinion of others. This may be all true, but still there are actions in which men can have no self-interest in view, in which they act from enthusiasm, or a strong sense of duty, or from benevolence, or some motive other than self-interest; and, on the other hand, a few men, for the perseverance of the upright man through good and evil report, the sacrifices made by pure love, and above all the calm resignation of the Christian martyr. These and many similar instances La Rochefoucauld has not taken into account, because probably he had seen no specimens of them. La Rochefoucauld has accounted for most actions of a great proportion of mankind, perhaps by far the greater, and for so doing he has been abused, because, as a French author, and one who used to speak so much of self-interest, he has placed himself, with regard to private morality, in the same predicament as Machiaveli with regard to political morality. [Machiaveli.] J. J. Rousseau, who was certainly not free from selfishness, has abused La Rochefoucauld, and has accused M. d'Holbach of not being 'selfishness is the main spring of all our actions,' and that 'authors, while they are for ever talking of truth, who care little about, think chiefly of their own interest, of which they do not talk.' La Fontaine, in his Fables (b. l., 11), L'Homme, no. 188, has made an ingenious defence of La Rochefoucauld's book.

La Rochefoucauld's 'Maximes' have gone through many editions. The 'OEuvres de la Rochefoucauld,' 1818, contain, besides his published works, several inedited letters and a biographical notice.

Several other individuals of the same family have acquired an historical name, among others, Louis Alexandre de la Rochefoucauld, Peer of France, who embraced the eastern part at the beginning of the French revolution, and displayed considerable violence in his sentiments, notwithstanding which, after the 10th of August, he was massacred by the Jacobins as an aristocrat.

ROCHELLE, LA, a town in France, capital of the department of Charente-Maritime, 75 miles N.W. by road from Bordeaux, 100 by rail; it is situated on both sides of the River of the same name, navigable for small vessels. It lies on the main road from Paris by the road through Orleans, Tours, Poitiers, and Niort; in 46° 58' N. lat. and 1° 08' W. long.; it lies on the main road from Paris by the road through Orleans, Tours, Poitiers, and Niort; in 46° 58' N. lat. and 1° 08' W. long.

La Rochelle was formerly a small town and fort belonging to the lord of Maulon, from whom it was taken by force of the court of Poitou. In the marriage of Henry of England with Eleonore of Guenic, heiress of Poitou, it came into the hands of the kings of England, from whom it obtained considerable municipal privileges. It was taken by Louis XII. by the treaty of Bretigny, A.D. 1360, but finally restored, A.D. 1372, by Duke Guismond. Under the French kings the privileges of the town were further augmented; the importance of the place increased, and upon the acquisition of it by the Huguenots, in A.D. 1557, it became a sort of republic, the strongholds of their party. It was besieged in 1574, by the duke of Anjou, but in vain: the garrison was commanded by La Noue. In 1627 it was again besieged by the royal forces under Louis XIII. and his marshal, the Marquis de Villeroy. The King bore the siege of La Rochelle, and the Béar brothers. The latter carried across the entrance of the harbour, assistance from the sea was precluded, and the attempt of the English to succour the townsmen was defeated by the incapacity of the Duke of Buckingham. An attempt of the English, led by Vauban, by order of Louis XIV., and is still maintained as a fortified town.

The town stands on the northern side of a small inlet of the Atlantic, which extends eastward about two miles into the land, and terminates, just above Rochelle, in a large marsh. The entrance of this inlet, which serves as the roadstead or outer harbour of the town, is defended by forts;
During the independence of the Saxon kingdom of Kent it was of importance both as the seat of a bishopric (established about A.D. 604) and as a place of strength situated at the passage of the Medway. It was destroyed by Ethelred, Earl of Mercia, A.D. 677, by the Danes in the time of Ethelwulf, A.D. 839; it was besieged by the same enemies (A.D. 885), but relieved by Alfred, who drove the invaders to their ships. In the time of Ethelred II. (A.D. 966) it was besieged and taken, but in vain, by that king, who had a quarrel with the bishop; and the town was razed to the ground. After the Conquest, William the Conqueror either built or more probably repaired and strengthened a castle here, and placed it under the command of his brother Odo, bishop of Bayeux. In the time of William Rufus this castle was besieged and taken by the king; among the buildings which were destroyed was the St. Peter's Church, dedicated to the Virgin. In the reign of Henry I. (A.D. 1130), and again in that of Stephen (A.D. 1137), and a third time in that of Henry II. (A.D. 1177 or 1179), the city was nearly destroyed by fire. In the civil war of John, the castle was taken by that prince from the insurgent barons (A.D. 1215), and re-taken next year by the Dauphin Louis. In 1264 the town was taken, and the castle besieged and reduced to extremity, by the confederate barons under Simon de Montfort, Earl of Leicester, but he was obliged to raise the siege, and take refuge against the king. In the rising of the commons under Wat Tyler, the castle was assayed, with what success was not clear. Edward IV. was the last king who paid any attention to the repair of the castle. James II. embarked at Rochester when he fled to France after his abdication, A.D. 1688.

The town stands chiefly on a low narrow tract which borders the Medway, and is backed by the chalk hills, while the river makes a wide bend below the town. It consists of several streets irregularly laid out; the principal street leads from the bridge at the west end of the town into Chatham on the east side. On the western side of the Medway are Strood and Farningham, considerable portions of which were afterwards attached to the town. It is now the seat of the rendering office of the E. Inland Revenue. The town is a small market place, and a centre many houses of respectable appearance. The churches are of very different styles. The north side of the town are a few handsome villas, and rows of neat modern houses built on the higher ground which rises from the low margin of the river.

The cathedral is situated on the south side of the Highstreet within the ancient Priory gate. It consists of a nave with side aisles, a choir (the floor of which is raised ten steps above the floor of the nave), a principal transept, at the junction of the nave and choir, and a smaller transept at the east end of each side. At the west end of the nave the principal transept is a central tower erected in 1825; at the western end of the church there appear to have been originally four low towers, two on each side the doorway and two at the extremities; of these only two now remain, which are most of the east windows. On the north side of the choir between the two transepts, but nearer to the principal one, is a low square tower, now in ruins, called Gundulph's tower. The dimensions of the building are as follows: length of the nave 150 feet, breadth with side aisles 66 feet; length of the choir 156 feet; making the total length of the church 306 feet; length of the principal transept 122 feet; of the smaller transept 90 feet; area of Gundulph's tower, inside, 94 feet square; walls of Gundulph's tower, 16 feet thick. The roof of the tower is hipped; the chamber-house is in ruins; a mean building, erected in the place of it, serves for chapter-house and library. The nave is part of the structure of Bishop Gundulph, who rebuilt the cathedral near the close of the eleventh century. At the north front is a fine specimen of enriched Norman architecture; but the great west window is an insertion of perpendicular character, as are most of the other windows of the nave. The nave has Norman piers and arches, except in the part nearest the choir, where the arches are early English. The roof is of timber; but there are indications that it was intended at first to be vaulted. On the south side of the church are some other Norman portions, which appear to have been the cloisters, and some of the usual form of the eastern part of the church is of plain early English architecture, of good composition, without much ornament: the details of the doors and of some other por-

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tions are very good: the roof of the choir and of both transepts is vaulted and groined, except in one part, which was never finished. The pillars of the choir are of Petworth marble. The apsidal parts very strongly extending under the buildings of the choir; its character is early English, scarcely differing, in one part, from Norman. There are a few antient monuments, singular rather than beautiful, and much mutilated. The old altar-piece, a painting by Lest, of the period of John Norreys, is now in Chatham church.

There are several chapels, in one of which the bishop holds his consistory court. The architecture and masonry of Gundulph's tower give reason to think that it is of the same date as the church, although the wooden bridge and its continual need of repair led to the erection of the present one (a little above the site of the more antient structure), which was completed in the reign of Richard II. It is a stone bridge of eleven arches, 560 feet long, and standing 100 feet above the valley. The conservators of the bridge are an incorporated body under the title of the 'Wardens and Commonalty of the New Bridge of Rochester,' and have considerable funds appropriated to the purposes of the same. The approach to the bridge from the London side of the bridge is very striking.

The castle is on the bank of the Medway, just above the bridge. The outer walls were 20 feet high above the ground, and 7 feet thick, strengthened with towers, square and round, and defended by a ditch on every side except the west side, where it was washed by the Medway. These walls enclosed a quadrangular area nearly 300 feet square, and are, with their towers, now in ruins. In the south-eastern corner was the large building yet standing, about 70 feet square on the outside, and about 104 feet from the ground, with a tower at each angle rising 12 feet above the rest of the building; three of these towers are square, that at the south-east angle is round. On the top of the tower is a octagonal lantern, round a central tower, through which was the entrance; it joins the keep, and rises about two-thirds of its height. This smaller tower covers half the breadth of the northern side of the keep, and projects from it about 18 or 20 feet. The roof and floors have been destroyed; there were originally three stories besides the vaulted basement: each story was divided into two apartments by a partition wall rising to the top of the keep, with open arches or doorways on each floor, and has no less than five inches in diameter built into it, to which well there was access from each floor. The walls of the castle are of great thickness, built of Kentish ragstone, cemented with a pointing mortar equal to the stone itself in hardness. The coigns are of Caen stone. The architecture is Norman, except perhaps the round tower at the south-eastern angle, which was rebuilt in the place of the original square one destroyed when King John besieged and took the castle. The four towers at the angles rose one story above the keep, and, as well as the keep itself and the eastern wall, are surmounted with a platform, with parapet and embrasures.

The other public buildings are, a commodious town-hall, with a market-house beneath, and a small gaol adjacent; a church on the site of a former town-hall; a seat; and the bridge chamber or record-room, opposite the east end of the bridge. There are remnants of the city walls; and part of the fortifications of Chatham, especially Fort Pitt, are within the city.

Strood and Frindsbury, considerable portions of which have been added to Rochester by both the Boundary and Municipal Reform Acts, are on the north-west side of the Medway; Strood on the London road, and Frindsbury a little to the north-east. Strood consists of one principal street of irregularly built houses; the place has improved considerably of late years; it has a neat church. Frindsbury consists chiefly of one long street. The church is on an eminence commanding a wide fine prospect. There is a Market House. Upper Castle on the Medway is in Frindsbury parish: it consists of an oblong central building, with a round tower at each end, and is surrounded by a moat; it was used during the late war as a powder-magazine.

The population of St. Margaret's, as returned by the above acts, was as follows, according to the census of 1831:

- Rochester old borough:
  - St. Margaret's: 5,025
  - St. Nicholas: 3,500
  - Cathedral precincts: 1,173
  - Strood intra: 505

- Addition—Strood extra and Frindsbury: 3,167

There are no manufactures in Rochester. Trading vessels come up to the bridge, where they discharge their cargo, chiefly coals, which are conveyed up the river in small craft. The oyster fishery is carried on with great activity under the direction of the corporation, who have jurisdiction over the fisheries in the Medway branches from the Nore to Holland; considerable quantities of oysters are sent to London or exported to Holland; a considerable quantity of shrimps also are sent to London. There are two weekly markets, one, lately established, on Tuesday for corn, and one on Friday for provisions; and there is a monthly market for retail and for fair goods, at which the farmers and small traders of the district meet. A canal was cut some years ago from the Medway to the Thames at Gravesend Reach, but the undertaking has not been profitable. This canal is carried through the river at Rochester, and the bridge which intervenes is one far longer in length, which commences near Rochester bridge.

The corporation of Rochester, under the Municipal Reform Act, consists of six aldermen and eighteen councillors: the city is divided into three wards. The corporation have exclusive jurisdiction over certain parts of the town, bounded by the city and liberties. There are no quarter sessions; but petty sessions are held twice a week; and there is a court of request having jurisdiction over several adjoining parishes. Some of the courts are conducted under the joint jurisdiction of the corporation and the deanery. Rochester has a number of almshouses, and is a maundering and branch court borough. Frindsbury is a parochial and branch church, with a number of parishes in the diocese (not including the deanery of Shoreham) is given by Hasted (Hist. of Kent, vol. ii., Canterbury, 1782) at ninety-nine in Lewis's 'Topographical Dott.' It is given at
nineteen. We believe the latter account to be nearly correct as to the number of parishes, but the additions of dependent chapellaries will swell the number to that given by Hausted, and by including ecclesiastical divisions lately formed, to a greater number still. The clear yearly revenue of the bishopric is estimated at 1459L. The gross yearly revenue of the cathedral is estimated at 717L.; but the payment of stipends, the maintenance of the fabric, and the support of the grammar-school, cause a deduction of 207L.; leaving 510L. per annum; in this respect, it consists of the dean and six prebendaries. (Report of the Ecclesiastical Revenue Commissioners, 1835.) There were formerly six minor canons, but now there are only three, who all in succession the offices of sacrist and preacher, and a master of songs. It is recommended by the Church Commissioners to make great alterations in this diocese. They propose to transfer to the diocese of London those parishes of the deanery of Dartford which are nearest the metropolis; and to the diocese of Canterbury the remainder of the deanery of Dartford and the whole of that of Maidstone; these additions, with that of the deanery of Shoreham, will place nearly the whole of Kent under the see of Canterbury. In return it is proposed to transfer to Rochester nearside, which is now in the diocese of Exeter (including the deaneries of Rochford, Dengey, Chelmsford, Bradpole, Chafford, Ongar, and part of Barking) and the whole of the archdeanories of Middlesex containing the deaneries of Hedingham, Dunmow, Harlow and Brasted. The present archdeaconry of Rochester is probably too large; it ought to be divided into four or five, as the present one is too large to be manageable; in it, the whole of the diocese of Rochester is comprised. Often, the Lichen, georgianus, geogenus, and stellatus, are most common. Such stones are mostly large, and are best adapted for the base of the rock-work. Portions of ruins, antiquities, corals, petrifications, idols, fossil shells, and Chinese and Japanese vases, are all suitable for the rock-work, but they give too much of an artificial character to the work, and it is questionable whether they can ever be introduced among plants with good effect. Although the rock-work is intended to present a mountainous or rocky view, it is evident that in many circumstances that prevent the growth of true mountain and rock plants in such a situation; but the dry ridges of earth and stones of which it is composed afford a favourable situation for the plants that chiefly occupy the dry soil of plants. On this account, small shrubs and creeping plants of any kind that will grow in a dry soil are selected for rock-work. We shall here point out those which may with advantage be cultivated for this purpose. The natural order Leguminosae affords a great number of plants fitted for rock-work. The triangular Genista (Genista triquestra) is a trailing shrub, evergreen in winter. From its winged triangular green shoots it produces a vast abundance of flowers of a golden colour, from April to July. An annual Genista (Genista gracilis) is producing an abundance of yellow flowers from June to July. The dwarf Cytisus (Cytisus nanus) is a pretty pro- cumbent shrub, flowering in July. It should be planted in a dry soil, which must be covered with broken stones. The Rest-harrows (Ononis) are suffruticos plants, with purple and red flowers. Most of the woody Leguminose have yellow flowers; hence the Rest-harrows form an agreeable variety. Astragalus alatus, aristatus, and brevifolius, are all suffruticous plants, the last with purple flowers, which would form good plants for rock-work. To these may be added Hedysarum coronarium and polemum; Astragalus tragacantha, campestris, hydropogonis, and uraleus. Almost all the Rock-rose tribe (Cistaceae) may be grown with success on rock-work. The procumbent and Fumana Sun roses (Helianthemum procumbens et fumana) have both procumbent branches, small bark-like leaves, and yellow flowers, which appear in June. Justicia danitha has bright red flowers inclining to crimson. It is quite hardy, of easy culture, and produces its flowers in abundance. Several of the hardier species of the natural order Mesembryanthemaceae will bear exposure; and as they require little nutriment and soil, are well adapted for growth on rock-work. Many of the species also of the order Crassulacese will grow under the same circumstances. Cotyledon umbilicus requires nothing more than a little gravel of Stones (Cotyledon), as S. anglicum, Forsteri, flacum, dromidum, rupestris, exangulate, and Mellows, will flourish in very dry situations. Many of the Cruciferous plants are naturally rock plants. The common stack (Matthiola involuta) and Estil-
with the liquid till the whole becomes of the same consistency as a stiff paste.

The composition for burning is rammed or driven into the rocket-case; but in the interior and about the axis, a rod space of a conical Form is left in order that a considerable surface of the composition may be at once in a state of combustion; and, at the chokes or neck of the rocket (the part to which the rod is attached), there are several apertures, by one of which the fire is communicated to the composition. The latter immediately takes place on all the conical conical surface about the rod space just mentioned.

In order to understand the cause of the rocket's motion, it is evident that the composition were to be fired within a vessel or case closed, it would fail. It is also evident that the supposed to be possible in such circumstances, the pressure of the flame would be equal in every direction, and the case would either burst in pieces, or, if sufficiently strong, would remain at rest while all the composition was consumed. Now, the case having apertures at the choke or lower extremity of the cylinder, the pressure which would have taken place against that extremity is in great part annihilated by the flame escaping into the atmosphere; consequently the pressure exerting at the base, being no longer counteracted, impels the rocket forward or upwards. This force of impulse acts in a manner similar to that by which a gun recoils when the charge is fired; but in the latter case the fluid escaping almost instantly from the bore, the force of impulse, or quantity of the chamber ceases nearly as soon as it is generated, whereas, in a rocket, the continuity is continued to burn during several seconds, the force of impulse becomes a force of pressure, and the material plant.

ROCKET is a cylindrical vessel or case, of pasteboard or iron, attached to one end of a light rod of wood, containing a composition which, being fired, the vessel and rod are projected through the air by a force arising from the combustion.

rockets have long been used as means of making signals for the purpose of communication when the parties have been invisible from distance or darkness, or otherwise inaccessible to each other; and they have occasionally served the important purpose of determining the difference of longitude between two places. In the latter case the rocket serves to convey to the observer the sensors from both of which the explosion must be visible; and the latter being instantaneous, the difference between the times at which it is observed, as indicated by chronometers regulated during the mean times of the places, is the required difference of longitude. Rockets have also been constructed for the purpose of being used in warfare, and such missiles were so employed for the first time at the siege of Copenhagen in 1607.
service, a body of men, called the rocket troop, has been organised expressly for their management. Sir William caused the rockets to be made with strong iron cases of cylindrical forms, and terminating at the head with a parabolical cone, and he attempted to make their axis, that is to say, the axis should coincide in direction with that of the rocket. They serve either as shells or carcasses, and their weights are 3, 6, 12, 24, and 32 pounds. Military rockets are, in general, fired from tubes in order that the direction of their flight may be more accurately under the control of parties. In cannon, the smaller rockets, is about one degree for each hundred yards in the required range. From their form they penetrate to a considerable depth when fired against timber or earth: 12 pounds penetrated 20 yards against wood and 40 yards against earthen forts. The first tower of London was found to enter the ground obliquely as far as 22 feet. The principal inconvenience attending the rocket practice is the powerful action of the wind when it blows in a direction perpendicular, and even oblique, to the intended line of flight.

ROCKETS. A knowledge of the various earthly and metallic substances which compose the parts of the globe near the surface, seems indispensable to the geologist, whose reason may be compared to a ploughman's. The knowledge of the composition of the rocks, is of equal importance with the study of mineralogy, and of the inconsiderable portion of the science which he is cultivating. It is therefore with some surprise and disappointment that a student of geology finds the classifications of rocks used in different countries differ so much in their arrangement, in their terms, in the common rudiments of fact, as regards the nature of the rock, though strict and definite as relating to its age. Such writers, in fact, do not by the name which they use, as 'gneiss,' or 'grauwacke,' or 'trap,' mean, or wish to express, what the rock is to which they thus designate, but where is its place on the scale of stratified rocks, or how its mineral aggregation is related to particular circumstances of melting or cooling. That this latter method, if carried to extremes, would be of no worse service to geology as a science than the names which are given to mountains, is a truism not debatable on general grounds, but has been amply proved by experience. The terms 'gneiss,' 'grauwacke,' 'clay slate, &c., as given by Werner, or adopted by his followers, had a mineralogical meaning; but each of these terms has been freely employed by modern geologists to include a great variety of rocks but slightly related to, or even merely associated with, the typical compound signified. When we are told that there is no gneiss in Cornwall,' the assertion is true, or nearly so, which is essential to the method it employs. If 'gneiss' is a name given to the rocks of the west of Scotland, and 'gneiss' of Macculloch, may as well be ranked with clay slate as much of the killas of Cornwall, and that other members of this group of rocks might be called mica slate, hornblende slate, or quartz rock... (See Macculloch On Rocks.) To avoid this confusion of mineralogical and geological meanings in one term, several able attempts have been made under one of the following plain principles:

1. To assign to a series of rocks in which several mineral types (as sandstone, limestone, argillaceous beds) occur, and which therefore cannot be well described by a mineralogical term, a name depending on locality. Hence the 'Silurian system,' the 'Devonian system,' &c.

2. To give to such a system the name derived from its most characteristic member; as the 'Cretaceous group,' the 'Oolitic system,' the 'New Red-Sandstone series,' the 'Granite formation.'

3. To avoid all such specially characteristic names, and to substitute terms expressive merely of relative place in the supposed or established series of geological events. Hence Mr. Conybeare's method of superior, supramedial, medial, submedial, and inferior orders of strata. It is perhaps to be wondered that this comparatively new method has neither been fully developed nor followed.

4. A view almost equivalent in practice, and found mainly on the same basis, but distinctly involving an important inference regarding the lapse of time, gives us such names as primary or tertiary rocks, primary or tertiary formations, and, as a subdivision of these latter, Eocene, Meioocene, Pleiocene deposits. It is somewhat strange, that while the use of Transition rocks is pro-
scribed as too hypothetical (it merely involves an inference
seldom disputed), the equally hypothetical titles of Eocene,
Miocene, and Pliocene deposits, should be freely admitted
even by those who think Lower, Middle, and Upper less ob-
jectible to this particular instance, and more useful and
applicable in regard to all the older stratified deposits.
Bromniart classes rocks under the Saturnian (antient) and
Jovian (actual or modern) periods. (Tableau des Terrains.)

Systematic lists of rocks, considered as mineral aggre-
gates without any reference to their geological history, have
been seldom completed. M. Bromniart has presented a
classification of "mixed rocks" nearly conformed to this
principle, which has been of service. Dr. MacCulloch's
"Treatise on Rocks" is a mixed method, mineralogical in
detail, geological in the large features. This writer gives the
following list of

- Minerals which enter into the composition of rocks:—
  Indurated clay, from the
  softest substances found in trap to jasper
  and silicious schist.
  Clinkstone.
  Compact felspar, including
  the hornstone and petroilx of some
  writers.
  Common and glassy fels-
  spar.
  Quartz.
  Carbonate of lime.
  Mica.
  Chlorite (foliated).
  Gneiss.
  Hornblende.

He then adds a list of minerals occasionally imbedded
in rocks, so to modify their aspect, viz.:—
  Garnet.
  Olivine.
  Cyanite.
  Pinite.
  Spodumene.
  Chalcolite.
  Staurolite.
  Epidote.
  Zircon.
  Topaz.
  Beryl.

He then names the rocks in which the minerals of the
first class occur. We extract the most important of these
neces.—

- Indurated clay occurs in claystone not schistose, some
  porphyries and amygdaloids, some basalts; also in argil-
  laceous schist, shale, limestone.
  Compact felspar occurs as a simple rock; also in gneiss,
  porphyries, amygdaloids, syenites, greenstones, augite rocks,
  hypersthene rocks, granite.
  Quartz occurs in quartz rock, granite, gneiss, mica schist,
  chlorite schist, talcose schist, argillaceous schist, sandstone,
  porphyries, syenites, and greenstones.
  Felspar occurs in granite, gneiss, chlorite schist, horn-
  blende schist, actinolite schist, sandstone, quartz rock,
  greenstone, porphyry, syenite, pitchstone.
  Mica occurs in granite, gneiss, mica schist, quartz rock,
  sandstone, shale, limestone, claystone, syenite, porphyry.
  Chlorite occurs in chlorite schist, granite, gneiss, actino-
  late schist, argillaceous schist.
  Talc occurs in talcose schist, primary limestone, granite,
  serpentine.
  Hornblende occurs in granite, gneiss, hornblende schist,
  micaeous schist, argillaceous schist, primary limestone,
  serpentine, syenite, greenstone, basalt, porphyry, chloritoid
  schist, actinolite schist.
  M. Bromniart's general view of mixed rocks may be put
  in the following abbreviated form:—
  A. Crystallized isomorphous rocks (the parts equally
  mixed).
  1. Felspathic rocks.
    a. Granite. Laminated felspar, quartz, and mica, equally
    disseminated.
    b. Porphyrite. Felspar, quartz, stasite, or talc, or chlorite.
    c. Pegmatite (graphic granite). Laminated felspar, and
       quartz.
  2. Hornblende rocks.
    a. Syenite. Laminated felspar, hornblende, and quartz.
    b. Diabase. Hornblende, and compact felspar disseminated.
  B. Crystallized Anisomorphous Rocks (the parts unequally
  mixed).
  1. Base of quartz.
    a. Hylomelane. Crystallized quartz, and disseminated
       mica.
  2. Base of mica.
    a. Gneiss. Mica abundant in plates, lamellar or granu-
       lar felspar.—A laminated rock.
    b. Mica schist. Continuous mica and quartz.
    b. Calcic schist. Argillaceous schist and limestone
       variously mixed.
  4. Base of talc.
    a. Steatite. Talcose base with disseminated minerals.
  5. Base of serpentine.
    a. Ophite. Serpentine, including various minerals,
    b. Ophiolite. Serpentine, including various minerals,
    b. Ophiolite. Limestone, with serpentine, talc, or chro-
       mite, imbedded.
    c. Calciphyre. Limestone enveloping crystals, as fels-
       par, garnet, hornblende, &c.
    a. Variolite. Including nodules and veins of various
       kinds.
    b. Vakite. Including mica, augite, &c.
  8. Base of hornblende or basalt.
    a. Amphibolite. Base of hornblende, with disseminated
       minerals.
    b. Basalite. Base of compact basalt, with disseminated
       minerals.
    c. Trappite. Base of hard compact dull corneal trap,
       with mica, felspar, &c.
    d. Melaphyre (Trap porphyry). Black petralsicous
       hornblende, with crystals of felspar.
  9. Base of petroilx, coloured by hornblende.
    a. Porphyry. Paste of reddish petroilx, with crystals
       of felspar.
    b. Ophite. Paste of green petroilx, with crystals of
       felspar.
    c. Amygdaloid. Paste of petroilx, with nodules of
       petroilx of a different colour.
  10. Base of petroilx or compact felspar.
    b. Leptenite. Base of granular felspar, with mica and
       quartz.
    c. Perolite. With crystals of glassy felspar.
    d. Stigmitite. With crystals of felspar (commonly called
       porphyritic pitchstone).
    a. Lava.
    c. Aggregated rocks (uncrystallized; the parts irregularly
       mixed).
  1. Cemented rocks.
    (This includes sandstones, grauwacke, &c.)
  2. Imbedded rocks.
    a. Mammite. Cement argillaceous, uniting distinct
       grains of felspar, &c.
    b. Phoite. Cement argillaceous, including fragments of
       mica schist, slate, &c.
    c. Enfolding stone. Cement containing large rounded
       pieces of different kinds in various varieties of ped-
       ling-stone, as quartz, limestone, flints.
    d. Breccia. The fragments angular.

The most prevalent classification of rocks in actual use
found on one leading feature of their origin and history.
Rocks are of igneous origin (pyrogenous rocks), or of aqueous
origin (hydrogen rocks), and thus make two great classes:
the former being often considered, with reference to the
circumstances of their occurrence in two divisions, viz. hy-
pothetical and Plutonic rocks (as granite), and volcanic rocks
(as obsidian); the latter being distinguished into fresh-
water and marine deposits, the result of chemical, vital, and
mechanical agencies exerted in water. Many cases are
known of an alteration of these hydrogenous rocks by con-
tact to the granite, the granite being produced by this change
they acquire the name of metamorphic rocks. These clays
and sandstones are hardened, and have their structure altered
so as to resemble clay slate, quartz rock, or jasper; and
charcoal, being cooked, is changed into coal.
Adopting as the best and most applicable the fundamental
distinction of pyrogenous and hydrogenous rocks, the
student will find by experience that the best if not the only
good way of describing and recognising rocks, is by atten-
tion to their place in the series of the crust of the globe. Under
the general term of igneous rocks are included all rocks which
are so many variable circumstances due to particular acci-
dents in the fusion or cooling of the masses, and belong
more or less to all of them, as the compact, oolitic, arenaceous,
and other characteristic textures of hydrogogenous rocks
mark peculiarities of their aggregation or solidification.
Mr. Scrope has successfully shown, in his 'Synopsis of
Volcanic Rocks' (Journal of Science, vol. xx.,) that these
rare rocks may be philosophically classified by consideration of the relative abundance of two minerals,
which are absent from any of them, viz. felspar and augite. (The felspar is sometimes replaced by leucite, haüyne, olivine or melilitte; the augite by hornblende or titaniferous iron.
Hence we have two great groups:—
Felspari ....... Trachyte.
Augito-felsparic . Granzytone.
Augite .......... Basalt.
To each of these belong many varieties, and many grada-
tions of granite, gneiss, amphibolite, and other struc-
tures. [Lava.] By a similar method we may class the older
or Plutonic rocks of fusion, as:—Felsparitic,—granite, porphyry,
felspar rock, claystone, eutlite, pitchstone; Augito-fes-
paritic, euhedrite, augitite, sienite, hypersthene rock,
gneissone, basalt, xactyl, melaphyre.
The hydrogogenous rocks of most importance may be
classed according to their arenaceous, argillaceous, calcare-
ous, or other basis, as:
Arenaceous, uniform, as sandstones, sands; aggregated as
conglomerates, pudding-stones.
Argillaceous, uniform, as clay and shale; containing
fragments, as some clay conglomerates.
Argillo-calcareous, as marls properly so called.
Calcareous, as chalk, limy rocks.
Calcareo magnesian, as dolomite.
Haloid, as gypsum, rock salt.
Carbonaceous, as coal, lignite.
Cretaceous, as chalk, marl, claystone.
Cupferous, as the kupferschiefer.
Finally, all these hydrogogenous rocks are liable to local
changes, by contact or proximity with the rocks of fusion.
These metamorphic rocks may be classed according to the
same form as those which are unaltered. We give below
authentic examples of several cases of metamorphism:
1. Arenaceous rocks, metamorphized by induration, as along
greenstone dykes in Arran, and Salisbury Crags. Similar
effects happen beneath iron-furnaces, and when the effect
is in extreme the result is granite rock.
2. Argillaceous rocks, metamorphized by induration, and a
character confluence of grains. In extreme cases the result
is a kind of clay slate, or slate rock, or Lydian stone, with
true beds, or single causeways, as a specimen of the
slate at Plass Newdydd.
3. Calcareous rocks, metamorphized by re-arrangement of
particles. Thus granular or saccharoid limestone is found
by the side of the basaltic dykes in Arran, on the green-
stone of Torsedale, in the post glacial mists of Skye, &c. The
limestone among primary strata is of similar appearance,
though not in contact with igneous rocks.
4. Carbonaceous. Coal becomes coke or anthracite near
basaltic dykes.
Examinations of this kind have shown that ordinary
sedimentary rocks altered by heat acquire aspects and struc-
tures and compositions resembling almost exactly those
most common among the earliest or primary strata, as
quartz rock, clay slate, garnet mica slate, garnet gneiss,
granular marble, &c.; and it is therefore a probable infer-
ence that in all such cases of strict resemblance those an-
tient rocks have undergone a great scale, and under the
general influence of the intense heat of the earth, the
changes which are certainly produced are those happened
locally, from limited agencies, on substances of similar
good quality. Very careful investigations on these points
are however still needed to fix limits and give precision
and certainty to the general idea.
The circumstances which accompany the appearance of
pyrogenous rocks will often lead us to probable views as to
the conditions under which they were fused and cooled.
These from the granite masses of Arran and Cornwall, very
coarse in their granulation, are veined and probably have
been subjected to secondary alteration, and become more and more fine in grain, and	tporphyriz or merely felsparitic in aspect; the coarse green-
stone of Salisbury Crags acquires compactness where it touches the sandstone, and it is in a moderate degree
of masses of fused rock or melted metal is usually the
most porous part; and all these facts are linked together in
the more general proposition, that slow cooling allows of large
and regular, while rapid refrigeration generally forces a
hasty, hasty, and confused structure, in which crystalliza-
tion is sometimes quite destroyed. [See Basalt for some
notice of Mr. Gregory Watt's experiments on this
substance cooled from fusion.]

LITURGICAL AND RIVER DEPOSITS, as conglomerates and sand-
stones: the latter showing often ripple-mark, sometimes
impurities of litoidal or terrestrial animals; the former, a con-
fused aggregation resulting from local agitation.

Sea and River Sediments.—Shales and clays, often finely
and regularly laminated, and of very uniform composition,
the fruit of more tranquil deposition in deeper or
calmer water.

Polhagan Deposits, as some limestone strata, the accu-
nulation of dead shells, crinoidea, foraminifera, &c,
and others which are in part the preserved structures of coral.
Thus some beds of marble are really masses of crinoidea,
others of coral, some chalk is full of spicula of sponges, &c.,
and other calcareous beds are replete with
foraminifera.

[Basalt; Granit; Gravacre; Gesse; Lava; Mica Schist; Porphyry; Stratification; Rocky Mountains, a fortified town in France, capital of an arrondis-
dement in the department of Ardennes, 161 miles north-
east of Paris by Soissons, Reims, and Mézières. Rocroy,
then a village, was fortified by François l., A.D. 1537,
to defend the frontier on that side: the fortifications were
finished, and the place raised to the rank of a town, by his
son Henri II. It was besieged, A.D. 1643, by the Spaniards
under Don Francisco de Melos, who occupied a very strong
position, covered by marshes and woods, and accessible only
by a single causeway. The French under General Philibert
Sagon, afterwards better known as prince of Condé (Le Grand
Condé), then only twenty-two years of age, advanced against
the Spaniards, and obtained a splendid and decisive victory
(19th May), which laid the foundation of his military re-
nown. The town stands in an extensive plain, about five
miles from the left bank of the Meuse. The fortifications
are of no great importance at present, though it still ranks
as a fortress. The population in 1831 was 3625: the town
make tin ware and carpenters' work. There are four
fairs in the year. The town has a society of agriculture,
a military hospital, and some government offices.
The arrondissement comprehends sixty-eight communes,
and is divided into five cantons or districts, each under a
justice of the peace. The population in 1831 was 43,807.

ROCKY MOUNTAINS is a term usually applied to an
extensive mountain-system in North America, but as this
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term has too general a significance, and therefore cannot with propriety be applied to a particular system, geographers call the North American range the Chipewyan Mountains. These mountains occupy the central parts of that continent, but, like the Andes in South America, they are nearer the Pacific than to the Atlantic Ocean. The Chipewyan Mountains are far less known than the Andes in South America. Perhaps more than one-half of the eastern declivity has been seen by travellers, who have given some account of it, but, with the exception of a comparatively small part, the whole of the western declivity is almost entirely unknown.

It was formerly supposed that this mountain-system was only a continuation of the Andes of South America, and there is some reason to connect it by a mountain-barrow which traversed the Mexican Isthmus in its whole length. But it is now ascertained beyond doubt that a flat country of considerable extent intervenes between the Andes and the mountains of the Isthmus. [PANAMA.] It is also ascertained that the mountain-range which is known under the name of the Sierra Madre, in the northern of the Mexican States, is not connected with any of the southern offsets of the Chipewyan Mountains, but terminates about 150 miles west of the Sierra de la Dignidad, or that portion of the Chipewyan Mountains which approaches nearest to it.

This mountain-system may be divided into three parts—the Southern, Central, and Northern Chipewyan Mountains. The Southern extends from 34° to 37° N. lat.; the Central Chipewyan from 42° to 49° N. lat.; and the Northern from 49° to nearly 76° N. lat. The whole length, from 29° to 70° N. lat., exceeds 3000 miles, and when the ridges, which probably traverse the two western masses of it, are included, the whole length is about 4000 miles.

The Southern Chipewyan resembles the Northern Andes in being divided into three long ranges, which run off in diverging lines. The point from which they diverge is a mountain-knot, about 42° N. lat., and is called Sierra Verde. From this point the three ranges run southward. This most northly range forms the two western masses of it, between 42° and 37° N. lat., and within these limits preserves the name of Chipewyan or Rocky Mountains. It runs nearly due south between 104° and 106° W. long. Between 35° and 34° N. lat. it divides into two ranges, both of which run southward and parallel to one another, including the narrow valley of the Rio Puerco, and terminate in the great bend of the Rio del Norte, between 29° and 30° N. lat. In the present state of geographical knowledge, these two ranges, which are called the Sierra de los Comanches, are considered as the western part of the main range of the Chipewyan Mountains. It is hardly known on what authority these two ranges have been laid down on our maps, as the valley of the Rio Puerco and the countries east of it are in the possession of the Comanches, who do not allow strangers to enter their country. Only the western declivity of the western range has been seen by travellers, who describe the range as rising only to a moderate elevation, but having a very desolate and barren aspect, and being almost entirely without water and wood.

That part of the Southern Chipewyans which extends from 44° to 49° N. lat. is perhaps the best known part of the whole system, the eastern declivity having been examined to a considerable extent by travellers. The breadth of the range varies from 50 to 100 miles. The mountains rise abruptly from the plains to the east of them, towering into peaks of great height, which are visible at the distance of more than 100 miles east of their base. They consist of ridges, knobs, and peaks variously disposed, among which there are many wide and fertile valleys. The more elevated parts of the mountains are covered with perpetual snow, which gives them a luminous, and, in part of it, even a brilliant appearance, when, they have derived the name of the "shining mountains." The height of the James Peak has been ascertained to be about 9800 feet above its base, which is considered as between 2000 and 3000 feet above the sea-level. Though the range is more than 1000 feet above the present sea-level, Major Long says, that judging from the position of the snow near the summit of other peaks and ridges at no great distance from it, it is apparent that they are much higher.

The western declivity of this range is not so steep as the eastern, and does not descend so deep, the upper valley of the Rio del Norte being considerably more elevated than the plains east of the mountains.

The central range of the Southern Chipewyans runs nearly parallel to the eastern along the meridian of 107° W. long., and terminates near 34° N. lat. with the Sierra de Mogolon, a name which is sometimes applied to the whole range, though others call it Sierra de los Miebres. It appears not to have much the same character as the range to the west, its eastern side is more sloped, as if it were formed by a series of more or less detached masses of rock, while the western side is more rounded, as if it were formed by a series of rounded masses.

It was formerly supposed that the Sierra de Mogolon was situated in the Rio Grande district of New Mexico; but the last-mentioned range terminates near 35° N. lat., and a level plain about 150 miles in extent intervenes between the two ranges.

The western chain of the Southern Chipewyans is called the Sierra de los Guacuras, and it is supposed to form the principal chain at the Sierra Verde. But with the exception of a mountain tract, which occurs about 37° N. lat., and 112° W. long., and is properly called Sierra Guacuras, this range is unknown in its whole extent. It is not even known whether it is connected with the last-mentioned range on the east, or whether it may be a part of the mountain-range which approaches nearest to it.

As the countries surrounding the Southern Chipewyans are inhabited by savage tribes, who seem to have no intercourse with one another, the routes are unknown, with the exception of one over the eastern range, near 36° N. lat., which is used by the North American caravans, which start from the town of Franklin in the state of Missouri, and reach the coast of the Pacific by the Great Salt Lake, whence they proceed to Chihuahua. The elevation of the mountain-pass does not appear to be very great.

The Central Chipewyans between the Sierra Verde (40° N. lat.) and the summit of the St. Bernard, have been often traversed by American travellers, in passing from the United States to the river Colombia. In this part the mountain-region seems to contain two ranges of great elevation, running parallel to one another at the distance of 100 miles, and enclosing high valleys, which are generally filled up by the rocky masses, which protrude from the great chains to a considerable distance within the valleys. The two chains however do not subside either on the east or on the west into plains, being separated from the level ground, which only occurs at the greatest distance from them, by hilly regions of considerable extent.

Not far from the Sierra Verde, towards the north, between the Spanish River, supposed to be the Rio Colorado, which extends from 45° to 47° N. lat., and inhabited by small and savage tribes, have often crossed the range, make a part of the range of the Sierra de Mogolon, and the Big Horn River, an affluent of the Missouri, the eastern chain of the mountains contains a deep and wide depression, which presents a easy passage over the range, so easy indeed that it may be crossed by carriages. In these parts there is a plain between moderate heights, which is about ten miles in circumference, and the surface of which is encrusted with salt as white as snow to a depth of twelve or eighteen inches. North of this depression the mountains rise to a greater height, but they do not present a range very extensive. There are two large valleys, here and there overtopped by high peaks, among which there is one which probably rises to 13,000 feet above the level of the sea. The eastern range is furrowed longitudinally by deep gulches, or rivers, which flow down into small and rapid streams. The highest parts of the range are composed of granite, and are bleak and bare, being nearly destitute of vegetation, but many of the inferior ridges are scantily clothed with scrub pines, oaks, cedar, and furze. In other parts the country is more forested. Some of the interior valleys are strewed with scoria and broken stones, evidently of volcanic origin, and vestiges of extinct craters are seen on the highest points.

Farther north, between 45° and 47°, the eastern range appears to form a part of the great mountain elevation, and to rise to a great height. Their highest parts are covered with snow in the months of August and September, and in the lower parts, along the watercourses and in the ravines, snow does...
monstrous. [Beaver, vol. iv, p. 121.] The lower jaw is articulated by a longitudinal condyle, so as to have no horizontal movement except from behind forwards, and vice versa, convenient for the action of gnawing; the molar consequently have flat crowns, the enamelled eminences of which are always transversal, so as to be in opposition to the haversian arrangements of the jaw, and to be better adapted for triturating.

The genera in which these eminences are simple lines, and which have the crown of the tooth very flat, are more exclusively frugivorous; those which have the eminences divided into transversal plates that turn upward, are adorned with the small number of those which have points more willingly attack other animals, and approximate a little to the Carnivora.

The portion of the body of the Rodents is in general such that their hinder parts exceed their anterior ones, so that they leap rather than walk; this disposition in some of them is as excessive as in the kangaroos.

The intestines of the animals of this order are very long; their stomach simple or slightly divided, and their ceca very voluminous, even more so than the stomach. The Mgynia (Dermot) want the ceca.

Preparations illustrative of the male organs of the Rodentia, will be found in the Physiological Series of the Museum of the Count de Suzzoni. Nos. 2483 to 2904, both inclusive: of these Nos. 2483 to 2487, exhibiting those of the Beaver with the preputial or castor-pouches, and Nos. 2492, 2492 A, those of the Acouchi with the penis annexed, and others with the scrotum and horny ridge are remarkable. Those of the other Caeses, Nos. 2493 to 2497 (both inclusive), exhibit similar peculiarities. The placenta is simple. Preparations Nos. 2743 to 2751, both inclusive, illustrate the female organs.

The skin of the animals is easily smooth and without convolutions; the orbits are not separated from the temporal fossa, which have but little depth; the eyes are entirely directed laterally; the zygomatic arches, delicate and curved below, while the weakness of the jaws; the fore-arms have scarcely any rotatory motion, and their two buns are nearly united; in a word, the inferiority of these animals shows itself in the greater part of the details of their organization. Nevertheless, the genera which have the strongest claws enjoy a certain dexterity, and use their fore-feet for carrying their food to their mouth: others again (the squirrels) climb trees with facility. (Règne Animal.)

The following animals are arranged by Cuvier under the order Rodentia.

The Squirrels (Sciurus, Linn., vis.): viz. the Squirrels properly so called (Sciurus, Cuv.); the Flying Squirrels (Pteromyx); the Aye-Aye (Cheirobius).

The Rats (Mus, Linn., vis.): viz. the Marmots (Arctomyys, Semevillius); the Dormouse (Myoxus, Gm.); the Spiny Rats (Echimys, Hydromys, Capromys); the Rats properly so called (Mus, Cuv.); the Jerboles (Gerbillus, Meriones); the Hamsters (Cricetus); the Field Rats (Arvicola, Lécîp.); subdivided into the Ondatra (Fiber, Cuv.), the ordinary Field-Rats (Arvicola, Cuv., Hypaclis, Ill.), and the Lemmings (Georychus, Ill.); Otomys, and the Jerboas (Dipus, Gm.).

The Jumping Hares (Holomys, F. Cuv.; Pedetes, Ill.).

The Hair-Moles (Spalax, Guld.).

Bathyergus (Oryctères, F. Cuv.).

Geomys (Pseudotoma, Suty; Ascomyys, Locht.)

Diploptoma, Raf.

The Hare (Lepus, Linn.).

The Squirrels (Sciurus, Linn., vis.): viz. the Porcupines properly so called (Hystrich, Cuv.); Atherurus, Cuv.; Erethizon, F. Cuv.; and the Coendous (Semithères, F. Cuv., Cercalabes, Brandi).

The Hares (Lepus, Linn., vis.): viz. the True Hares (Lepus, Cuv.), and Lagomys, Cuv.

The Squirrels (Sciurus, Linn., vis.): viz. the Porcupines properly so called (Hystrich, Cuv.); Atherus, Cuv.; Erethizon, F. Cuv.; and the Coendous (Semithères, F. Cuv., Cercalabes, Brandi).

The Bats (Myotis, Cuv., vis.): viz. the Bat (Myotis, Cuv.); the Pelecan (Nycticebus, Blainv.).

The Agoutis (Chloromys, F. Cuv.; Danysprota, Ill.)

And the Poes (Catologyn, F. Cuv.).

* Fur, with scattered larger hairs or spines; tail shiny or scaly.


** Fur nearly equally soft; tail none, or hairy.

Fam. 3. Leporidae; 4. Jerboidea; 5. Apodaliidae.

For the further development of Mr. Gray's arrangement, see the articles Leporidae and Mammalia, and to that of Mr. Swainson (Classification of Quadrupeds) divides the Glivres, or Gnawing Quadrupeds, into two main divisions, viz.: 1. Those with clavicles; 2. Those with rudimentary, or no clavicles; and a third division, Marsupial Rodents, situation uncertain, but probably South American.

The first division consists of the genera Castor, Fiber, Myopatomus, Rats and Mice, and Squirrels. [Muridae, vol. xv, pp. 496, 497.]

The second division embraces the genera Hystric (with the subgenera Acantium, Erethizon, Synemthes, and Spignurus), Lepus (with the subgenus Lagomys), and Cavia (with the subgenus Hydrocrassus, Cobaya, Cavia).

Under the Marsupial Rodents are placed the genera Phascolomys (with the subgenus Ambloites), and Phascol-arcroes.

In the 'Magazine of Natural History,' New Series (1839), will be found Mr. Waterhouse's interesting 'Observations on the Rodentia, with a view to point out the groups as indicated by the structure of these animals in this order of Mammals.' And in November, 1839, the same accurate observer laid before a meeting of the Zoological Society of London a tabular view of the distribution of this numerous order.

Mr. Waterhouse stated, that in the construction of the following table he had endeavoured to display the geographical distribution of the sections of the order Rodentia, and that to accomplish this, it of course became necessary to combine the system of classification, given in this order of Mammals, which is according to the countries in which they were found. The table is divided into five columns, one column being devoted to each of the following portions of the globe: 1st, Europe and North Asia; 2nd, North America; 3rd, Africa; 4th, India and the Indian islands; 5th, South America and the West Indian islands.

In these columns the names of the genera found in each province are inserted, and the number of known species belonging to each genus (as nearly as can be ascertained) is also indicated. Horizontal lines separate the genera according to the sections to which they are supposed to belong.

A few Rodents found in Australia all belong to the family Muridae. About six species are known, and these are appertain to the genera Mus, Hapalolotis, Licht. (which is the Conilurus of Mr. Ogilby), Hydromys and Pseudomys.

The first thing that strikes the attention, observed Mr. Waterhouse, is, that the great mass of South American Rodents belong to a different section from those of the northern portions of the globe, and that they are of a lower grade of organization, as is also the case with respect to the Old and New World Monkeys.

The next point to which Mr. Waterhouse drew attention was the relative number of species found in warm and in temperate climates. 'If the number of species found in the two provinces, Europe (including North Asia) and North America, be added together, the total is 180 species; whilst in all the rest of the world taken together, the amount is only 250; and if from this last number those species which the temperate portions of South America and Australia (amounting perhaps not to be more than 20), and added to the first amount, it would appear that the Rodentia are most abundant in temperate regions. In the Mammals of large size the case is reversed.'

The total number of species inhabiting each of the provinces pointed out in the table varies less than perhaps might be expected. The European province, North America, and South America, are nearly equal as to the number of species they contain; India and Africa are also nearly equal, but they contain fewer species than either of the other provinces.

* The Squirrels, Rats, Porcupines, and Hares (constituting the genera Sciurus, Mus, Hystrich, and Lepus) are the only groups which are found in all the provinces.

The Sciuridea are most abundant in North America and India, and are least abundant in Africa and South America. In the latter country they appear to be chiefly confined to the northern portions, and are totally wanting in the southern.
The Muridae are about equally abundant in Europe, Africa, and South America; in North America and India they are much less numerous.

The Arvicolidae appear to be confined to North America and the European province. In South America they are apparently replaced by the Otodontidae, Chinchillidae, and Caviidae.

The family Leporidae is but feebly represented in each of the provinces above mentioned, excepting in North America, where the number of species already discovered is almost equal to all those found in other portions of the globe taken together. In earlier periods these Rodents, which are very low in the scale, appear to have been much more numerous, judging from the fossil remains which have been found—at least in the European province.

The remaining families of Rodents are almost entirely confined to South America. The genus Anasomus of Western Africa, the genus Petromys, an inhabitant of the Cape of Good Hope, and Bathyergus, found both in the Cape and northeastern portions of Africa, possess certain characters in which they approach the South American forms. Petromys analogously appears to represent the Otodontidae of South America, and Bathyergus may be compared to the genera Poephaga and Cleomys; whilst in Anasomus we possess a representative of the Capromys of the West Indies.

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Mr. Waterhouse observed, 'that he had not yet been able to satisfy himself as to the precise situation, in a systematic classification, of the genera Ctenodactylus and Helamys, the former from North and the latter from South Africa. Four other genera are omitted in the above table for the same reason; they are Otomys of Dr. Smith, a genus found at the Cape of Good Hope; Akodon, Meyen, which inhabits Peru; Heteromys, Delessert, founded on the Mus amoenus of Thomas; and animal found in the island of Trinidad: and lastly, Sorcomys of F. Cuvier, which is supposed to be from North America. These four genera in all probability belong to the family Muridae.

The genus Arildontia is placed with Sciuridae, but it must be observed that it differs much from the typical species of that group, there being no post-orbital process to the skull, and the molar teeth being rootless.' (Zool. Proc.)

The student should further consult The Zoology of the Voyage of H.M.S. Beagle. Nos. ii., iii., iv. of part ii. (Mammalia), where many Rodents are described and figured, and the characters of the Octodontidae (pp. 83, 84) clearly pointed out.

We have good reason for stating that besides the Leporidae, which differ considerably from all other groups of Rodents, there are only a few genera which Mr. Waterhouse has not yet sufficiently examined to determine satisfactorily to himself how many families they form. These genera are the South American forms Capromys, Myopoma, Eccius, Cereomys, Dasyprocta, and Catagonus; they are, in his opinion, certainly very nearly allied to each other, and may perhaps with propriety be collected into one family under the name of Dasyproctes. There are moreover certain African genera which Mr. Waterhouse has not yet had an opportunity of thoroughly examining. Some observations by the same author on the families Chinchillidae and Leporidae will be found in the Zoological Proceedings for 1839 (p. 61).

Brandt has admirably worked out the family Hystriomys, in his Mammalia Exotica, a new work, vol. viii. (Zoot. Journ.) Mammalia, where many Rodents are described and figured, and the characters of the Otodontidae (pp. 83, 84) clearly pointed out.

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nearly three years. There is a fabulous chronicle of this
king, or rather a romance of chivalry, in which the popular
traditions current among Moors and Christians respecting
the invasion and conquest of Spain, as well as many ab-
nomalous fables like that of Florinda and the enchanted
Tower of Toledo, have been embodied by an anonymous writer
of the fourteenth century. It was printed for the first time
at Toledo, 1459, and has since gone through several editions.
Another fabulous history of 1490, by Rodero and the events in
which he was associated, was written towards the middle of
the sixteenth century, by a converted Moor of the name of
Luna (Granada, 1592, 4to). These, and other books of the
same stamp, have furnished ample materials for some of the
books of romance in English literature. (Scott, Southey, and
Irving.)

(Arabic History of the Mohammedan Dynasties in
Spain, vol. i., chaps. 1 and 2.)

RODNEY, ADMIRAL LORD. GEORGE BAYDOUS
Rodney was born at Walton-on-Thames, in the
county of Surrey, February 19, 1718. He was taken from
Harrow School, and sent to sea at twelve years of age. In
1739 he was made a lieutenant; in 1742, a captain; and in
1746 he was sent out as governor and commander-in-chief
of the Newfoundland station, with the rank of commo-
dore.

In October, 1752, Rodney returned to England, and was
elected member of parliament for the borough of Satish.
He was next successively, and for life, a member of the
privy council of state, the Privy Council of India, the
Prince George, 908; and the Dublin, 74. After twenty-
eight years of active service, he was raised to the rank of
rear-admiral, May 19, 1759.

In 1761 Admiral Rodney was appointed commander-in-
chief of the Barbados and the Leeward Islands. Having cap-
tured the islands of Martinique, Saint Lucia, and Granada,
he was recalled on the conclusion of peace in 1763. Soon
after his return he was created a baronet, and by succes-
seive steps reached the rank of vice-admiral, and was ap-
pointed governor of Greenwich Hospital; but resigned
this office on being sent out, in 1771, as com-
mander-in-chief on the Jamaica station. In 1774 he was
recalled.

Under the pressure of pecuniary difficulties, Sir George
Rodney now retired to Paris, where he remained till May,
1778, when he was promoted to the rank of admiral of the
white, and in the autumn of 1779 was again appointed
commander-in-chief on the Barbades station, for which he
sailed December 29, 1779. His fleet consisted of 22 sail
of the line and 8 frigates. France and Spain were at this
time united against England. Before he had been ten
days at sea he had captured seven Spanish ships of war, and
on the 28th of March, 1780, he defeated an armada
under Admiral Langara, near Cape St. Vincent, consisting
of 11 ships of the line, and 2 frigates. Of these five were
taken and two destroyed; but the action being in the night,
and the weather tempestuous, the rest escaped.

In the month of April, 1780, Rodney was in sight of the
French fleet, under the Comte de Guichen, near Martinique.
Rodney intended to attack the enemy, which was a little su-
perior, with his fleet in close order; but the greater part
of his captains disobeyed, and kept at a cautious distance.
Only five or six ships supported him, while in his own, the
Sandwich, he engaged a 74 and two 80-gun ships for an hour
and a half, and compelled them to bear away, and broke
through the enemy's line. In his dispatches Rodney con-
veyed to Sir George Bernhard, that the admiral had
pressed the passage, and only one of them was brought to
trial, who was dismissed from the service. The admiral
was rewarded with the thanks of the House of Commons,
and a pension of 2000l. a-year, to be continued after his
death to his family in specified portions for their respective
lives. In 1780, he was chosen, free of expense, to repre-
sent the city of Westminster, and was also made a Knight
of the Bath. Soon afterwards war was declared against the
states of Holland, and instructions were sent to Rodney to
assist in the operations. He was sent to the western
island of St. Eustatus surrendered, without a shot having
been fired, Feb. 3, 1781; and in the course of the spring,
the Dutch colonies of Demerara, Essequibo, and Berbice
were taken and garrisoned. For the recovery of his health,
was received with uni-

versal enthusiasm, was created vice-admiral of England in
the place of Admiral Hawke, deceased, and was appointed to
the command of the whole of the West Indies. Both the
French and Spanish fleets were at this time in the West
Indies, and it was intended to form a junction, and attack
Jamaica and the other British possessions. The French
fleet was commanded by the Comte de Grasse, and consisted
of 33 or 34 sail of the line. The British fleet was of about
having been brought to Rodney, on the 5th of April, 1792,
of their having sailed from Port Royal Bay, Martinique,
he immediately followed them. A partial action took
place on the 10th of April, in which the British were
beaten, and a third was rendered useless by an accident
in the night of the 11th, thus reducing the French fleet to 30
or 31 ships of the line. The British fleet was rather more
in number, but much less in weight of metal. The general
result of the battle was decided on the 11th, and about
9 o'clock in the morning, and lasted till half-past six in
the evening. Rodney, in the Formidable, broke through
the French line, and engaged the Ville-de-Paris, De Grasse's
flag-ship, and compelled her to strike. The result was,
that seven ships of the line and two frigates were taken by
the British.

About this time the Whigs had come into office, and
Rodney having been always opposed to them, an officer was
suggested to succeed him, and only just sat down when
the news of this great victory reached England, and the
Admiralty immediately sent an express to overtake and
bring back the officer, but it was too late. Rodney reached
England, September 21, 1782. He was raised to the peers-
ship with the title of Baron Rodney, and received an addi-
tional pension of 2000l. a-year. He lived chiefly in the
country, till May 23, 1792, when he died, in his 76th year.
He was twice married, and left a numerous family.
A monument was erected to his memory in St. Paul's cath-
eral. Lord Rodney, at the national debt, was mortgaged by
Reynolds was in the royal collection at St. James's Palace,
but has since been sent to Greenwich Hospital.

(Gallery of Portraits, vol. ii.; Mundy's Life and Corres-
pondence, 1st of the London, 2 vols., 500.)

RODOLPH (GERMANY)

RODRIGUEZ, VENTURA, the most eminent Spanish
architect of the eighteenth century, was born at Cenpoceas,
July 14, 1717, and commenced his first studies in his pro-
fession under Esteban Marchand, whose talent attracted
him on the works carrying on at Aranjuez. After the death
of Marchand, in 1733, he still continued at Aranjuez, until
Juvara engaged him as his assistant in making drawings
for the design of the new palace at Madrid; and after the
death of Juvara, he was similarly engaged by his successor
Suchetti, with whom he was subsequently associated in
the execution of that vast pile, as apejardor, or principal
clerk of the works, 1741. In 1747 he was made honorary
architect of the king's works and of St. Ferdinand being established at Madrid, in 1752, he
was appointed chief director or professor of architecture in
it, an office for which he was peculiarly fitted, not only by
his talents, but by his zeal for his art, and his solar-
burth for the advancement of it to the highest degree,
burred in upon him from every quarter; for there was
scarcely a work of any importance throughout the country
on which he was not either engaged or consulted. He
was employed on various cathedrals, churches, colleges, hospitals,
and other structures at Zaragon, Plasga, Toledo, Granada,
Valladolid, and numerous other places; and a mere list
of the works designed or executed by him would be one of
considerable extent. We can here partly point out, as being
the choicest examples of his genius, the desapta of
Codobons, the church of San Felipen, N.S., Madrid,
that of the hospital at Oviedo, and the palace of the Duque
de Lira at Madrid.

These multiplied engagements, and the frequent journeys
with which they occasioned him, prevented his traveling to
Italy; but he collected all works of engravings relative both to its
antient and modern buildings. He also carefully studied
all the most remarkable monuments of Roman, Moorish, and Gothic
architecture in his own country. He died at Madrid, 1783,
with six years families. Trey last, the church of San Marcos, the only one in that capital erected by himself.
Rodriguez has been honoured with an Ellogio by the cele-
bated Jovellanos, to which we must refer those who wish for
a detailed account of his life and works. He is also repeatedly mentioned with his commendations by Pau,
in his 'Visage de Espaia,' and his obelisks deserves the
the title he received from his contemporaries, of the Restorer
of Architecture in Spain; yet whether his merit lay chiefly in
the reform of a puerile and vitious taste, and in purifying Spanish architecture from the barbarisms that had crept into it, or whether his works display any high degree of positive talent, is what we ourselves have not the means of judging.

ROEBUCK. [DEAN, vol. viii., p. 360.]

ROGATION DAYS. It was a general custom formerly, says Bourne, and it is still observed in many country parishes, to go round the bounds and limits of the parish on Rogation Sunday. The custom was published after an encomium on the minister, accompanied by his churchwardens and parishioners, used to deprecate the vengeance of God, beg a blessing on the fruits of the earth, and preserve the rights and properties of the parish. Spelman considers this custom as an imitation of the Roman Terminalia. The primitive custom used by Christians on this occasion was, for the people to accompany the bishop or some of the clergy into the fields, where Litanies were made, and the mercy of God implored, that he would avert the evils of plague and pestilence, that he would send them good and seasonable weather, and give them in due season the fruits of the earth. The Litanies or Rogations then used gave the name of Rogation Week to this time. They occur as early as 450. The Litanies were still observed, by Mastermori, bishop of Vienna, in account of the frequent earthquakes that happened, and the incursions of wild beasts, which laid in ruins and depopulated the city. (Walshfull, Strut., c. 26, De Repub. Ecclesiast.) In the case of an earthquake, the clock stopped, and the bells in the church of Rome, which then struck the hour, and the people were assembled in the church or in the streets to pray. The father's house she enjoyed, to a certain extent, the means of cultivating painting, music, and general literature. It is probable that her early devotion to these pursuits tended to influence her in a devout and pious manner; her future career. Whilst yet a girl, she was, at her own earnest request, placed for one year in a conventual school. At this age her religious enthusiasm was extreme; in after-years it subsided, and her opinions, she confesses, went through various changes. But she used to patiently accept the result in some degree due to her pascal of the writings of many celebrated authors. Her reading, under her father's roof, was of a most miscellaneous description. The works of the fathers and the free writings of the seventeenth and eighteenth centuries were constantly accessible to her, who was perused with equal avidity; but the most powerful and lasting impression was made on her by an early familiarity with Plutarch's 'Lives of Illustrious Men.' From this time, Greece and Rome were constantly present to her thoughts, and when she was fourteen years old, she is said to have wept to think that she was not a Roman or a Spartan woman.

At the age of five and twenty, she became the wife of M. Roland, a man twenty years her senior, of laborious habits, great ability and integrity, and manners described as of antique severity. A daughter was the fruit of this marriage, and Madame Roland's time became divided between the care of her child's education, and giving assistance to her". (Cray, vol. ii., p. 168-179; Bradbury's Cloists Calendar, 1860, vol. i., p. 321-326.)

ROGER OF HOVEDEN. [HOVEDEN.]

ROGER OF SICILY. [SICILISS, Two—History.]

ROBARD. [VAGRANT.]

ROHAUT, JAMES. The son of a merchant at Amiens, where he was born in 1620. He received the rudiments of a scientific education in that city, and was afterwards sent to Paris for the purpose of prosecuting his studies in philosophy.

In that age the physical works of Aristotle had begun to give place to those of Descartes, and most of the learned men in France received with complacency the explanation of the phenomena of Nature which were given in the "Précis de la Physique" of the illustrious countryman. Among the persons alluded to, Rohaut was one who diligently studied the writings of the Greek philosophers and of his numerous commentators, but he also applied himself with ardour to the productions of the school of Paris. He was gratified, and his talent, his industry, his ready pen made him famous, and he was the object of their common admiration. Rohaut seems to have executed the task assigned to him in a manner which gratified the wishes of his patron and father-in-law, and in the preface to his "Traité du Physique" he designates Descartes as a man who, by his works, had shown that France was capable of forming philosophers as illustrious as those of ancient Greece. This work was translated into Latin by Dr. Samuel Clarke, and published with notes, in which are given explanations of the principal phenomena agreeably to the philosophy of Newton, which, in a very few years, had entirely supplanted that of the French school.

After the above-mentioned work was finished, Rohaut appears to have been occupied for several years in giving instructions in mathematics, and the subjects of his lessons comprehended, in the first place, the Elements of Geometry in two books, which course comprehends geometry, both plane and practical; trigonometry, plane and spherical; fortification, mechanics, perspective, and arithmetic.

Besides the "Traité de Physique," Rohaut also published an "Exposition sur la Philosophie," consisting of a series of dialogues, in which the subjects are treated according to the Cartesian principles. He died in 1675.

ROHILCUND. [HINDUSTAN. p. 218.]

ROLAND, MANON. Manon Philibert, for such was her maiden name, was born in Paris in 1756. Her father was an artist of moderate talent; her mother was a woman of superior understanding and of a singularly amiable temper. Manon learned to read so early and so easily as not to be able to recollect the process; and, having once learned to read, she read everything with avidity. Her father's house she enjoyed, to a certain extent, the means of cultivating painting, music, and general literature. It is probable that her early devotion to these pursuits tended to influence her in a devout and pious manner; her future career. Whilst yet a girl, she was, at her own earnest request, placed for one year in a conventual school. At this age her religious enthusiasm was extreme; in after-years it subsided, and her opinions, she confesses, went through various changes. But she used to patiently accept the result in some degree due to her pascal of the writings of many celebrated authors. Her reading, under her father's roof, was of a most miscellaneous description. The works of the fathers and the free writings of the seventeenth and eighteenth centuries were constantly accessible to her, who was perused with equal avidity; but the most powerful and lasting impression was made on her by an early familiarity with Plutarch's 'Lives of Illustrious Men.' From this time, Greece and Rome were constantly present to her thoughts, and when she was fourteen years old, she is said to have wept to think that she was not a Roman or a Spartan woman.

At the age of five and twenty, she became the wife of M. Roland, a man twenty years her senior, of laborious habits, great ability and integrity, and manners described as of antique severity. A daughter was the fruit of this marriage, and Madame Roland's time became divided between the care of her child's education, and giving assistance to her".
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was as unwelcome to the court as his plain attire was displeasing to the courtiers. The talents of his wife were at this time applied to assist him in the composition of public papers. Without pretending to direct him, she showed her better judgment in giving him her sentiments on the expressions and feelings of a woman of sensibility. She rendered these documents more impressive and effectual. The famous letter of M. Roland to Louis XVI. (May, 1783) was drawn up by her: a letter designated, according to the phrasing, the eyes of the people; a letter heightened by a severe remonstrance, or as audacious and full of evil prophecy. This production occasioned M. Roland’s dismissal by the court; for which he was compensated by the warm applause of the Convention. He again became a minister after the events of the 10th of August; but his party had then passed the bounds prescribed by his judgment, and entered upon extremes repugnant to his high-minded and generous wife. Still they were apparently favoured by their party, to whom Roland’s character and popularity were necessary. Amidst the real and affected grossness of dress, manners, and language of the republicans, society preserved its respectability in the circle assembled round the table of the minister of the interior.

And, in the reign of terror do not require any detailed. The frightful massacres of the first insurrections of Paris on the 2nd and 3rd of September, were boldly denounced by Roland in his capacity as minister; but the Convention, which applauded him, wanted courage, or virtue, or power to act; and from that time forth, that of his wife became only more certain. Madame Roland had herself been already arraigned before that assembly, on an absurd charge of treasonable correspondence with England; and by her presence of mind, her acuteness, and her words which had justified her, the Convention had condemned her. The occasion of this defeat is said to have so haunted the minds of Marat, Danton, and Robe-pierre, that in every subsequent difficulty, and in every attack made upon their proceedings, they imagined they recognised the boldness, sagacity, or savagery of their common friend. Roland still received warnings of their danger, and for a short time pretended to take the precaution of not sleeping at the Hôtel of the Interior. The appearance of de Villers was accepted by Madame Roland, "I am ashamed," she said, on an occasion on which she had almost been induced to leave her house in the dress of a peasant, "of the part I am made to play. I will neither disguise myself nor leave the house. If they wish to assassinate me, it shall be in my own way, with courage and resolution, and I will avenge it." Her husband quitted Paris, and she might have done so, but she declared that the care of evading injustice cost her more than it would do to suffer from it.

The time arrived when the intellectual superiority hitherto maintained in the Convention by M. Roland’s party, or the Girondists, was overcome by absolute force. Forty thousand men were marched against the Convention, by the Jacobins, on the 31st of May, 1793; and in the evening, as the son of Madame Roland, who was arrested and thrown into the prison of the Abbey. Here she displayed her usual firmness, and continued to exercise towards the poor and unfortunate a benevolence for which in her prosperous days she had been remarkable. Before her friends she appeared cheerful; she always maintained the language of a patriot when speaking of the aspect of affairs, flattering and fearing none; and she professed herself capable of overcoming her ill-fortune. In solitude the sole idea of her wife and her mother occurred to her, and the attendants remarked that she passed many hours in tears. Her sufferings were greatly aggravated by her being one day unexpectedly liberated, as if the danger was past. She drove home with extreme delight; sprang out of the carriage, and exulted over the things it had saved her from doing, but with more than usual vivacity; and was running gaily up stairs, when she was again arrested by an officer, and at once taken to Saint Pélagie, a prison of a lower order than the Abbey, where she was shut up with the worst of her sex. In this second prison she remained until her trial and execution. The only explanation given of this circumstance was that her first arrest had been illegal. The wretchedness of her situation at Saint Pélagie was only alleviated by her literary occupations, and by the kindness of her companions, who reanimated her spirit, and the letters written to her daughter, written in these circumstances, is one of the most affecting of all. But Madame Roland seldom gave way to melancholy emotions in her writings. Her pages detail the events of her childhood and youth with a faultless sprightliness and grace, and, from the age of 21, the years of her exile. The writing that this excess which modern delicacy would not permit to a female writer, her Memoirs are models of that kind of composition.

As the negative advances, events of a deeper interest are related with great facility of expression, sometimes with mournful pathos, generally with great judgment, not always without satire, but always with easy eloquence. From a very early age we may discern in this relation the extraordinary decision of her character, her naturally commanding manners, her fervent but well-controlled temper, her indescribable love of improvement, and her unswerving adherence to truth.

Several unhappy prisoners delivered themselves from certain execution. The Girondists, however, only resolved to do the same. But commending her resolution to a friend, who represented to her that a nobler course would be to wait for death, and leave the memory of so great a sacrifice to the cause for which she had lived, she calmly determined to subdue the result.

It was in the month of October (1793) that the Girondists were destroyed. On the 31st of that month she was sent to the Conciergerie. On the 10th of November she appeared before the Committee of Public Safety. The session was presided over by M. Chauveau-Lagarde, the great advocate of the Girondists, of the unfortunate queen, and of Charlotte Corday; knowing that no talents could save her, since her innocence could not, and not wishing to expose him to the personal hatred of Dantès, a man of common sense, she delivered a letter written by herself to the pretender, writing her eloquent defence. Her courage did not desert her during her trial or at her execution. She sustained the insults of the unmanly tribunal, not without womanly emotion, but also with a dignity worthy of a woman common to the arts of peace, and the art of Plutarch, which made her familiar. To the last moment she preserved her presence of mind, and even her gaiety. On the same day and at the same hour a man was also to be guillotined; and in such extremity, to keep a calm and firm courage is due from a college, as it is the natural colour of her less courageous companion. Overcoming the scruples of the executioner, whose orders were to execute her first, by representing to him the impoliteness of refusing a woman’s last request. It was the remaining member of the family. Close to this scene of death, she exclaimed, ‘‘Oh! Liberty! What crimes are committed in thy name!’’

She had often been heard to say that her husband would not survive her. As soon as he heard of her execution, he took leave of two of his proctors for him the next day, at Rouen, he had found a refuge, and to whom his resolution was known; walked in the evening of the 18th of November as far as Baudouin, four leagues on the road to Paris; sat down by the side of a tree in an avenue leading to a private house, and passed the night through his despair. By his side was found a paper, in which these words were written: ‘‘Whoever you are who find me lying here, respect my remains; they are those of a man who devoted his whole life to being useful, and who died, as he had lived, virtuous as a contented man.’’

These particulars are principally taken from a very recent edition of the Memoirs of Madame Roland, published in Paris, in two volumes. 8vo., with abundant notes, by MM. Berthelot and Malagard. When the whole of it had been read, three volumes more were published, by the same authors, in 1832, 1833, and 1834.

ROLLE, MICHEL, a French mathematician, was born at Ambert in Auvergne, in 1632. He appears to have possessed from nature a remarkable facility in solving propositions relating to arithmetic and algebra, and to have acquired by practice a great proficiency in the calculus of the mathematicians. After having served during several years as an attorney's clerk, he came, in 1675, to Paris, where he obtained a sub-
From this time Rolle devoted himself to analytical pursuits; and in 1690 he published a treatise on algebra, in 4to. This work contains, among other methods for the solution of equations, one which he calls the method of converging. Rolle did not themselves terminate, but left it to others to do this after him, because it consisted in successively depressing the equation one degree lower at each operation. It has some analogy to a method given by Newton, in the 'Arithmetica Universalis;' but its want of generality has caused it ever since to be neglected. The affection of peculiar modes of expression prevails throughout the whole work, which is otherwise very obscurely written: the author was however particularly skilful in the management of questions of the kind called diaphantine, and he published a treatise on that subject in 1689.

Rolle, unfortunately for his fame, entered the lists as an opponent of the algebra of Descartes, and of the differential calculus which had then recently discovered by Newton and Leibnitz; and he is accused of using towards those who opposed him a language which was disparaging to those who were unacquainted with it; which is very unbecoming in a philosopher. He began in 1701 to attack the differential calculus, objecting both to its principles and its applications; and, with respect to the latter, he endeavoured to show that in particular examples the results were the same with those which are arrived at by the ancient processes. The new calculus, as it was called, found however in France a zealous and temperate advocate in Varignon, who, in replying to the objections of Rolle, explained the true meaning of the differential symbols, and the results of the examples arose entirely from the haste and unadventuriness of the objector.

This dispute agitated the French Academy of Sciences for some time; Rolle continuing his base on subject, another: and though they were answered by Varignon, the former always pretended to have the victory. It is said that the Academy was then composed of men who had been accustomed to the antient analysis, and therefore saw with pleasure an opposition raised against methods to which they were not yet reconciled. In 1705 however the Academy, without pronouncing a judgment on the subject, recommended that Rolle, in moderating his language, should conform to the rules of the institution; and the dispute was formally brought to a point. Thus it came to pass that before Bishop Berkeley attempted to revive the subject in the 'Analyst.' [Robins.]

It appears that, subsequently, Rolle acknowledged his error, and thus he may be supposed to have deserved the pardon of posterity. He was admitted second geometrical pensioner of the Academy in 1689, and he died on the 5th of July, 1719, at sixty-seven years of age.

ROLER (Ornithology), the name of an insessorial or perching bird, Coracias garrula, Linn.

Some difference of opinion has prevailed among ornithologists as to the place of the Rollers in the system. Linnæus arranged the genus Coracias between Corvus and Oriolus. Pennant (British Zoology) gives it a position between the Nut-crackers and the Ortolans. Meyer placed it between the Birds of Paradise and the Crows; and Meyer arranged it in his second order, Coracées, among which it stands in Illiger's method. Cuvier placed the Rollers (Coracias, Linn.) between the Birds of Paradise and the Crows (Corvus, Linn.), the position assigned to them by Lacépède, and includes under that title the Rollers properly so called (Coracias garrula, Linn., &c.), and the Rollers (Colarii).

M. Vieillot, like Meyer and Illiger, places the Rollers among the Coracias. M. Temminck gives them a position between Bomboe- rora and Oriolus. M. de Blainville's method presents them between the Turdines and the Merops. Mr. Vigors places them in his family Corvidae. [Cori- vo, vol. viii. p. 67.]

M. Lesson's family Eurytomidae (Rollers of Cuv.) consists of the Rollers (Gulgula, Bruce, and Coracias, Linn.); the genus Roll (Eurytomus). Vieill. (Mamm., vol. xvi.)

p. 1183. Colari. Cuv., and Coracias, Linn.); the genus Mainuacerae (Eulalia, Cuv., Orcula, Linn.); and the genus Minio, Less. M. Lesson rejects the latter, because many authors have so dismembered it, according to their different views, that a confusion calculated to produce error is the result.

In the system of Mr. Swainson, who retains the generic name Coracias, the Rollers appear among the Meropides. [Mero- pides, vol. xvi., p. 115.]

The Prince of Canino (C. L. Bonaparte) arranges the genus Coracias, giving as an example the common Roller (Coracias garrula, Linn.) in the family Ampelidae (Birds of Europe and North America).

In Mr. Gould's great work on 'The Birds of Europe,' the Roller (Coracias garrula) comes between the Bee-eater (Merops Apiaster) and the Kingfisher (Alcedo atthis).

Mr. Yarrell (British Birds) arranges the Common Roller under the family Meropidae.

Description.—Bill black towards the point, becoming brown at the base with a few bristles; irides of two circles yellow and brown; head, neck, breast, and belly various shades of verditer blue changing to pale green; shoulders azure blue, back reddish brown, rump purple, wing-primaries dark bluish black, edged lighter, tail-feathers pale greenish blue, the outer ones tipped with black, those in the middle also much darker in colour; legs reddish brown; in old males the outer tail-feathers are somewhat elongated.

Adult females differ but little from the males; young birds do not attain their brilliant colour till the second winter (Gould, 'Birds of Europe.') Length about 13 inches.

This is the Pica marina and Pica meridiana of the Italians: Rollier of the French; Birch-Heer, Blau-Rocke, and Mandeldraak of the Germans; Syrínak Kora, Blau- Kora, and Allerkraa of the Swedes; Celebrator of Brunich; y Rholydh of the antient and Roller of the modern British.

Geographical Distribution.—This bird appears to have a wide range. In Europe, it is found in Denmark, Sweden (where it arrives with the Cuckoo), and the southern provinces of Russia; is more common in Germany than France, where however it has been found in Provence; and it has been taken at Gibraltar. In Italy, according to Prince C. L. Bonaparte, it is rather common, arriving in the spring and departing in September. In Malta and Sicily it is exposed for sale in the shops of poulterers, and is said to have the taste of a turtle-dove. In the Morea it is considered a delicacy in the autumn, when it is fat with its summer food. It feeds in Cornwall, and at Teneriffe. It visits the countries between the Black and the Caspian seas; and Dr. von Siebold and M. Bürger include it among the birds of Japan. In North Africa it is found from Morocco to Egypt; flocks were observed by Lamartine in Senegal, and he concluded that they passed the winter there. Dr. Andrew Smith records it among the birds of South Africa. In Great Britain it has been killed in Cornwall, in Suffolk and Norfolk, in Cambridgeshire, in Yorkshire, Northumberland, Perthshire, the east of Scotland, and Orkney. We can find no account of its occurrence in Ireland; but that it is known in Wales is evident from one of its names above given.

Habits, Food, &c.—Deep forests of oak and birch appear to be the favourite haunts of the Roller. In the 'Annals of Natural History' for 1839, it is stated by a traveller in Asia Minor, that the Roller, which was most common throughout the south and west parts of the country wherever the magpie was not found (for it is well known that this bird was observed to fall through the air like a Tumbler Pigeon. Temminck states that it makes its nest in the holes of trees, where it lays from four to seven eggs of a lustrous white. M. Vieillot states that in Malta, where trees are scarce, the birds build on the ground. In 1838 it has been observed to form its nest in the banks of the Shelburn, Booberek, and other rivers; and Pennant remarks that where trees are wanting, it makes it in clayey banks. Some of the Rollers of the same family, which are described under those of the Roller in colour and shape, and only vary in size, the male takes his turn to sit. The food is very varied, according to M. Lesson, who enumerates moles, crickets, cockchafer, grasshoppers, millipedes, and other insects, slugs and worms. Gould states that it feeds on K 2.
worms, slugs, and insects generally. Yarrell informs us that the food consists of worms, slugs, insects in various stages, and berries.

Bechstein observes that till lately he had thought that the Roller was omnivorous; but Dr. Meyer of Offenbach had convinced him to the contrary, having himself reared them in his room by the following method:—The young ones must be taken from the nest when only half grown, and fed on little bits of cow's heart, or any other meat which is lean and tender, till they can feed alone; small frogs, worms, and insects may then be added. Its mode of killing and swallowing insects is thus described:—it commences by seizing and crushing them with its bill, and then throws them into the air several times, in order to receive them in its throat, which is very capacious. When the morsel is too large, or the insect is still alive, the bird strikes it hard against the ground, and begins again to throw it into the air till it falls not across, but so as to thread the throat, when it is easily swallowed. Bechstein says that he had never seen the bird drink. The translator of Bechstein's interesting little book states that he once saw a Roller drink after having swallowed dry ants' eggs; it then ate greedily of lettuce and endive. 'Another which I kept,' adds the translator, 'liked the outside of lettuces and spinach after having eaten insects, especially beetles, which are very heating. To judge from what I have observed, the Roller is by nature wild and solitary; it seldom changes its situation, except to seek its food or to hide itself from strange. It is a good thing, whether kept in a cage or let range, always to have a box in its way, in which it may take refuge when frightened; it will not fail to hide itself there, and by this means will not be tempted to beat itself violently, which it does when it cannot fly from the object of its fright. It knows its mistress very well, lets her take it up, comes near her, and sits without any fear on her knees for whole hours without stirring. This is as far as it goes even when tamed. It is neither caressing nor familiar; when frightened it utters harsh cries, softer ones when its food is brought, but craa, craa, craa, at the same time raising its head, is the expression of its joy or triumph.'

The Gracula religiosa then, the type of Cuvier's genus Bulubes, formed, says M. Lesson, the genus Mynastes of Brissou, and was placed by Linnaeus and Gmelin among the Gracula, next after the Orioles. M. Temminck retained the genus Bulubes reduced to the Mino Bird alone, among his omnivorous birds, and M. Vieillot kept it also, arranging it in his family of Caronculæ.

Generic Character.—Bill short, stout, not so long as the head; entirely compressed. Frontal feathers advancing far upon the base, but not dividing the front. Calyx gradually curved from the base to the tip, which is distinctly notched. Commissure but slightly angulated. Under mandible with the base broad and dilated. Nostrils basal, naked, round, sunk in a depression. Frontal feathers short, velvety. Head with naked wattles. Wings m._in. Plottar. Tail short, even. Feets rather short, very strong. Tarsus and middle toe equal; header toe shorter; inner toe almost equal to the outer toe. (Sw.)

Example, Gracula religiosa.

Description.—Deep velvety black; a white space in the middle of the wing; bill and feet yellow; behind the eye spring fleshly caruncles of a bright orange-colour, and extend beyond the occiput.

Geographical Distribution.—Java, Sumatra, and the great Eastern Islands.

Habits, Food, &c.—Insects and fruits form the food of the Mino Bird, which is easily tamed, and learns to whistle and talk with great facility. With the natives it is a great favourite Gracula religiosa. Marsupium and that it has the faculty of imitating human speech in greater perfection than any other of the feathered tribe. Bonninsi, who terms it Pica, seu putius Sturnus indicus, heads the chapter where he figures and describes it with the following lines:

'Pettinsene Kolu qebriva til misnaa a uri
Jama laqay: vialu na Sturmas garrivus inda.'

And tells the following story:—There was, when he was in Batavia, an old Javanese woman, the servant of a Chinese gardener, who kept one of these birds which was very loquacious. Bonninsi was very anxious to buy it: but this the old woman would not hear. He then begged that she would at least lend it to him that its picture might be taken, a request which was at last granted with no very good grace, the antient Mohammedan dame being under great apprehension that Bonninsi would offer that abomination, pork, to her beloved bird. This he promised not to do, and had the loan of the Mino, which kept continually saying Orang Nazaaras Catjor Maran Iabi. This being interpreted, means 'Christian Dog, Eater of Pork.' and Bonninsi came to the conclusion that the unwillingness of the old woman arose not only from the fear of her bird being deserted by an offer of swine's flesh, but also from the apprehension that he or his servants, irritated by its contumelious, would wring its neck. M. Lesson also saw one at Java which knew whole phrases of the Malay language.

The general opinion seems to be that there is but one species of Mino Bird.

Cuvier however states that Linnaeus confounded two
willingly persuaded to become conguator in the college of Beauvais. In this situation he passed fifteen years, devoting himself with as much assiduity to the improvement of the system of education there, as he had before done in the college of Plessis. In course of the disputes between the Jesuits and Jansenists, which latter party he was led to favour, and the intrigues thence arising in his college, Rollin was compelled to quit his office at Beauvais. In 1718 he published his edition of Quintilian, in two volumes, 12mo., with preface and a popular outline, rhetorical, short notes and summaries of the chapters. This text was not published entirely, but selections were made according to the judgment of the editor.

In 1720 he was chosen reader of the university, but in consequence of the religious feud already mentioned, he was displaced very shortly by a lettre-de-cachet, the university being desired to choose a more moderate rector. From this period till his death he seems to have withdrawn from public life as much as possible, and devoted himself to study, the fruit of which was given to the world in several works. In 1726 appeared his "Traité de la Manière d’Étudier et d’Enseigner les Belles-Lettres," a work which presents a popular view of Greek and Latin literature as he considered suited for the instruction of the young, and contains such a system of education as his own experience in teaching had suggested. This treatise, though deficient in philosophical principles, and inferior to subsequent writings of the same nature, was, well adapted for the age in which it was published, and contributed probably very much to diffuse a general taste for literature throughout France. It was translated into English, in 1735, under the title of "Thoughts Concerning Education, translated from the French." There exists a letter from Bishop Harbury to Rollin, in which he speaks in high terms of it. Encouraged by the general approbation with which this publication was received, Rollin composed his "Histoire Ancienne," and account of the chief nations of antiquity drawn from profane authors, and corroborated with the historical establishment of the Roman empire under Augustus, in thirteen volumes, which appeared successively in the interval between 1730 and 1738. His last work was a history of Rome, which was afterwards continued by Gueric, from the end of the republic to the time of Constantine, in completion of the original plan.

Rollin's latter years were disturbed occasionally by the religious troubles which agitated his country. His friends were implicated with many distinguished Jansenists in the establishment of the Roman empire under Augustus, in thirteen volumes, which appeared successively in the interval between 1730 and 1738. His last work was a history of Rome, which was afterwards continued by Gueric, from the end of the republic to the time of Constantine, in completion of the original plan.

From the testimony of his contemporaries it appears that Rollin's character was a model of piety and virtue. He was remarkable for his liberality, modesty, integrity, and sinlessness. This last quality showed not less in the whole tenor of his actions than in his writings, which please more from a certain simplicity than from any other cause. The merits and defects of his "Belles Lettres" are of the same kind as those observable in his "Histoire Ancienne." There is the same want of profound thought, and the same absence of critical judgment, the same easy style, attractive to a young mind, and pleasing from its very carelessness, while the want of critical judgment is compensated by the love of truth and the morality which pervade the whole.

Great praise has been bestowed on Rollin by his contemporary admirers, among the most illustrious of whom were the duke of Cumberland and Frederic the Great, who was his frequent correspondent. Montesquieu styled him the "bee of France," and Voltaire and Rousseau have confirmed this eulogy.

Modern readers will perhaps think that Rollin's merits as an author have been overrated by the zeal of personal friendship and public praise, and his criticism of his works are chiefly valuable as having contributed to form the style and strengthen the moral feelings of his age. His "Opusculiues" were collected and published, 2 vols. 12mo., in 1771; they contain a series of poems, written in very classical and graceful Latin, correspondence with Frederic the Great, Rousseau, and other distinguished persons, and other smaller compositions.

Extracts from his works, by M. l'Abbe Luece, were pub-
lashed in 5vo, Paris, 1780, under the title of *Pousses sur plusieurs points importans de Littérature, de Politique, et de Région*. He had also have written a *History of the Arts and Sciences of the Antients*, London, 1768, 3 vols. 8vo. His *Histoire Ancienne* has frequently been reprinted. A new edition of all his works was commenced at Paris, 5vo, 1837. This history was edited by Emile Beres, with the aid of Dr. St. Clair.

The materials for a biography of Rollin are contained in the *Bocage de M. Rollin*, written by M. de Boye, secretary of the Académie des Inscriptions (of which Rollin was a member), and read before this Society, 14th November, 1741. It contains an account of his life and works. In the *Memorial de l'Académie des Inscriptions et Belles-Lettres*, in the edition of the *Opuscules*, in 1771, already referred to. See also Chauffeufs *Dictionnaire Historique* and the *Biographie Universelle*.

Rollo. [Normandy.]

Rolls Court, the Court of the Master of the Rolls, of which there are two, one at Westminster in the new buildings adjoining the hall, the other in the Rolls Buildings in Cheapside Lane. The latter was originally a house or hospital for the reception of Jewish converts: but when the Jews were banished from England by King Edward I., there was little use for an hospital of this kind; whereupon it was assigned to the Master of the Rolls, who had thrown the doors open to the Jews in general for political reasons, and the name of the house became "Custos Domus Concursorum." One or two conversions were maintained for a poor pittance in this house in the sixteenth century.

Rollo, Master of the, a very eminent officer of the Court of Chancery, second only to the chancellor himself. Originally he had, as the name implies, the custody of the rolls or recorded proceedings of that court, and, it seems also, of any other documentary matter belonging to that court. But for a long time, and very long, the custody was held merely nominal, the actual care of them being vested in certain keepers, who were not even appointed by the Master of the Rolls: the two chief depositaries being at the Tower, where the records previous to the reign of Richard III., and at the Rolls Buildings, where are kept those of the later period. But this state of things was altered by the act 1 & 2 Victoria, cap. 94, entitled an "Act for better custody of the Public Records," by which the custody is restored to the Master of the Rolls for the time being, and very extensive powers are given to him with respect to the custody and use of them. He acts further commits him to the records also of the Common Law Courts and of the Court of Exchequer.

By what means the Master of the Rolls became divested of the custody of the rolls is not indicated by the name, in a court of law, but by legal antiquarianism which has not been satisfactorily elucidated; nor is it quite clear when or how he came to sit in equity to hear causes in equity. Now the chief duties of this officer are judicial; but from his decessor there is an appeal to the chancellor. He signs all injunctions of the Court of Chancery.

Roma, Comarca di, is the name of a province of the Papal state, in which the city of Rome is situated, and which is under the same administrative authorities as the metropolis itself. It consists of the Agro Romano, or territory immediately around Rome, and of the districts of Tivoli, Albano, and Subiaco. The province extends on both banks of the Tiber, including Bracciano, Monte Rusi, and Monte Sant' Oreste (the ancient Soracte) on the west or right bank of the river, and it extends as far as Magliano on the eastern or left bank, including Palombara, Tivoli, Vievaro, and the whole valley of the Anio, with Palestrina, Frascati, Albano Genzano, and Port d'Anzo and Netuno on the sea-coast. It is bounded on the south by the province of Spoleto e Rieti, on the east by the kingdom of Naples, on the south by the province of Frosinone, south west by the Mediterranean, and west by the province of Viterbo. The city of Velletri forms a separate government under the Cur- toux, who is by what is called the *Curato*, but is also known as *Velletri e Ostia.* For a description of the Comarca see CAMPAGNA DI ROMA.

Romania, Roman Doliola, a name which is given to a tract of country north of the Apennines, extending along the coast of the Adriatic, from the river Foglia near Pesaro, which was the northern boundary of the Pescium, or March of Ancona, to the Scullitana, or Fanaro, which flows half way between Bologna and Modena. This extent of territory corresponds to that of the modern Papal legations, Bologna, Ravenna, Ferrara, and Forli. The Po was its boundary on the north, and the Apennines on the south and west. Ravenna was the chief town. The name of Romagna, or rather Romandoli, 'Little Rome,' is said by Alberti to have been given to it in consequence of the Exarcha having fixed his residence at Ravenna, which thereby became a second Rome. The name of the imperial city at Ravenna, the appellation came into common use later than the title of the Exarchs, for in their time the old administrative names of the time of the empire, Flaminia and Aemilia, were still in use. (Paulus Diaconus, Hist. del Longob., iii. 8.) During the period of Oriental empresses, the Greek emperors on the subject of images, the people of Ravenna and the neighbouring country took part in its former, and afterwards Pepin and Charlemagne bestowed Roman dignity, and, in the Carolingian period, although the popes could not for a long time after enforce their political supremacy over the whole of that country [PAPAL STATE], still they considered it as their own, and gave it the name of Romandolia. Such is the account of a council held here, and other historical writers, who add, that several popes strove to maintain their authority over the petty princes and towns among which the country was divided. [ALBONNOZ.] Alexander VI., commission the son Cesare Borgia to conquer the country, which he offered to the pope, and in the reception of the pope, and the pope created him duke of Romandolia; but after the death of Alexander VI., Julius II. annexed it to the Papal state. The country was afterwards divided into administrative divisions styled legations, but the greater part of Romagna continued in being, especially more to the eastern part of the country near the Adriatic, between Rimini and Ravenna, the inhabitants of which are called at Rome on this day "Romagnoli." These people are not represented in the council of State, and the principal towns of Romagna are: Cesena; Fano; Forlì; Imola; Ravenna.

Romagnosi, Gian Domenico, born near Pesaro in 1761, studied first in the College Alberoni, where he lived a most unfruitful life, and afterwards distinguished himself as a politician and a poet. [GIOIA, GELCHENOR. Romagnosi continued his studies at Parma, where he took his degree of Doctor of Law in 1780, and in the same year. In 1781 he published his "Genesi del Direitto Penale," being an investigation of the grounds on which the infliction of punishment for offences is founded. Becerra, Filangieri, and other Italian jurists of that age had adopted the French idea of social contract, but the Romagnosi was supposed to have given up a portion of his original independence into the hands of the collective body, and to have thus bound himself and his descendants. Romagnosi rejected this hypothesis, and he derived that he called the right of punishing from the principle of necessity and of self-defence, inasmuch as the whole of society is concerned in an injury which is done to any of its members. His work was well received in France and Germany, but it has been little noticed in Italy until a late date, where it has been republished five or six times. It is now much studied, especially in Tuscany. Soon after the publication of the work, the prince bishop of Trent named him prator, or chief magistrat, of that town, an office for one year, but which Romagnosi was confirmed in for three consecutive years, after which the bishop named him his sule couscillor.

During the turmoil of the French revolution, Romagnosi did not participate in the blind admiration of many of his contemporaries, nor did he in the zeal which others displayed to define the just meaning of liberty and equality in two little works, 'Che cosa d' Egualit', 'Che cosa d' Libertà.' 1793. When the French invaded Italy in 1796, Romagnosi was in the camp of the papal troops. It is said that he was greatly attached: he said of them, among other things, that they did not know how to tell a lie. When the French entered the Tyrol, Romagnosi named secretary of the provisional council in which he did all he could.
When the French were driven away in 1799, he was accused by some invidious person of disaffection to his legitimate sovereign, and was arrested and confined at Jemmapes; but he was soon released, and the emperor Francis himself declared him innocent, and banished his accuser. In December, 1802, he was appointed professor of law in the university of Parma, where he published his second professional work, Introduzione allo Studio del Diritto Pubblico Universale. He was one of the directors of the new school of law, and was a member of the commission for the preparation of the new codes of law. He was a good friend of Hobbes' "civil philosophy," and of Barbeau's and Burlamaqui's "droit naturel," or "law of nature."

Romagnosi maintained that moral and political science is secondary to natural science. He took for the basis of his system the principle of moral necessity, saying that man and society tend not only to their preservation, but to their physical and moral improvement, in the quickest and at the same time safest way. This progression can only be effected by raising the intellectual and moral powers. The understanding and the heart ought to be educated so as to create only wishes and habits consistent with the general welfare, and so that utility and justice shall coincide.

A second edition of Romagnosi's work appeared at Milan in 1825, with the addition of five letters by the author to Professor Valerio of Siena, in which he develops and illustrates his principles.

Romagnosi was requested by the government of the so-called kingdom of Italy, then under Napoleon, to repair to Paris, in order to assist other distinguished jurists in compiling a code of criminal procedure. Romagnosi attended all the sittings of the Commission in which the drafts for the new penal code were discussed or rejected. He introduced the study; but Napoleon put his veto on it, saying that he did not think that the state of Italy allowed of such an institution. Some one proposed to introduce into Italy the "lettres de cachet," or royal orders for imprisoning individuals for political reasons; but Napoleon put an end to this in France under Napoleon, as well as under the old monarchy; but Romagnosi strenuously opposed the measure. Persuading, however, his colleagues on the subject, he acquainted them that the crosses and decorations which they were offering for the profession were of no value, and that his head: finally he carried his point. He had also the merit of introducing the new code the heads 'rehabilitation' and 'reunion of trials.' The code, as revised by Romagnosi and his colleagues, was adopted, and published under the following title, 'Codice di Procedura Penale del Regno d'Italia,' 8vo, alee, 1807. In France it was praised by Cambesènes. The suggestions of Romagnosi during the discussion of the code were published separately under the title of "Première Partie, ou Projet d'Arrangement du Codice di Procedura Penale," Milan, 1805.

Romagnosi was likewise employed in the compilation of a penal code for the kingdom of Italy, which however never became law. In consequence of the numerous revisions to which it was subjected, and the dilatoriness of the Italian ministers, the project had not reached Paris when Napoleon asked for it. Finding that it was not ready, with his characteristic impatience he ordered the French penal code to be forthwith translated purely and simply, and enforced in Italy, to the great regret of the Italians, who complained of the arbitrary and perverted character of many of the French criminal laws, which are decidedly the worst portion of the civil law of France. [Côdet, Les cinq.] The proposed law was kept several years under the inspection of the "Petite Commission," and was finally printed, together with the discussions which it had elicited, in six volumes, 8vo. 'Collectio degli Avvaggi sul Codice Penale del Regno d'Italia,' Brescia, 1807. These particulars are useful for enabling us to understand the history of those codes which have the character of Napoleon's legislation and administration.

In 1807 Romagnosi was appointed professor of civil law in the university of Pavia, and in 1809 he was recalled to lecture on legislative science, in order to form a kind of code for the new administrative system of his scheme. He published his Diario sul Soggetto ed Importance dello Studio dell' Alte Legislazione, Milan, 1812; and also Principi fondamentali di Diritto Amministrativo, "Manuale d'Amministrazione, of the Academy, of the University of Pavia," which may be considered as a continuation of his Introduzione al Diritto Pubblico Universale mentioned above. He demonstrates that society is the natural state of man, from which all his rights and duties are derived; that agriculture, arts and commerce, education and instruction, and religion, are necessary to the social state; and that knowledge, will, and power are the three conditions required for its improvement. On being appointed inspector of the schools of law in the kingdom, he laid down the principle, that candidates for professorships ought to be examined more especially on the system of teaching which they propose to follow, even more than on the subject matter of their lectures: insistently short, on the importance of pedagogical, science and aptitude.

His "Saggio filosofico-politico sull' Istruzione Pubblica Legale," Milan, 1807, 8vo, was translated into French and was very amusingly written a 'Progetto di Regolamento degli Studi Politici Legali.' He also edited a 'Journal of Civil and Administrative Jurisprudence.'

When Napoleon's power was overthrown in 1814, Romagnosi lost his offices, but he continued to lecture on jurisprudence till September, 1817, when the special chairs at Milan were suppressed. He continued however to teach privately at Milan. In June, 1821, during the political agitation of that period, he was summoned to Venice to be tried on a charge of high treason, of which however he was fully acquitted in December of the same year, and the emperor confirmed the sentence of the court in words most honourable to Romagnosi.

He still continued to live at Milan, teaching, and writing for several journals, and especially for the 'Annali di Statistica,' to which he was one of the chief contributors. He wrote also on matters of law, especially on the important subject of property in water, and water-ways and the question of irrigation in which he threw a flood oflearning to Lombardy: 'Della Condotta dell' Acque secondo le vecchie, intermedie, e vigenti Legislazioni dei diversi Paesi d'Italia,' Milan, 1822-5, six volumes, with an appendix in two volumes. This work was very well received, not only in Italy, but also in France, and in Germany and in England.

Romagnosi on the same subject is entitled 'Della Raggio Civile dell' Acque nella Rurale Economia,' two vols., Milan, 1829-30.

He also became a 'Dizionario Ragionato delle più importanti Parole della Giurisprudenza Romana, Francese, ed Austriaca,' but the work was not continued. His work entitled 'Dell' Indole e dei Fattori dell' Incivilimento con Esempio del suo Risorgimento in Italia,' contains a brief sketch of the progress of human civilization through different ages, a subject which Herder has more fully and elaborately treated in his 'Philosophy of the History of Mankind' (Ideen zur Philosophie der Geschichte der Menschheit). Long before Romagnosi, the Nepoleonic jurist Of Bearne, of the Canon of the Code, and Jacobo Scipioni, a native of Friuli, in his remarkable work, 'De Ortu et Progressor Morum,' had laboured in the same field, but their works have scarcely been noticed. Romagnosi had the merit of rendering their inquiries and his own, on the vast subject of the progress of civilization, familiar to the Italian readers.

The other works of Romagnosi are: 1. 'Che Cos' è la Mente Sana?' Milan, 1827; 2. 'Della Suprema Economia dell' Umano Saper e in relazione alla Meute Sana,' Milan, 1826; 3. 'Dell' Indizimento primitivo delle Matematiche.' 4. 'L'anica Morale Filosofia,' 5. 'Elogio storico di Melchiorre Gioia,' 6. 'Elogio del Cardinale Alberoni,' 7. 'Note, Supplementi, ed Illustrazioni all' Italia Antonia di Robertson.'

Romagnosi died in Milan, June 1835. His funeral was attended by more than two hundred of the most distinguished men of that capital, who felt the value of -
parted merit, and who subscribed on the spot to raise a monument to his memory. (Notizia di D. G. Romagnosi, stes da Cesare Casti, Milan, 1833.)

ROMAINE, WILLIAM, was born at Hartlepool, in Durham, on the 25th of September, 1714. His father, a clergyman, went to England upon the revocation of the Edict of Nantes, and a man of the strictest piety and integrity. Mr. Romaine was his second son. He was educated at the grammar-school of Houghton-le-Spring, in the county of Durham, and proceeded to Oxford, where he entered first at Hertford College, and afterwards at Christchurch. He resided principally at Oxford, devoting himself especially to the study of the Hebrew and Greek Scriptures, till he took his degree of M.A. in 1737. He had received deacon's orders the year before. His first curacy was that of Loe Trenchard, in Devon, which he served for six months. In 1738 we find him residing at Epson, in Surrey, and about the same time that he received priest's orders from Dr. Hoadly, bishop of Winchester, he became curate of the parishes of Banstead and Horton, in Middlesex. At Banstead he became acquainted with Sir Daniel Lambert, who, on his election to the mayoralty of London in 1741, appointed Mr. Romaine as his chaplain. In this capacity he remained a second time at St. Mary's, Oxford, in 1742 to 1745. This was the second sermon he published, the first having been one which he preached before the university of Oxford in 1739, entitled 'The Divine Legation of Moses demonstrated, from his historical narrative of the first State in the world: and contrary to the Doctrine of a Future State: whereby Mr. Warburton's Attempt to prove the Divine Legation of Moses from the Omission of a Future State is proved to be absurd and destructive of all Revelation.' At the end of the year 1741, he was elected to a lectureship at St. Dunstan's, in the West, the duties of which he had discharged for some time, when the rector thought fit to deny him the use of the pulpit. The matter was referred to the Court of King's Bench, which deprived Romaine of one of the lectureships, but permitted him, in the other, a salary of £30 a year; which he refused. In 1747 he was appointed assistant morning preacher at St. George's, Hanover-square. He held this office till September, 1755, when he was removed from it, his biography being, on account of 'the popularity and pleasantness of his ministrations.' About the time of his appointment to this lectureship, he was chosen professor of astronomy in Gresham College. His views of nature were Huttonian, and he always expressed his opinions with boldness, and not always without bigotry. Accordingly he spoke of the Newtonian views as having 'a difference in their demonstrations of no less than one hundred and twenty-one millions of miles,' and of 'the modern divinity as bringing you nearer to one hundred and twenty-one million of worlds.' He was of the court of heaven, and was not surprised that he gained little reputation from this office. He seems however to have regained his credit with the citizens by his opposition to the bill for naturalizing the Jews in 1723.

In February, 1755, he married Miss Price; and in the following year he became curate of the curacy of St. Olaves, Southwark, where he remained till 1759. During this period he resided in a pleasant retreat in Walnut tree Walk, Lambeth, where he was in the habit of inviting young clergymen to his early breakfasts, and many have spoken with great gratitude of the instruction and encouragement they received from him.

Romaine had frequently preached before the university of Oxford up to the year 1737, when he was refused the use of the University pulpits, in consequence of the offence which was taken at a sermon he delivered there on 'Our Lord the Righteousness.' This sermon he published in vindication of his conduct. In the same year he published a tract, addressed to members of the Established Church, exhorting them to set apart one hour in every week for prayer as a half of the church and nation.

With respect to the revocating invitations to the ministry of a church at Philadelphia, which Mr. White strongly urged him to accept, but he preferred remaining in his own country.

In 1764 he was chosen to the rectory of St. Andrews, the Warren, in Middlesex, and the Ann's Blackfriars. His election was disputed, but in 1765 it was confirmed by the Court of Chancery. He spent the rest of his life in the faithful and zealous discharge of the duties of this office. He died Jan. 28th, 1795, and was buried in the rectory vault of Blackfriars Church, on the 3rd of August.

Romaine has been compared to a 'diamond, rough as but very pointed, and the more he was broken by years the more he appeared to shine.' His firm attachment to the established Church he esteemed truth was not always tempered with modernism towards his opponents, and sometimes, if we are to believe anecdotes that are told of him, his bold impetuosity betrayed him into acts of rudeness, for which however he always apologised with Christian humility. His deportment was marked by mildness and a large and tolerant spirit unexampled in his domestic communications. He was especially remarkable for the diligence and regularity with which he improved his time. His religious sentiments were strong Calvinistic, and he spent his life in boldly maintaining the necessity of an absolute Vindication of the Church's Position and to shut out all hopes of preference. During his whole life he continued strongly attached to the Church of England. His chief works, in addition to those already mentioned, are the following:—'Nine Sermons on the Propriety of Government,' 1726; 'A Dialogue on Papistry with Mr. Popery, in a Dialogue upon Justification,' 1757; 'Two Sermons upon Solomon's Song,' 1759; 'Twelve Discourses upon the Law and the Gospel,' 1760; 'The Life of Faith,' 1763; 'The Scriptural Definition of the State of Death,' 1764; and his works were published in 2 vols., 1771; 'An Essay on Psalmody,' 1775; 'The Triumph of Faith,' 1775; and some Sermons and Letters. His works were published in 8 vols., in 1796, with a Life by the Rev. William Bromley Cadogan, M.A., some anecdotes of whom is contained in 'The Life and Times of the Countess of Huntingdon,' vol. ii., chap. 49.

(The Life of Romaine, by Cadogan and by Haevis; 'Memoir in the Evangelical Magazine for November, 1797.')

ROMAN ARCHITECTURE. A brief account of this has been given under Civil Architecture, which article we refer for such information as is necessary for understanding the present one, which is to be considered as supplementary to the other.

As for the orders, Roman architecture presents chiefly a corruption of the Doric and Ionic, for may claim the Corinthian as almost entirely its own. Roman examples of that order being not only numerous and varied, but at the same time exceedingly different in character from the almost solitary specimen on one who foliated capitals which occurs in a Grecian building. But even as regards the application of the orders, there is a wide difference between the two styles; in the Roman they are frequently employed in more decoration, the columns being less thick, and more or less of the order attached to the columns, as in the cases (as the 10th of triumphal arches) though the columns are inscribed and advanced from the structure, they are in a manner detached from it, insomuch as they do not support its general expanse, but are merely used to accentuate the severity of the order, and as in the cases of columns they are the only differences, for besides the frequent employment of pilasters as substitutes for columns—that is, constituting the order without columns—the practice of super-columnation, or raising one order upon another, was by no means rare. In the Roman architecture of course, such differences is no means the wide disparity between the two styles being almost opposite in nearly every respect. If there were no other distinction between those two from the start, and diverse applications of these would be a very modern one; but we also now Roman buildings that those of Greece.
The only instance that we are acquainted with in Greek architecture, of anything like grouping or combination of building, is that of the Erechtheum, or triple temple on the Acropolis of Athens. With this exception, Greek temples were merely square parallelepipeds, differing from each other as to plan only in the number and disposition of the columns around the cela [CIVIL ARCHITECTURE, p. 211]; consequently, however beautiful when considered separately, a very remarkable example in the columns being not only coupled, but unusually disposed, and to that extent springing from their entablature, that is, there are twenty-four columns (with composite capitals) placed in pairs, on the radii of the plan, or one behind the other, forming twelve groups in all. But in each group, as the arrangement goes, this interior is strikingly picturesque; but it would be an improvement, if the dome were in such case to spring immediately from the impost of the arcos, and the latter to grout into it; or at least were it to spring from the variety of the arcos.

The circular form was a favourite one with the Romans for their sepulchral structures of a more pretentious class than ordinary. It will be sufficient here merely to mention those in honour of Augustus and Hadrian, an account of which has been given by Professor Macquorn Ramsay, that of Commoda Metella is a low cylinder, the height being only 62 feet, while the diameter is 90; and it may be considered as nearly solid, the chamber or cells being no more than 19 feet in diameter, made upon a square substructure; which combination of the two forms is productive of agreeable contrast; and it was accordingly frequently resorted to. The tomb of Plautius Sulpicius near Tivoli consists also of a short cylindrical superstructure, but in other respects, the design, on one side of that stately being carried up so as to form a sort of low screen or frontispiece, decorated with six half-columns, and five upright tablets with inscriptions, besides the others.

The tomb of M. Annius Flaccus, at Ostia, is a simple circular structure, of low proportion; but the upper part not exceeding the diameter, and therefore hardly to be called a tower, notwithstanding that it is now popularly called Roland's or Orlando's Tower. Of quite different character and design from any of the preceding ones, is the recent Roman sepulchral monument at St. Remi, which consists of three stages: the first a square stela placed on gradins, and entirely covered on each side with sculptures in relief; the next is also square, with an attached fluted Corinthian column on each side; and the last is a Corinthian rotunda, forming an open or monopteral temple (i.e., without any cella), the centre of which is occupied by two statues.

As an instance of other combinations, we may briefly refer to the Sfortio, which is the tomb of Virgil, near Naples, consisting of a square substructure surrounded by a conical one; to the Roman monument at Constantinople, in Africa, conjectured to have been a cenotaph in honour of Constantine the younger, within which there is an instance of a pagoda or structure surrounded by a peristyle of twenty-four Doric columns, and carried up as a lofty cone, in receding courses or gradins, leaving at its summit a platform for an equestrian statue.

These notices may serve to convey some ideas of the variety aimed at by the Romans in the distribution of the plans and general masses of their edifices, independently of decoration. Their thermae, or public baths, a class of structures remarkable for their vast extent and magnificence, are most astonishing instances of practical utility and elegance, both merely baths, but places of public resort and amusement, and consists of an assemblage of courts, porticos, libraries, and spacious saloons and galleries, most of which presented a peculiarity of form and distribution. If therefore we estimate Roman architecture by the manifold resources which it opened to the art, rather than by its debasement of what it borrowed from that of Greece, we shall find much in it both to admire and to imitate, as well as to condemn and to deplore.
Venus and Roma, by Hadrian. Of neither of them however more than the mere ruins now remain, owing to which they have never been cited as examples of the ordination. All that was left was the external design of the first Constantinian temple is now altogether doubtful, but its interior is very remarkable, the plan being divided in its breadth into three nearly equal portions, the centre one of which formed a spacious nave, terminating in a large semicircular tribune, or else a semi-domed vault, the nave was disposed in three compartments, presenting as many arches of exceedingly wide proportions, opening into as many divisions of the lateral portions of the plan, which did not constitute continuous aisles along the nave, but had small chapels or closets, the centre one on each side terminated, like the nave, in a semicircular tribune, of the same dimensions as that aipsis, so as to form a transept, and give the whole a marked cruciform appearance. The side divisions were covered by semicircular vaults, concentric with the arches opening into the nave; and this latter had a vaulted roof, in three groins or compartments, the ribs of which sprang from eight Constantinian columns, placed against the piers of the arches. Besides other peculiarities, we have here an instance of the effect resulting from the application of the semicircular form to plans in interiors, and of further varieties of design arising out of it, for the semidomes of the tribunes exhibit a rich specimen of coffering, being composed of octagons and squares.

An examination made of late years in the Roman Forum, M. Caritius, a French architect, has given us a restoration of the temple of Venus and Roma, judging from which we may pronounce it to have been one of the most splendid edifices in the city. According to this, the temple stood on the centre of a quadrilateral enclosure, or peribolus, measuring 322 by 318 feet, and was enclosed by double colonnades of the Corinthian order, consisting altogether of 264 columns. The temple itself was of the same order set upon a considerably larger scale, and had dimensions about 350 by 166 feet. It was consequently large in proportion to the area within which it stood; and when viewed in combination with the extended files of colonnades around it, must have produced a powerful effect, one in which height and proportion and regularity of detail are blended into a contrast. This main edifice was further remarkable as being not only decastyle, but pseudo-dipteral also, that is, the space between the columns and the walls of the cella was equal to two intercolumniums and a column; accordingly the cella corresponded with five intercolumniums of the decastyle fronts. Each end elevation of the cella was therefore made a tetraстиyle in antis to a pronaos or inner lodge; and these pronaos, being of greater depth than the surrounding porticos, were vaulted hemispherically or convexly, as the case was, whereas the others were curved horizontally with beams and lunette. The cella was divided internally into two distinct halls, placed back to back, each of which was of nearly equal size, but the pronaos or inner lodge was larger and more ornate. Each hall terminated in a domed closet, or vestibule, and contained an altar. The temple was thus a triple division, consisting of a shrine, a pronaos, and a hall, each of which was given an independent effect perhaps circular recess or tribune, containing a colossal sitting figure of the deity to which it was dedicated. Along each side were five tabernacle niches, with pediments alternately angular and segmental, and placed within the intercolumniums of a small order, with statues upon its antefixes, over each column. The ceiling was a richly coffered hemicylindrical vault, and the dome of the tribune was similarly decorated with coffers of a lozenge-form pattern. If we have dwelt somewhat at length upon this edifice, it is because we regard it, in the important examples of Roman, as distinguished from Greek architecture, and of that accumulated richness and pomp, together with that diversity of plan, which it affected. While they have noticed small and common-place temples, most writers have inverted but slightly, if at all, the grandeur of the high and noble edifices. By such a text we mean the same that which is used in the refined taste displayed by the former, but neither are we to the grand compositions furnished us by the latter. Taking therefore the above temple according to Caritius's restoration of it, we agree with a writer who has said that it must have produced an effect perhaps unrivalled in sublimity by any work in the antient world; for whether viewed from within the peribolus, or as seen through and towering above the open colonnades which formed that court, it must have been a varied and magnificent architectural scene.

The Roman builders seem to have affected the practice of grouping buildings together as features in one general emetrical plan. Their temples and basilicas were frequently placed, as the principal architectural objects, at the extremity of a forum, or other regular area enclosed with colonnades on three sides. This temple-styled tribune was partly projected into an enclosure (measuring about 350 by 160 feet), the entrance end of which had five open arches and the sides were formed by screen walls, decorated with Corinthian pilasters, and columns immediately before them and spreading from it. One of these, the temple forum, which was surrounded not only by colonnades, as various stately edifices, nothing now remains except the celebrated triumphal column that occupied its centre, as which, so placed as a principal object, must have heightened the splendour of the whole. Like that of Nerva, the Church of Antoninus and Faustina was placed at one end of a court of moderate dimensions, whose sides were adorned with colossal columns placed immediately against the walls; and only the portico part of the temple (a Corinthian hexastyle, trapezoidal, more powerful) advanced into the enclosed areas in front. The forum of Caracalla was nearly a square, entirely surrounded by arcades, presenting thirteen arcades on each of the longer and eleven on each of the shorter sides. In the centre was a Corinthian temple very similar in plan to Porticus H honored an hexastyle temple. It was remarkable for having inner columns behind the core from each angle, so that there was a double range of these at each end, and the central space within the portico was much larger. In every one of the modes of composition we have incidentally made in regard to those temples not improperly be followed by some additional remarks. Roman edifices of that class. Unlike those of Greece, ereptorial temples were of comparatively rare occurrence in the Forum of Nerva, erected by the name of the Mausoleum of Antoninus and Faustina, the octostyle, being attached only in continuation of the cella, whose walls formed the flanks of the building, though the order of the portico was frequently continued along them either in half columns or pilasters. Such is the plan of that celebrated monument. One of the several buildings which is a Corinthian hexastyle, pseudo-pentekton, the cella being ornamented with attached columns, thereby making ten intercolumniums on each flank, three of which are open, belong to the portico, which latter is accordingly more powerful than the cella, and the dimensions of the former are larger than those of the cella. The portico announced itself more decidedly as its facade par excellence: particularly as such temples were generally built at the angles and apex of a pediment, or when there was an intention of being one in the latter situation, the sobriety does not make place, and additional importance is given to that portion of it.
abundant use of statues led to the adoption of the niche—a feature unknown in Greek architecture—as a convenient mode of inserting them within the surface of walls, and thereby decorating them; at the same time space was gained in rooms, and it is for this reason that it would have. Taken up room. Niches frequently occur in Roman temples and baths; and, as we have seen, from the account given of the temple of Venus and Roma, were occasionally decorated with a frontispiece of small columns, with their entablature. The Roman columns have square bases, and were for the most part semicircular in plan, in which case they usually terminated in an arch and semidome, after the manner of a tribunal or large recess, of which the niche was in fact a miniature copy. Niches however were very frequent and consequently all built in the same way were also elaborated, or reduced, in cases, in which the latter formed arches vaulted hemicylindrically.

These various applications of curvilinear forms, both in plan and elevation, undoubtedly furnished Roman architects with very guarded, if not to Greek originals. Nor can it be denied that the arch itself is a very beautiful feature, although it was employed by the Romans to such excess as rather to occasion monotony than to contribute to variety of design. The idea of the column was never of course uniformly presented, the exterior merely lines of columns, the amphithetums and similar works of the Romans consisted only of continuous tiers of arches, which constituted their more strongly marked features, the columns being reserved for their intended purpose, but because they remind us quite unnecessarily of the original application of the column to the horizontal entablature. If entablature be admissible at all it is only when the columns are coupled into groups like the Costanza already noticed; for then some kind of architrave at least becomes requisite, in order to connect the two capitals, as it were, together. One very great advantage attending the combination of the arch with the column is that the opening left by the column, which is wider than they otherwise could be, because such intervals as would produce a poor and straggling effect in a colonnade, become well proportioned and agreeable when spanned by arches. Such columnar arcs have frequently been em- bedded by the architects, having either been within of that kind, where piers of the usual kind would obstruct the view too much, and where intercolumns of the same proportions, between pillars supporting a horizontal entablature, would have a poor and disagreeable effect, particularly if the opening be not wide enough to do justice to the work of Francesco di Giorgio, is singularly beautiful in its distribution, remarkable for the richness of its details, and also for the variety which it presents in perspective, as may be judged from the view of it given in Grandjean and Gammarelli's "Architecture," has a certain elegance. We have already noticed that the interior of St. Martin's as containing an example of arches upon columns, and that of St. Brée's, London, furnishes another, but neither is a favourable one. A more satisfactory example may be found within the loggia of the Strand portion of Somerset-house, where, though the arches spring from entablatures over the columns, yet as the latter are placed in pairs, those horizontal parts are more than mere upright blocks over the columns. The quadrangle of the late Royal Exchange, London, had arches springing immediately from the capitals of the columns, but their breadth was excessive in proportion to the height of the latter, and their elliptical form was a great defect, and certainly did not at all contribute to beauty. But from the principle that the beauty of a building is founded; for as to the merits of the buildings in which it is adopted, that must, like everything else in architecture, depend upon the taste shown in the particular application of it, which may be exceedingly good or alto- gether wrong. In the case of the Palladian Colonnii at Siena, an example of an ordnance composed of columns and arches, and also an idea of the general character of a basilica, though of course somewhat modified, and without any sort of architectural luxury.
contrary, be more concise than others, who have confined their notice of Roman architecture almost to them alone. Of the two Grecian orders, the Roman specimens usually referred to, namely, the Doric of the theatre of Marcellus, and the Ionic of that building and the temple of Fortuna Virilis, are very poor and unworthy, spiritless and tasteless; while the Ionic of the temple of Concord may be pronounced detestable. In this last example the volutes of the capitals are turned diagonally, a mode afterwards adopted by Scamozzi for that order, and also practised in what is called the Grecian. Both the Roman and Italian examples are ill-composed and totally devoid of grace; yet it does not therefore follow that such arrangement is radically defective and altogether inadmissible; on the contrary, we find it practised over and over again in the Grecian order, and in the capitals at the angles of porches, where the volute is so turned, in order that there may be two adjoining faces, instead of a baluster side showing itself externally; and a similar disposition of the volutes throughout, giving four faces to each capital, might be made, perhaps, to produce an agreeable variety; and if authority alone be required to justify it, it may in fact be found in the Ionic order of the temple of Apollo at Bassae. [COLUMN, p. 384.]

Even when comparatively pleasing in its contours, the Roman capital is poor and tasteless in consequence of the smallness of the volutes, which is such that they almost cease to be characteristic features of the order. To this defect may be added the meagreness arising from the carelessness with which they are wrought, and the neglect of intermediate ones; and also the harshness occasioned by the great projection of the oval, the narrowness of the face of the capital above it, and by that part forming a straight line, instead of the gracefully-flowing festoon which it composes together with those of Athenian examples of the order. Perhaps it is unfortunate that any Roman examples of it are to be found in buildings, because that circumstance has led to their being regarded as authorities, whereas many better specimens are to be met with in the arches and reliefs of a very kind, which, though faulty in many respects, and evidently susceptible of improvement, are at least treated with more taste, and possess a certain richness of character. Numerous studies of both volute and flat capitals may be seen in Fraunces' 'Magnificenz' Roman; and the variety of conceptions displayed in the latter very greatly exceeds what would be imagined by those who are acquainted only with what are referred to as standard examples of that order. This last may in fact be emphatically denominated the Roman order, although such distinctive title is usually applied to what is otherwise called the Composite, but which is only a variety of the foliage-capitalled class, and by no means the most striking as such, there being instances of compound capitals, in which the volute, or volutes, are introduced between the foliage; consequently, if the voluted variety is to be received as a separate order, each of the others is quite as much entitled to the same distinction. How far the ordinary Corinthian capital differs from that in which the small volute, or caulium, at the angles of the abacus are developed and enlarged to the size of those of the Roman Ionic capital, may at once be seen by referring to COLUMN, p. 386, where a half of each example is placed in juxtaposition; and at page 383 will be found a similar comparison between the capitals of the Tivoli Corinthian and of the monument of Lycaste. The contrast presented by the last is striking enough, there being no similarity of character, but merely such degree of resemblance as arises from the same design.

As to the arrangement of the elements, that Tivoli example be compared with the one shown in the other cut, and which may be received as an average sample of the order, it will be tolerably evident, even from such comparison alone, that the foliated capital was treated by the school of Perugia in a way quite different. Neither are such distinctions confined to the capitals alone, for different examples present equal diversity in their entablatures and cornices. That of the Tivoli temple is restrained; and has been stamped upon it, that it almost deserves to be considered a separate order—certainly much more so than the Composite. Among other examples, that of the three columns of the temple of Jupiter Stator is the richest and most elegant in its capital, and is beautifully composed throughout. The Romans bestowed great diversity of character and expression upon this order, as the Greeks had done upon their Doric and Ionic; whereas, if they erred in nothing else, the Italian revivalists and their followers did so in pursuing a directly opposite course, endeavouring to establish a fixed and unalterable standard for each order, reducing them to merely so many architectural formulas, to be applied without change and variety, spiritless and tasteless. For information respecting Roman buildings adapted to particular purposes, the reader is referred to the articles ARCH, TRIUMPHAL; AMPHITHEATRE; AQUEDUCT; BATHS; MAUSOLEUM; NAUCHEMIA; PANTHEON; TEATRUM; &c.

ROMAN CATHOLICS. [CATHOLIC CHURCH; RELIGIONS.]

ROMAN DE LA ROSE. [FRANCE—LANGUAGE AND LITERATURE.]

ROMAN HOUSE and VILLA. [HOUSE; ARTS.]

ROMAN LAW. [ROM.]

ROMAN LANGUAGE and LITERATURE. [ROM.]

ROMAN MUSIC. [MUS.] ROMAN SCHOOL OF PAINTING. That style of art which was eventually formed, or prevailed, at Rome during the golden age of painting, in the beginning of the 1st century, is termed the Roman school, whether it was practised by subjects of the papal government, natives of the adjacent provinces, or immigrants from Greece. This fact, however, of having practised the art of painting at Rome, does not constitute a disciple of that school. The works of Raphael exhibit this style in its full development and purity, and not improbably the head representative of the Roman school.

The history of this school may be divided into three periods: its origin or gradual formation from the revival's painting in Italy; its development, which was accomplished in the 1st century B.C., during the decline, through to the imitators and those of the great Florentine at Rome.

The art of the earlier period cannot be said to have any further connection with the subsequent style, which, through its peculiar characteristics, became distinguished as one of the most ancient and most original in all ages. It is known as the true Roman style, and has been its basis; although the natural simplicity and dignity of the earlier style characterised the latter throughout; its purer form.

The true founder of the Roman school in its extended sense was Pietro Vannucci of Citta della Pieve, commonly called Il Perugino, from his having obtained his citizenship of Perugia: although that which may be termed essentially the Roman school both commenced and ended with Raphael, in the same manner that the Florentine school with Michelangelo; for the styles of these two great masters were rather destroyed than preserved by their imitators.

I. In tracing the progress of the Roman school, we must go back to the most ancient school of Italian painting, which flourished in the 14th century in various cities of the Roman states, within the limits of cities: Umbria; in Gubbio, Fabriano, Massaia, Borgo S. Sepolcro, Urbino, Assisi, and other places.

But the influence of this school, which has been termed the Umbrian, was not confined within these limits. It extended not only throughout Romagna, but over many cities of Tuscany; and although the term Umbrian school has been restricted to the works of the artists of the district attested to, it might be applied with equal propriety and mean system to designate the style of art which prevailed in the works of the revivers of painting in Italy generally, or the antient masters (gli Antichi), whether Umbrian or Tuscan, and still more so of a more recent acquaintance with or rather study of the works of antient art.

Many of the Umbrian painters, and those of Bologna, Arezzo, and Perugia, and therefore also of Padua, Sienna, and Florence, had common masters; and if we compare the detached works of the artists of these cities in a free and easy manner with the disfigurement of those styles compared with that of Maccabeus, we may declare them all to be similar. The only difference between what is termed the early Tuscan and the Umbrian school, is, if anything, that the latter, with equal simplicity, is somewhat less rigid than the former: and if they did not originate in the same source, they were at least both greatly influenced by the colonies of Greek artists who migrated from Constantinople to Italy, and settled in Venice and Padua, in the 11th and 12th centuries.

Oderisi di Gubbio, one of the old practitioners of classic painting, an art which was widespread in Italy, seems...
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as the most antient painter of this school whose period is
attended with any degree of certainty; he died about 1320 A.D. Oderigi appears to have been an active reviver
of painting, and he was a man of reputation in his day.
He is mentioned honourably by Dante, who terms him
‘L’onor d’ Agobio, e l’onor di quell’arte.’
There figure among the three antient painters of
Gubbio: Ceczio and Puccio, who were employed in 1321 in
painting the dome of Orvieto; and Guido Palmerucci, who
was employed about 1324, in the town-hall of his native
city.

A still more important name in the early history of the
Roman school is that of Pietro Cavallini, who is said to have
received instruction from Giotto while at Rome. A Crucifix
by this master, still extant at Assisi, is a remarkable produc-
tion. The return of the papal government from Avignon to Rome gave a new impulse to the arts; the most skilful
artists were sought throughout Italy to decorate the
temples and palaces of the luxurious pontiffs of Rome.
Of these the principal were Ottaviano Martinis, and Gentile
de Fabriano, a master of much greater merits. Fabriano
was summoned Magister Magistrorum, and practised his art
in many parts of Italy. In 1417, we find him engaged at
Orvieto; he resided afterwards at Venice, where he obtained
the rank of patrician, and was the master of Giacopo Bel-
let. Gentile, on the other hand, went to Florence, and was one
of the first to introduce the style of the Roman school in that
city, and of the first who had any
knowledge of the principles of perspective. He introduced
improvements in the management of draperies, and
succeeded in obtaining a fullness and grandeur of figure.
Brancati studied the works of Pietro, who was fond of in-
roducing architectural backgrounds in his pictures, which
were executed in tolerable perspective. Additional impr-
ovements were made by Bartolomeo Corradini of Urbino, called
Piero della Francesca, and Filippo Lippi, whose imitations
of the figure and manner of Gentile are so close
as nearly to give the first idea of the works of Raphael;
the manner which Raphael has adopted in his pictures
was the first to introduce portraits into historical composi-
tions, in which practice he was afterwards followed by Ra-
phael, who paid great attention to the works of this painter
at the commencement of his career.

Niccolo Alunno of Tolentino and Benedetto Bonfigli com-
plete the list of the considerable artists of this school previous
and contemporary with Pietro Perugino, the master of
Raphael, and Giovanni Sassini of Urbino, his father. Al-
though, through the united efforts of the above masters,
painting had attained the highest perfection, it was not in
taste in design may be said to have totally failed them.
They had not yet discovered what was beautiful and what was
not, or what belonged to the individual and what to the
class. There was much to do both for the purpose of im-
inating the appearance of reality an object with these paint-
ert; they seem to have considered that their end was suffi-
ciently accomplished in an intelligible indication of what-
ever they represented. The deficiency of this school could
only be supplied through the study of the antique, and to
supply it in a great degree was a distinction which fell to the
lot of Masaccio, who must be looked upon as the leader of
the great painters of the 15th century, or the Quattrocentisti,
as the Italians have termed them, among whose works we
first discover the introduction of correct perspective.

It cannot be denied that Perugino owed his great superiority
over his predecessors to his visit to Florence, where, whether
he became the pupil of Verocchio or not, which is a matter of
controversy, he was at least enabled to study the noble works of
Masaccio and Masolino, and, by adopting the dry, stiff,
meagre, and feeble, though often correct, his dra-
pers were stiff and in a little manner, yet his colouring was
sometimes exceedingly rich, and for graceful delicacy of atti-
tude, he was undoubtedly master of no one in his age.
In the paintings of Raphael, he surpassed all his contemporaries.
But there is a

symmetrical repetition and similarity in the disposition of his
figures, which betrays a total absence of anything like vigour
or truth of composition, and which place him at an inme-
surable distance from his great scholar. No pupils ever
imitated their master so closely as, with the exception of
Raphael, did those of Perugino; and many of their works
were reputed works of their master. His most celebrated
scholars were, Bernardino Finturchietto; Andrea Loigi di
Dati, called L'Ingegno on account of his great abilities,
who became blind when still young; Daniele and his son
Orazio di Paris Almani; Eusebio da S. Giorgio; Giannicola
de Perugia; Lo Spagna; Berto di Giovanni; Sinibaldo
de Perugia; Adone Doni di Assisi; and Palmierini of Urbino.
The works of all these masters were more or less conspicu-
ous for symmetrical composition and a profuse application
of colour.

II. We now arrive at the pride of Perugino and the glory of
the Roman School, Raffaello Sanzio di Urbino, the first
of the painters for moral force in allegory and history, unrivalled
for fidelity in portrait, unsurpassed; who has never been
approached in propriety of invention, correctness of execu-
tion, is who is almost without a rival in design; and in sub-
limity and grandeur, inferior to Michel Angelo alone, whose
prophets and sibyls in the Capella Sistina are in these res-
pects unquestionably the triumphs of modern art.

It must not be supposed that Raphael attained these great
qualities intuitively: they were the result of long and in-
tense application; and in the works of no artist is the pro-
gress of improvement so apparent as in those of Raphael.
He painted in three styles: his first was that of Perugino.
His second was an enlargement of that style in the taste of
Fra Bartolomeo, and is termed his Florentine. But this
change or improvement in style was not effected through an
acquaintance with that great painter alone, but also through
the influence of Michel Angelo's manner of painting, and
through Masaccio, of Lioardo de Vinci, and also of Michel
Angelo, at Florence.

His third style, which is the subject we have
now more particularly to consider, was peculiarly his own;
though those magnificent works the Prophets and Sibyls
by Michel Angelo were a work of the same kind, yet
they are entirely different in style. This third style, which is the proper
style of Raphael, constitutes the Roman school in its full
development, which is the least defective of all the schools of painting.

To allow that the Roman school is principally indebted
for its grandeur to the works of the great Florentine on the
vault of the Sistine Chapel, is allowing no more than is just.
But to venture to the extent of asserting, as Sir Joshua
Reynolds has done, that the Florentine style of Raphael is the
first to introduce portraits into historical compositions,
in which practice he was afterwards followed by Ra-
phael, who paid great attention to the works of this painter
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he became the pupil of Verocchio or not, which is a matter of
controversy, he was at least enabled to study the noble works of
Masaccio and Masolino, and, by adopting the dry, stiff,
meagre, and feeble, though often correct, his dra-
pers were stiff and in a little manner, yet his colouring was
sometimes exceedingly rich, and for graceful delicacy of atti-
tude, he was undoubtedly master of no one in his age.
In the paintings of Raphael, he surpassed all his contemporaries.
But there is a

symmetrical repetition and similarity in the disposition of his
figures, which betrays a total absence of anything like vigour
or truth of composition, and which place him at an inme-
surable distance from his great scholar. No pupils ever
imitated their master so closely as, with the exception of
Raphael, did those of Perugino; and many of their works
were reputed works of their master. His most celebrated
scholars were, Bernardino Finturchietto; Andrea Loigi di
Dati, called L'Ingegno on account of his great abilities,
in which the imitation of the style of Michelangelo is most apparent, is the Incendio del Borgo, decidedly the worst production of Raphael's mature years; indeed it is even doubtful whether he had any hand in the execution of the fresco.

In considering however the respective claims of these two great masters to originality of style, it should be borne in mind that Raphael's great works in the Camera della Segnatura preceded those of Michelangelo on the vault of the Sistine. Sir Joshua Reynolds, that great connoisseur, generally considered to be Michel Angelo's greatest work, the Last Judgment, was first commenced in the pontificate of Paul III., years after the panel of Raphael had ceased its labours, and was not completed until twenty years after the death of that great painter. Therefore these two extraordinary men may be safely said to have been indebted the one to the other.

Raphael has had many critics, but of these perhaps Mengs is the most remarkable. He was prejudiced against Raphael; but, just as much as the painter's extraordinary veneration for the works of ancient art must not be forgotten while we consider his criticism, the works and genius of Raphael. The only essential fault, in the opinion of Mengs, in Raphael's style, is a deficiency of the history in the human figure, and an absence of invention. This is not on this account any very deficiency, as Mengs views it, that his style distinguishes him from and raises him above all other painters? Raphael was pre-eminently and essentially natural; idealizes his style, and you immediately discern the hand of Guido.

His forms are neither so ideal, nor, in one sense, so perfect as the Apollo or the Mercury, but they are equally grand, and more natural. Such forms would be incompatible with Raphael's style. They are supposed to represent beings beyond the full proportion of the human frame, and therefore should have grander proportions of the human body.

His design however is very little inferior if not equal to the Diocesulus, the Diocesulus, or even the Laocoon; but it must decidedly yield in style to the Torso of Apollonius, and in beauty and elegance to the antique. This is the foundation of the powers of imitation may be combined with those of the imagination, which, when regulated by a just refinement of feeling or taste, constitutes the perfection of painting, and this degree, though not attained, was the degenerate approach of Raphael, more nearly than that of any other painter. He never designed a figure which he did not inspire with appropriate sentiment; the affections of mankind were the sphere of his genius; from the calculating sage to the thoughtless infant, in all the different classes of men, he distinguished the particular qualities which characterise his style: for grandeur of design, the Heliodorus; for simplicity of character, the Simplicius; for composition and expression, the Cartoons; and perhaps for invention and general technical excellence, the Transfiguration, his last performance. [RAPHAEL]

The style of Raphael has seldom been found congenial to that by a lover of colour, and certainly those who consider the perfection of painting to consist in splendid colouring must not look for it in the works of the Roman school, in those of Paul Veronese or of Rubens. Many critics have regretted that Raphael did not do more near his life; but colour was to Raphael a means, and not an end, as it was with the majority of the Venetian painters; and its effect is to dazzle and to obscure, rather than to enhance the essential qualities of the grand style. For as there is a tone of harmony in the player harmonie, the paining spectacle and the tone of light around, and would as certainly be ridiculous if exposed to the light of day, so the Venetian colouring, which is in such perfect harmony with the subjects of that school and their general treatment, would as certainly be in utter discordance with those qualities which characterise the style of Raphael. Even Ludovico Caracci, the founder of the Eclectic school of Bologna, discovered that Venetian colouring was inapplicable to the subjects which he chose for his pen. And Raphael has been the great painter that he proved himself to be, had he chosen any other than the sombre colour for which he is so conspicuous, and which, so far from being a defect in his style, is indeed an additional evidence of his profound genius. These remarks do not refer to the carnations particularly, which should always have been more delicate than the draperies, but to the composition of colours generally, to their choice and intensity, and also to the studied materials of which the draperies are composed. Raphael rarely if ever painted silks or satins; most of the Vestale, seldom painted anything else. [VENETIAN]

Raphael was the most博学的 painter of his time, and as such the Roman school of painters; of the former, were the principal were Giulio Romano, Gianfrancesco Penni (with Giulio, Raphael's principal heir), and Pietro del Vaga: these painters, completed from Raphael's designs, did great works in the Vatican, which he had left unfinished.

Giulio Pippi, called Giulio Romano, certainly the most eminent of all Raphael's scholars and imitators, was conspicuous for the correct and powerful design of his master. He never approached it in other respects, but he had great powers of invention, an unpleasing expression, and an evident absence of sentiment prevail throughout his works. He is also heavy both in design and colouring; but his particular employment under Raphael, that of designing, and his profound operining, was perhaps a little contributory to this effect. Giulio left Rome during the pontificate of Clement VII., shortly after the completion of the Constantine series in the Vatican, and, at the invitation of Federigo Gonzaga, repaired to Mantua, where he found a school and painted his famous works, the Fall of Giants, and the Loves of Cupid and Psyche. [GIULIO ROMANO]

Gianfrancesco Penni, with little less vigour than Giulio, was conspicuous for more of the grace of his master. Federigo Gonzaga, who possessed powerful men, had great powers of invention. Other pupils and assistants of Raphael in the studio and the logico of the Vatican, were—Giovanni da Udine, Polidoro Caldara da Carraggio, celebrated for his imitations of antiquity; il Bassano; il Pellegrino da Modone; Bartolommeo Falconetti; and others, with the assistance of whom, Penni worked in the Logico of the Vatican, and the Sala and the Sala of the Duke. The school of painters formed by Raphael was totally dispersed: it spread however the elements of his style all over Italy, although scarcely a single beauty of the original was to any extent preserved in the copies.

The arts commenced again to revive in Rome. Michel Angelo executed his great work of the Last Judgment, the labour of eight years, in the orders of this pontiff: it was completed in 1541. The effect however of this work was for a time fatal to painting. Hosts of copyists and mannerists arose, who, possessed with the art of Michelangelo, vied with each other in the execution of the most ambitious subjects, and raising painting nearer to perfection than it has ever attained in modern times, they raised it also to greater perfection. In particular, mannerism for representing the naked figure, and sacrificing everything to anatomical display, imagined the perfect design to consist in violent action and muscular proportions; and in imitating the manner, they imagined they had acquired the art of Michelangelo, without the correctness or purity of the former, and with only the manner of the latter, Taddeo and Federigo Zuccari. The former died young. The latter executed vast works at Florence, which were, however, remarkable for execution alone, and he has left specimens of his pencil in the principal cities of Italy. He succeeded Girolamo Murrano as president of the Academy of St. Luke at Rome, which had been lately created by Gregory XIII., and the instance of Murrano Gregory was elected in 1542.

The following except [was] mentioned, as being...
Domenichino inferior to Raphael alone. His style was however very peculiar, and had no influence upon the arts in the latter. The works have too much the appearance of painted basalt reliiefs.

Pietro Berrettini, called also Pietro da Cortona, set himself up as the rival of Sacchi in Rome, and if the number of imitators is a criterion of the degree of excellence, Pietro da Cortona was certainly superior to his. But Sacchi was not so easily imitated. The style of Cortona was rich and attractive, but superficial and incorrect, and he takes the lead in that class of painters termed machinists by the Italians.

Two scholars of these two masters formed two rival factions of art, which divided Rome: that of Sacchi was headed by Carlo Maratta, supported by Ludovico Garzi; that of Cortona, by Cirio Ferri, supported by Romanelli. Bernini, who during the pontificates of Urban VIII. and Innocent X., in matters of art was all-powerful in Rome, opposed, as was to be expected, that party which was conspicuous for good taste; and for a time the machinists prevailed. But the school of Cortona was predominant only in fresco, for in oil paintings Domenichino was the acknowledged master.

It was in oil painting that Sacchi was preeminent. In 1662, however Cirio died, and Maratta stood alone; and upon the accession of Innocent XII., in 1691, he was appointed inspector of the stanzas of the Vatican, and in 1702, by the orders of Clement XI., he restored the works of Raphael in those apartments, which had been ruined by fire. He had also restored previously the frescoes of Annibale Carracci in the Palazzo Farnese. He died in 1713. His style was generally considerably less vigorous than that of Sacchi, and his ancient nature was sometimes artificial; but his drawing was also sometimes incorrect; his taste was upon the whole very inferior to his master's, though his style has been termed more graceful.

Maratta formed a most numerous school, but its chief characteristics were the studied composition and affected grandeur of its works which are the result of its own study.

Maratta has been termed the last of the Romans, and perhaps he may be safely termed the last of the Romans who has merited the name of a great painter; for neither Pompoe Batoni nor Mengs can be said to dispute that claim with him, though both of them, not unfavourably compared with Giovanni Carbone; Francesco Cozza; Pietro del Po; Canini; Giambastista Passeri; and Luigi Scaramuccia; and there were many others of considerable merit. The school of the Carracci seems to have had more immediate influence upon the painting, truth or fidelity of representation being indispensably requisite to constitute excellence in portraiture. The excessive mannerism of the painters of the period had so generally incapacitated them for executing anything of consequence in their works, that the later masters were nearly a distinct profession, and the following masters distinguished themselves as excellent portrait painters, though they did not confine themselves quite exclusively to portraits:——Antonio di Monti; Pietro Faccioni; Antonio Scarpellini; Ottavio Leoni; and Baldassari Allesio, called Galantino.

Upon the imitators of Domenichino followed the bold style of Lanfranco, whose most successful scholar was Giacinto Brandi; and contemporary with Lanfranco flourished Albano in Rome. Pier Francesco Mola was an imitator of his style.

From the studio of Albano came Andrea Sacchi, a painter who drew well and coloured admirably, who never became versed in the theory of art than any of his contemporaries or immediate predecessors. There is a nobility and grandeur about his style, and a truth and breadth in his execution, which distinguish him as one of the noblest disciples of the school of Raphael: of this his great model, trained to excellence, and in all other respects inferior to its great founder alone. Raphael was his model of perfection, but he was no servile imitator; he could appreciate also the beauties of Titian and of Correggio; and he had recourse to the same sources throughout his career which refer to the ages of chivalry, either real or supposed. [Chivalry.]

The oldest romances in this latter sense appear to have been legendary stories concerning Arthur and the Knights of the Round Table; and they were written in all the original narratives, if they ever existed in writing, which is doubtful, are lost. The earliest romantic legends which have come down to us are of the twelfth century: Geoffrey of Monmouth's Latin Chronicle of England; Turpin's
Latin Chronicle in France; "Le Brut," a metrical romance by Guillaume de Machaut; the "Liber Floridus," a twelfth-century history of England, in Latin verse; and "La Roman de Rou." These works reflect the influence of Romance and Latin literature in various forms.

In France, the Roman de la Rose, written under the patronage of St. Louis, is a central work. The chivalric ideal of the byzantine era, as expressed in the romances, is characterized by the valor of the knight, his loyalty to his lady, and his chivalric prowess.

The romance genre, which flourished from the twelfth to the fourteenth centuries, was dominated by courtly love themes. The chivalric ideal of the byzantine era, as expressed in the romances, is characterized by the valor of the knight, his loyalty to his lady, and his chivalric prowess.

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came by marriage into the possession of Henry II. of England. These three states, Barcelona, Toulouse, and Guinnes included the whole country in which the Languedoc was spoken. The union of Provence with Catalonia introduced into the former country a taste for poetry and chivalry, which was fostered by the Moros. The towns of Catalonia and Provence carried on a lucrative trade over the Mediterranean, and Catalan and Aragonese armaments took an active part in the Eastern wars between the Greeks, the Normans, and the Saracens. All these circumstances conduced to the progress of the Languedocian language, and the singular institution of the Courts of Love gave a peculiar turn to their poetry. [TROUBADOURS.]

The Languedoc, or Northern French, also called sometime Norman French, having become the language of the court and capital, and of the kingdom of France, gradually approached upon the Languedoc, as the various provinces south of the Loire became incorporated with the monarchy. From the 13th century downwards, the edicts and ordinances of the French kings being issued in the Languedoc, was forwarded, either in the original or translated into Latin, to the provinces of the south. The writers of Northern France, the Trouvères, refined their own language, and found encouragement at court, which was not extended to the writers in the Languedoc, who were in his "Abrégé de l’Art Postiche," complains of this: 'Now that our France is all subject to one king, we are obliged, if we wish to attain honour or fame, to speak his language, else our works, however honourable and perfect, would be thought little of, or might be lost, as they are in the south, unless selected.' With the invention of printing, copies of the works in the Languedoc were speedily multiplied, while those of the Troubadours remained mostly in MSS. confined to a few libraries. In the 16th century it was enacted that all public acts and deeds should be written in French. The Languedoc, being thus restricted to the mere purposes of a domestic idiom, descended into various petioles or dialects. Still there appeared, here and there, in the seventeenth century, in national pageants, the old spirit and humour in their respective patios, such as Lesage, a Languedocian, whose burlesque and frequently licentious poems were published at Montpellier: 'Les Folies de la Sage,' 1650; Ader, 'Lou Genillhumme Gascoun,' Toulouse, 1610, and 'Lou Caloumen,' Cahors, 1611; a verse of bands of 'Chau- 

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trachomonachia,' in Gascon, 'La Granoul-Batromachia,' Toulouse, 1664; 'La Pastouraillo (a comedy in 4 acts) duen Payson que cerque mestis a son hills,' in the dialect of Béarn, at Bayonne, 1754. Embarrassed by the 'Feiro de Beaucaire,' by Michel, Amsterdam, 1700; 'Actes du Synode de la Sainte Reformacion,' Montpellier, 1599, a satire against the Calvinists, by Rebold, a witty but profane adventurer, who was last executed at Rome, under Pope Paul V, in consequence of these works, the Inquisition, being stifled in the causes of the文字.
It is impossible to fix the epochs of the origin of the various languages of the Spanish Peninsula. The Catalanian and Galician of the Portuguese system, to be the oldest.

The Castilian, notwithstanding the assertion of Boutereau to the contrary, was not formed in the eleventh century; its oldest existing monument, the poem of 'El Cid,' is not older than the year 1200. Previous to the twelfth century, the Galician and Portuguese systems of the Roman Romance of the southwest of Spain. An old MS. Canonico in this dialect, belonging to the library of the Royal College of the Nobles at Lisbon, of which Sir Charles Stuart obtained a copy, which he communicated to Raynaud, is an example of this language in Galicia and in Portugal, as far south as Coimbra, in the tenth and eleventh centuries, after which the Portuguese grew into a separate and polished dialect, which was much in use for poetry among Galicians and Castilians as well as Portuguese. (Raynaud, Grammaire Comparée, 'Discours Préliminaire.')

In the 'Elucidación das Palavras, Termos, e Frases que em Portugal antigamente se usaram,' 2 vols. fol., Lisbon, 1798, are other specimens of old Portuguese or Galician coinage, the latest text of the language is in the 'Grammaire Comparée' of de Lobeira, which is lost, was written in the same language.

The Catalanian dialect became early a literary language, and as such subject to fixed grammatical rules; it has its grammar and dictionaries, a great number of printed books, and even a number in MS. It had its historians; among others an anonymous historian of Catalonia, written by Jornada in his 'Chronica de Aragon,' and by Stock, who had lived in the thirteenth century, and wrote a history of the principality of Catalonia and of the Aragonese kings subsequent to the junction of the two states; and King Jaime I. of Aragon, who wrote an account of his own reign, which has been published under the following title: 'Crónica o Commentario dei gloriosissim e invincibil Rey Justo d'Aragos, el Maioire d'Aragos, de Barcelona e Urugel, e de Montpellier, escrita per que en a que la lingua natural, e treia del Archiue del molt magnific Rational de la magnific Ciudad de Valencia, hoi estara custodita,' Valencia, 1557. King Jaime also wrote a book 'de la vendre' on his reign, edited by Nicolas Antonio, in his 'Bibliotheca Vetus.' The Catalanian is rich in poetry, which was introduced into the Peninsula by the troubadours of Provence and Languedoc. Alonso II. of Aragon, in the twelfth century, is numbered among its poets, as well as Guillermo de Bergueda, a Catalanian noble, who lived in the following century, and some of whose verses are preserved in a MS. in the Vatican library. Mosen Pero March, Jacme March, Mosen Jordi, Mosen Feber, and Mosen Moreno, rank among Old Aragonese, and Valencian troubadours. (Troubadours)

The languages of Aragon and Valencia, in the time of the Aragonese monarchy, may be considered as one and the same language. It is worthy of remark that at the end of the 13th century, when the Castilian language had already gained the preponderance in a great part of Spain, we find a controversial conference between the Jews of Granada and some Christian missionaries from Castile, carried on in the Castilian language, which appears to have been vernacular at Granada. (Memoirs of the Royal Academy of Barcelona, i. p. 615.) In the same Memoirs (p. 613) it is stated that the bishop of Orense, having been requested to examine what analogy there might be between the Castilian and the Catalanian, answered, that there were both, not only nouns, verbs, and other parts of speech quite identical, but also entire phrases. And terreres (in its 'Palography') and others have stated, that the language of Aragon is the same as that of Galicia, being the distinction of pronunciation.

The Catalanian, observes Raynaud, is the living language which most resembles the old Romance of the troubadours, and that of the Valdenses of Picquero in Piedmont is the most nearly allied. The troubadour language is a mixture of different elements between the Catalanian and the Romance:—1. The Romance substantives and adjectives ending in an, en, in, and in, add in Catalanian the euphonic final vowel y: affay, affuy, estray, estray, &c. The plural feminine in ae is changed into au: aquell, aquell, aquell, &c. 2. The particular phrase of the troubadours: it doubles the i at the beginning and at the end of words: aquell, loch, lumy: it sometimes changes the e into e, especially of the Romance participles in ent; demeruit, fagint, promenit: it adds a final n to some inflections of the verbs, &c. The Catalanian has retained the accent of the Romance, of which the following are specimens taken from the poems of Aumis March, the Valencian troubadour:

The popular paizos or dialects of the south of France, after being long neglected, in late years has attracted the attention of philologists. Colomb de Batinas has given an account of the paizos of Dauphiné; Sainte Buelle has inserted a notice in the 'Revue des Deux Mondes,' vol. x. 1837; 'Les paizos de la Garonne,' by A. de Poicke, Béarnos, was published at Pau in 1827. (The Bearnese dialect is a Romance and not a Basque dialect and resembles the Gascon.) The dialect of Gascony has been illustrated by the Viscount de Méréur: 'De L'Aggs de l'Empire des Deux Mondes,' Léer., 1832; also by Du Mage: 'Statistique des Dérivations des Piennes.' The Languedocois boasts of two graceful poets: 'Poèmes Patoues de P. A. et C. Ray, Rousse, 1860; 'Mélanges sur les Langues Occitanes,' by Arago, 1861; 'Poèmes Patoues, Tolos,' 1820; the poems of Verdil, a self-taught artisan of Bordeaux, who died in 1820—whose works, full of humor and nature, are unknown beyond the precincts of his native town. (P. Declercq, L'époque du troubadour, 1856.)

With regard to the ancient Langue d’Oc, or Languedoc, the most refined of all the southern dialects, it which may be considered as one of the Romance languages, is spoken by all classes of people, bears also considerable affinity to the modern Romance dialects of Southern France, and we have heard it stated that natives of Languedoc can understand those of Piedmont with ease.

The language of Normandy was formed in the 12th century, in Normandy, La Cruse Provençale; and in France, by J. Bouguet, 'L'histoire Litteraire des Troubadours,' who compiled his work from the voluminous MS. folios of M. de Sainte Palaye. In the present century, Raynaud has been the most industrious and most successful investigator of the Romance language and literature.

In Italy, the dialect of the valleys of Pigneron, or of the Valdennes, has most affinity to the old Romance. (Valdennes. Of the ancient and modern, the latter is spoken by all classes of people, bears also considerable affinity to the modern Romance dialects of Southern France, and we have heard it stated that natives of Languedoc can understand those of Piedmont with ease.

With regard to the other North Italian or Lombard dialects, they differ more or less from the old Romance language, though they had a common and perhaps even origin with it, and resemble more than the Italian or Tuscan. The Langue d'Oc, having been formed chiefly in the eleventh and twelfth centuries, and the language of Italy, reduced its materials to a regular form sooner that they; and having become a polished and literary language, the Italian in their turn borrowed at second-hand from it. Raynaud, in his 'Grammaire Comparée,' observes this.

The dialect of the southern France, or 'Rimbeau,' is the one that has retained most completely the forms of the Romance with the least admixture. That of Bergamo comes perhaps the next in affinity: it often changes the a into o; for example, instead of dal, it forms it, de; and of Bologna and Mantua abound with contractions and abstractions, which render them very harsh; they have taken away the of the Romance terminations in at, it, ut. The Milanese has a broad pronunciation, and many double vowels are changed into single ones: it is, it, ut, and which change into er, eor, er, &c. The Romanish of Rome, etc., is written with s, z, c, etc., but in actual usage, it is written er, er, &c.
The dialects of the Venetian territory, with the exception of that of Friuli, are more remote from the Romance in their formation, as are likewise still more so the dialects south of the Alps, or of Southern Italy. We cannot here enlarge upon the multifarious subject of the Italian dialects, but we refer the communicant reader to the grammarians, dictionaries, and other works, and also to an article in the Quarterly Journal of Education, No. 2, in which are given specimens of composition in each; and also to an article in the Foreign Quarterly Review, No. 14, 1839, on the dialects of South Italy.

The dialects of Western Switzerland, Vaud, Neuchâtel, Geneva, part of Freiburg, and Lower Valais, and also of Savoy, have retained to this day the name of patois Rom, or Language Romande. Western Switzerland, as well as the Aar, was occupied in the decline of the Roman empire by the Burgundians, a less rude tribe than the Alemanni, who settled in Eastern Switzerland. The Burgundians shared the land with the native population of Roman, Helvetician, or Alborige race; they applied themselves to agriculture, and soon constituted themselves into a well regulated and orderly monarchy. They gradually adopted the provincial Latin which they found in use in the country, and from the corruption of which several Romance dialects were formed, which, resembling those of the North of France, were formed through a similar process. Some of the dialects of Western Switzerland approximate in their inflexions to the Northern French, or Langue d'Oil, whilst others, like that of the Aar, or the French of Jura, are more akin to the Romance of the south, and consequently to the Italian. Specimens of both are contained in Stalder's 'Dialektologie,' and also in the collection of Hans des Vaches, both in German and Romance, 'Sammlung von Schweizerischen Mundarten,' published, with some supplements, in 1873. In the Aar dialect, Switzerland is divided, by language, races, and habits, into German and Romande, and the Germans by the latter by the general name of Wälischland.

In the country of the Grisons, or antient Rhatische, one branch of the Romance dialects, Rumonisch, which is an Italian dialect of very ancient formation, supposed to be derived from the language of the Esruanes, who emigrated to those valleys about 900 years a. c.; but this is a more conjectural opinion, supported by MSS. eight or nine centuries old existing at the end of the last century, and perhaps some still exist in the convent of Daesenta. The dialect of the Engadine, or valley of the Inn, is called Ladin in the Italian, or Ladinisch, a dialect which has been published in it. Mss. of various dialects of the Italian or Lombard dialects. Specimens of Rumonisch and Ladin are found in the Appendix to Vieuxseau's 'History of Switzerland,' published by the Society for the Diffusion of Useful Knowledge. Raymondou observes that the Rumonisch has an affinity to the Italian and Lombard languages, but is disfigured by an admixture of Northern or Teutonic orthography and pronunciation. It often adds a t to the end of words; fig, volg, hag, testamang, for the Romance m, col, hoi, testamento.

It is the most ancient Romance language in its most extended sense, all the languages and dialects of Western Europe, that is to say, of Italy, Western Switzerland, the Grisons, France, and Spain, may be called Romance, being derived essentially from the Latin or Roman, and having been formed after the fall of the Western Empire. The Basque and the Armoric or language of Lower Britain belong to a different family. The Wallon of Liège and the Valachian are also Romance languages. The Valachian resembles the others in its grammatical forms than in the etymology of the words. Raymondou observes the analogy existing between them all in their grammatical construction and etymology in his 'Grammaire Comparée des Langues de l'Europe Latine.' But if we look at the word Romance in its more restricted sense, having been especially applied to the language of the troubadours, or Langue d'Oc, we must consider it as confined to the south of France, and the eastern provinces of Spain as far as Murcia; and it is thus that we find its genuine etymology; that is to say, in the languages of Catalonia, Valencia, and Majorca, and in the Languedocian, Provençal, and Valldenses dialects.

Raymondou's conclusion of his 'Grammaire Comparée' of the languages of Latin or Roman Europe, contains some characteristics in the construction of the Romance language, most of which occur also in the other languages and dialects of Western and Southern Europe, which he styles 'Neo-Latin.' 1. The use of articles to determine the cases, instead of their being designated by the termination of the word as in Latin. This characteristic is found in all the modern languages derived from the Latin. 2. And the terminations of words, especially nouns, of which Raymondou gives comparative tables in the various languages. 4 is peculiar to the old Romance, but existed also in the Northern French till the fourteenth century. It consists in placing an s at the end of substantives in the singular, when they are subjects; the absence of the s shows they were used in the objective case. In the plural it was the reverse, the absence of the s designated the nominative. The Northern French dropped 4 generally in the singular, and 6 in the plural without distinction. 5 refers to other terminations employed by the old Romance, especially in proper names, to distinguish the subject from the object. 6 concerns the gender of the adjectives. 7 concerns the degrees of comparison. 8 is on the Romance affixes representing personal pronouns, ou, os, ou, ex, which are also met with in the old French and old Spanish, and also in some rustic dialects of France, in the Catalanian, and in some north Italian dialects. 9. The pronoun aliis as an adjectival added to the substantive, which has been adopted by all the Neo-Latin languages of Europe; vous autres, vos autres, vos autres, vos autre, &c. 10. Relative pronouns qui, que, Io qual, 11. The indefinite pronoun om, derived from the Latin Amt, which is found in all the Romance and Portuguese languages. 12 concerns the participle in ut, of which the French has made us. 13 concerns the double formation of participles of the same verb, such as rot and compuat, deted and defendant, and elegit and elegari. 17. The compound passive formed of the auxiliary esser and the participle past, which has been substituted in the Latin simple passive form. 18 concerns the verbs used imperatively. 19. The terminations of the books. The Italian has retained it: 'Non parlarie.' 20. The various uses of the conjunction que. 21. Formation of adverbs from the feminine adjective by adding the affix ment, which has been adopted by all the other languages derived from the Latin. 22. The expletive pas, mica, ciat, &c., added to the negative particle to give it greater emphasis. This form is retained by the French in pas, and by the Italians in mica and guari. 23 concerns the appellations Romana, Romanes, Romorhe, Romansche, which are the old French names for the Romance languages, given by the earlier French and Portuguese writers to designate their respective idioms; an appellation which serves to show their common origin.

The following specimens of the Lord's Prayer, in the various dialects which are nearest to the old Romance, may convey some notion of their respective shades of variation as well as of their common origin:—

Old Provençal, from 'L'Arbre d'Amor,' a.d. 1298.

Paire nostre qui estel Celis;
Ton nom sia santistot;
A nos vengo lo teu regnat;
En la terra fachar nia;
Que el Col, voluntat tia.
La Pa nostre cotidion
Huei nos dons, Deus, de ta ma;
Remet so nos tés;
Que nos als autres remetem;
De templotio nos deffen;
Ens delivra de mal.

Modern Provençal, from a Collection of Dialects published at Paris, as quoted by Adelung.

Noustr Paire que sia sou Ciele; que voustr noum siegue sanctiffat; que voustr rouysouame nous arrihe; que voustr voulanté siegue facho su la terro, cuismo din lou Ciele: dounas nou encui noustres pan de cade jou; par- dounas nou noustret confenes, cuismo loi pardisson n'aqu'ei; que nous an cœur nons; e non lëscha pa soumette la tentation; mai delivra nous doux maou.

M 2
Langedocien, from Adelung's *Mithridates.*

Nostre Pero que tes au ciel, que vostre nònum siegue santificat, que vostre reyno nous arribe; que vostra voluntat siegue facha, tant sur la terra que din lo Ciel; dona nous auges, que p Godi nedons nous esaus, nous ofuenças, couna nosartals las perdounas on d'aquelles que nous an ofuençat. Nous lesess pas suscamb a la tentacion; me delivra nous de maho.

Catalanien, from Bern. Aledriete, *Del Origen de la Lengua Catalana.*

Pare nostre que estau en lo Céll, sanctificat ess ez vostre sant nom; vinge en nos altres el vostre sant rene; fasas la vostra voluntat així en la terra com se fa en lo Céll. El pa nostre de cada dia da nous lo gui; i perdoun essos nostres culpess; i passa a nosaltres perdounas a nostres deudos; i no permete us nosaltres calg a la tentacion; us delibra nos de qualsevol mal.

Balearin de Mallorca, from Adelung.

Pare nostre que estau en los Cés; sia santificat lo vostre sant nom; vinge a nos altres el vostre sant rene; fasas, Señor, la vostra voluntat així en la terra com se fa en lo Céll. El nostre pa de cada dia da nosaltres lo gui; i perdouna nosaltres culpess, així com nos altres perdouna a nostres deudos, i delibrunos, Señor, de tot mal.

Valencián, from Heredia's *Collection in Adelung.*

Pare nostre que estau en los Cés; sanctificá siga el teu nom; veng a nos el teu rene; fageis la teva voluntat així en la terra com a el Céll. El pa nostra de cada dia da nosaltres la guia; i perdouna nosaltres deudas així com nos altres perdouna a nostres deudos; i no nos deixes caure en la tentacion; nos llenyars de mal.

Sardinián de Cagliari and other Towns, from Adelung.

Pare nostre qui istas en sos Quelos; Siat sanctificáu si Nom teu; venga a nos a regu teu; fassas a voluntat així com se fa en lo Céll. El pa nostre de cada dia da nosaltres la guia; i perdouna nosaltres deudas així com nos altres perdouna a nostres deudos; i nos indeuces caure en la tentacion; nos llenyars de mal.

Sardinian Rustic.

Babbu nostre sunghile se in sos Chelus, santafudada su nomine tuo; bengaid su rennu tuo; faiadss sa voluntade tu, somenti in Chelo casii in terra. Su pane nostre de ognio die da nos lu boe; i etess a nos ators la depidios nostre casii comente a nos ators lassos a sos depidios nostres; e nos non portis in sa tentacion; impero libera nos de su mal.

Gallego or Galician, from Heredia's *Collection.* No. 295.

Padre nostro que estas no Cee; sanctificá sei o teu nome; es nos altres, o teu menjo; faga a teu voluntade asa na terra como no Cee. O pa nostra de cada dia da nos otor la guia; e perdouna nosaltres deudas, així nos altres perdouna nos nostres deudos; e nos non deixes caer na tentacion; mas libera nos de mal.

Portuguese.

Padre nosso que estes nos Coos, sanctificado seja o teu nome; venha a nos o teu reino; sei feita a tua vontade assim nos Coos come na terra. O pao nosso de cada dia da nos ojo; e perdoa a nos, Senhor, a nossas divisas assim como nos perdamos a nossos nossos divisas; e nos não deixes cair na tentação; mas libera nos de mal.

Valdense of the year 1100, from Leger.

O tu lo nostre Payre, local sises en li Céll; lo tiu Nom sia sanctificato; lo tiu regne venga; la teu voluntat sia faya en suyn aili es faya al Céll, sia faya en la terra; dona nos nosa quantitati es voucha; perdon a nos nostre delit e peces, coma nos perdondem a nos nostres debitors e offendentors; non nos amenar en tentacion; mais delivra nos del mal.

Modern Piedmontese.

 padre nostre, el autore in Ciel; sanctificá sia l'ò nom, venga a nos el autore rei; e fass a la tua volontà com in Ciel est in terra; e danni e pi necc; pero a noi i nostri debiti con noi nostri debitori e debite; lause ne caché en l'ò tentacion; mais librene del mal.

Rumantsch of the Grisons.

Bap nos chi est u', li tachiha; fat saungy vagnia teu nom;
Another proof of the Epistle having been written from Corinth is given in xvi. 23, where St. Paul sends salutations from Galus, his host, and Erastus, the chamberlain of the city of Corinth. (Comp. 2 Timoth., iv. 20, and 1 Cor., i. 14). The position of the Epistle in the New Testament does not depend upon its date, for it is the seventh in order of time, and is placed first, either from being the longest and most comprehensive of the Epistles of St. Paul, or from the importance of the church to which it is addressed, as Introductory to the Acts. With respect to the origin of this church, we have no certain information in the Scriptures. They do not tell us when or by whom it was founded. The opinion that it was founded by the Apostle Peter does not appear to rest on any satisfactory evidence. The chief authorities for such a tradition are a Didymus (Apol. Harr., iii. 1) and Eusebius (Chron. an. 2 Claud.); but if they had indeed preached the Gospel at Rome, such a circumstance would probably have been noticed in the Acts of the Apostles, nor is it likely that St. Paul would have made no allusion to it in this Epistle.

Perhaps the most reasonable opinion on the subject is, that the Gospel was first preached at Rome by the strangers from that city, the Jews and proselytes, who were converted by the Gentiles; the principal object of the Apostle's first Roman journey (Acts, xvi. 10); so that, like many other churches, that at Rome was at first composed of Jews, and gradually increased by the admixture of Gentiles, till the whole Church community there became so large and important, that their faith and progress were no more dependent on the personal presence of the Apostle than a national grandee of the state or patrician of the Roman people on the presence of a Roman dictator. In the effects of this combination and coexistence of Jews and Gentiles as parts of one Christian church sufficiently explains to a careful reader the occasion and object of the Epistle. Furthermore, the position of the law and its relation to the law in the church of Jerusalem was antecedent to the first visit of the Gentile converts upon a Roman body. (cap. ii. and xii.) The Jews were attached to the mosaic institutes and the legal rites and distinctions between clean and unclean. They were impatient of subordination to or equality with the Gentiles, whom they wished to oppose upon them a common appeal to many points of the mosaic ritual, especially that of circumcision, before they were admitted to a participation in the privileges of the Gospel. The Gentiles, on the other hand, disregarded (perhaps too contemptuously) the Mosaic law, which, however, they opposed themselves upon their superior position inherited from their ancestors, and the privileges of the Gentile converts. (iv. 9, 10.) Theamo disease affords no explanation of its fallen position in the eye of the Gentiles no justification.

They might not reflect with fairness on what the Jews conceived themselves to have lost by the publication of the Gospel. Such a position of parties, and such a state of feeling between them, would naturally give rise to the division of the Jews, and offences which occasioned some of the woes and calamities contained in the bosom portion of the Epistle. Indeed, if we examine the state of things mentioned in the letter, it can scarcely fail to be observed by a careful reader.

The argument of the Epistle is mainly directed against the two great prejudices of the Jews, viz. (1) their trust in the works of the law, and particularly in the rite of circumcision, as if by that work they were already justified, i.e. accounted righteous in the sight of God; an idea which led them to reject the offer of the Gospel: (2) their trust in their privilege, as the chosen seed of Abraham, which led them to consider themselves God's peculiar people, and to look down upon the Gentiles as aliens.

The point at which the Apostle endeavoured to establish in the Epistle is briefly laid down in cap. i., ver. 10, where he affirms, in opposition to the prejudices and pretensions of the Jews, that 'the Gospel is the power of God unto salvation to every one that believeth to the Jew first, and also to the Greek.'

Here two things, as Mr. Young remarks, are contained in this affirmation:—

1. The absolute efficacy of the Gospel to salvation, for it is the power of God unto salvation, i.e. the means whereby God brings about the salvation of men; which indeed implies the inefficacy of the law for that purpose, whether that of Moses or that of nature, by which the Gentiles were a law to themselves (ii. 15).

2. The universal extent of this saving power is included in the words, 'to every one that believeth': to the Jew first, and also to the Greek.'

And the Apostle therefore in this Epistle does mainly treat of the first point.
soldier under the reign of Constantine Ducas, and after that emperor's death was chosen by his widow Eudocia for her husband and her partner on the throne, A.D. 1068. [Eudocia.] He passed with an army into Asia, and carried on a successful war against the Turks, whom he drove beyond the Euphrates. Having afterwards entered Armenia, he was defeated by Alp Arslan, sultan of the Turks, and taken prisoner. He was kindly treated by his conqueror, and obtained his liberty by paying a heavy ransom. In 1084, however, he revolted against his captor, and fled to the court of the West at Niçopolis, where Michael, son of Constantine Ducas, had risen against his mother, and shut her up in a convent. Romanus on his way homeward was seized by order of Michael, was deprived of his sight, and was beheaded on the plains of Prinkipo, in the Sea of Marmora, where he soon after died, A.D. 1071.

ROMANZOFF, or ROMANZOW. [Catherine II.]

ROMANZOFF, NICHOLAS COUNT, was the son of the field-marshal Romanzoff who became celebrated by his victories over the Turks under the reign of Catherine II. He was born in 1753, and appointed Russian minister at Frankfort on the Main in 1783. Under the emperor Alexander he was nominated minister of commerce. He introduced many liberal measures into his department, and it was said that his efforts to diminish the influence of the Russian empire round the world, under Krusestein and Lisiraki, was sent out in 1803. In 1807 he was appointed minister for foreign affairs, and soon afterwards chancellor of the empire. He accompanied the emperor Alexander during the important interview at Erfurt in 1808, concluded the treaty of peace with Sweden in 1809, and that of peace and alliance with Spain in 1812, by which Russia formally acknowledged the constitution of the Cortes of Cadiz. In 1814 he left Paris and assisted his master in the movement of literature, science, and education in his own country. Many important works were published at his expense, as for instance the diplomatic code of Russia at Moscow; the history of the Byzantine writer Leo Diaconus, edited by his exponent for the first time in Russian; the life of the emperor Napoleon at Erfurt, in 1808, followed by the treatise of peace with Sweden in 1809, and that of peace and alliance with Spain in 1812, by which Russia formally acknowledged the constitution of the Cortes of Cadiz. In 1814 he left Paris and assisted his master in the movement of literature, science, and education in his own country. Many important works were published at his expense, as for instance the diplomatic code of Russia at Moscow; the history of the Byzantine writer Leo Diaconus, edited by his exponent for the first time in Russian; the life of the emperor Napoleon at Erfurt, in 1808, followed by the treatise of peace with Sweden in 1809, and that of peace and alliance with Spain in 1812, by which Russia formally acknowledged the constitution of the Cortes of Cadiz. In 1814 he left Paris and assisted his master in the movement of literature, science, and education in his own country. Many important works were published at his expense, as for instance the diplomatic code of Russia at Moscow; the history of the Byzantine writer Leo Diaconus, edited by the Russian at St. Petersburg; the history of the Mongols and Tartars by Abulghazi, which was printed for the first time in the original Tartar at Kazan, 1823; and many other publications relating not only to the political, but also to that of its manners, customs, literature, and art. The scientific expedition round the world by Captain Kotzebue in the years 1815-16 was undertaken and the account of it was published at the expense of Romanzoff. He established on his estate of Homel in the government of Mobiloff, under the direction of an Englishman, Mr. Heard, the first Lancastrian and industrial schools in Russia. This patriotic individual died in 1826. He had never been married.

The true spelling of his name is Rumianoff, pronounced Romanzoff, but the form Romanzoff has been adopted in all foreign works.

ROMBOUTS, THEODORE, a painter, was born at Antwerp in 1577, and died under Augustus I., aged twenty years of age, when he went to Rome, and was soon known as one of the most promising young artists of his time. He obtained from a nobleman in that city a commission to execute a series of twelve pictures of subjects from the Old Testament, which, when completed, added greatly to his reputation. After residing at Rome a few years, and gaining constant employment, he was invited to Florence by the grand-duke of Tuscany, and executed for that prince several large historical works for the palace. After an absence, Rombouts established himself in his native city in 1625. He was soon engaged to paint in the churches, and his pictures excited universal admiration. He was thus induced to believe that he could rival not only Rubens, who was then in the full exercise of his matchless powers. Rombouts made the trial, and though he did not succeed, his failure was unnoticed by his reputation. If his works do not possess the magnificence of his great competitor in their conception, nor his power of expression, yet their execution must be admitted to show a readiness of invention, a correctness of design, an animation of expression, a warmth and brilliancy of colouring, and a surprising facility of touch, which would have placed him, at another time and under other circumstances, at the head of his profession. The works

which he executed in competition with Rubens were 5 Francis receiving the Stigmata; the Sacrifice of Abraha in the Church of the Recoleto; and Thems with the Abtrutes of Justice, in the town-house of Ghent. The Tank Douch from the Fries, in the central part of the ceiling, is a composition that proves that Rombouts possessed one of the qualities of a great master. In order to gain more he did not hesitate to consult familiar subjects, such as scenes of love, and freedom, and are inferior to his other works. He also painted decorations for theatres. He amassed a considerable fortune, he commenced building a handsome mansion, but had not proceeded far when in the hands of creditors, he was arrested, and confined in the grand-duke of Tuscany required his attendance at Florence, as an excuse for not proceeding with the edifice. The mortification of this disappointment is supposed to hasten his death, which took place at Antwerp in 1626.
to be more insulated than the other hills already mentioned, as it slopes eastwards towards the country outside of Porta S. Giovanni, and is also divided on the south from the Aventine by the valley of the Aqua Crabra or Marrana. Within the space that is enclosed between the table-land and the Tiber, in the middle of the ancient city, there are three small insulated hills, the Palatine, the Aventine proper, and the Capitol, of which the Aventine is the most southern and the Capitol the most northern. The Capitol lies between the south-west extremity of the Quirinal and the river Tiber, and is now without a permanent water space. The ancient city of Rome, before the time of Aurelian, lay south and east of the Capitol, and along the Palatine, Aventine, Esquiline, and Quirinal hills; the main bulk of modern Rome lies north of the Capitol.

The Palatine hill, as it rises from the northern slope, sweeps to the east towards the base of Monte Pincio, receding from Monte Mario and the Vatican hill on its right bank; but on reaching Ripetta within the city, the river makes a bend to the westward, and flows along the north-eastern base of Mount Janiculus, after which it turns again to the east as far as the base of the Capitol. It then turns again to the south-west, sweeping past the base of the Aventine, and along the southern extremity of the Janiculus, where the bank, above the space between the Vatican Mount, the north end of the Janiculus, and the right bank of the river, is the Vatican field, which is about a mile long from east to west. It contains the Borgo or suburb of Rome, enclosed by the popes, and on the left, a space between the river and the Vatican, where the boats from the inland provinces on the upper Tiber land wine, charcoal, and provisions; and the other at the southern extremity of the town, on the right bank near Porta Portese, called Ripa Grande, where sea-vessels lighten their goods, and there is a large warehouse and a custom-house. There are three bridges across the Tiber within Rome; the northernmost is Ponte Sant'Angelo, the Pons Aelius, built by Hadrian, and restored by several popes, and lastly by Clement IX., by whose order Bernini constructed the present balustrade and the statues with which it is decorated. It is about 300 feet long, but the width of the bed of the river is not more than 200 feet. The Ponte Sisto, formerly Pons Janiculensis, built originally by Martin V., and rebuilt by Sixtus IV., is about 300 feet long, the bed of the river being 230 feet wide. About half-a-mile lower down is the island of San Bartolomeo, the ancient Insula Tiburtina. This island is of an oblong shape, something like a ship, being about 160 feet long and 300 feet wide in the middle of its length. It is joined to the mainland by two bridges; one to the left bank called Ponte San Bartolomeo; and the other to the right bank, called Ponte Quattro Capi, from a head of Janus contrifrons which once surrounded it. The two arms of the river together form a bed of about 200 feet in width. There are also within Rome the remains of three other bridges: the Triunfalia, called also Vaticinus, just below Sant' Angelo, of which the pillars have fallen into the bed of the river, and the Pons Vaticinus, now Ponte Rotto, of which three arches remain on the Tiber side; and lastly, the Pons Sublicius, at the foot of the Aventine, the first bridge built by the Romans, of which there are very few vestiges.

Rome is divided into nineteen districts, called Rioni, which however do not correspond in their boundaries to the Regions of the ancient city. The modern Rioni are of very unequal extent, their boundaries being determined with reference to the population within them. Thus the inhabited part of the city contains eleven Rioni, namely: 1, Campo Marzo, near Porta del Popolo; 2, Colonna; and 3, Trevi, along the slope of the Pincian and Quirinal; 4, Sant' Eustachio; and 5, Piazza, the middle of the lower end of Ponte; 7, Piazza; and 8, Regola, near the left bank of the Tiber; 9, Sant' Angelo in Pescheria, between the Capitol and the Tiber; and 10, Transvere; and 11, Borgo, on the right bank of the river. The whole of the ancient or western city is contained within three extensive Rioni, namely: 12, Monti, on the north-eastand; 13, Campitelli, south-east; and 14, Ripa, south-west.

The modern town of Rome may be conveniently divided, for the sake of topographical description, into three great parts: 1, the lower town, which occupies the site of the ancient Campus Martius and Campus Tiburtinus, is the seat of all the bustling and trade. It is crossed in its central part from north to west by east by the street Del Corso,
which is about one mile in length from the Piazza del Popolo, or great northern entrance of Rome, a handsomely open place with an obelisk in the middle, to the palace of the Capitol. Two other streets branch out from the Piazza del Popolo, on the right and left of the Corso, and at an angle it meets the square. The other side of the street, leading in a south direction, parallel to the bank of the Tiber, and then, following the bend of the river, leads, under a different name, to the bridge of Sant' Angelo.

About the middle of the Corso is a square, called Piazza Colonna, where an ancient pillar stands in the middle of it. [Antonino Column.] Immediately to the west of the Piazza Colonna is an irregular square, which crowns a slight eminence called Monte Citorio, or Cittato, a small hill which rises in the middle of the Campus Martius. It contains a fine building, called Curia Innocenzo, in which the courts of justice sit; a handsomely obelisk stands in front of it. Returning to the Corso, and following it southwards, we meet with a street on the left, which leads to the Fontana di Trevi, the handsomest fountain in Rome, and then a street leading to the ascents of the Quirinal, or Monte Cavallo. Farther up the Corso, on the right, is a wide street, called Strada del Gesù, which leads to the splendid church and convent of that name, the head-quarters of the Jesuits, from Rome, turned the left, is a street that leads to the foot of the Capitol. The whole of this part of the city, in the neighbourhood of the Corso, consists chiefly of regular and substantial buildings.

The most remarkable are: 1. The Palazzo Borghese, near the Piazza di Spagna, a large and magnificent palace; 2. The Palazzo Giustiniani, on the other side of it is the church of Santa Maria in Vallicella, below the brothers of St. Filippo Neri, and of the Congregation of the Secchiari (Neri, Filippo; Oratorio), a most gentlemanly, assuming, and useful body of clergy. The library contains many valuable MSS., historical and ecclesiastical, and the church of Santa Maria dell'Anima has some good pictures and the monuments of Pope Adrian VI. and of Lucas Pomponio, a Protestant converted to Catholicism, whose library of the Vatican. Holstein was succeeded by a library, which is now the possession of G. B. Doria, and which is continued by J. Simionese Assemani, a Maronite. The tergongenious succession of librarians gave occasion to the following distich, in the caustic humour of modern Rome:

"Prehuit historiae; post hono sheathllacern; at nunc Tura parent; Puer bibiheca, vel.

Near the left bank of the Tiber, and parallel to it, a handsomely regular street, called Strada Giulia, about three-quarters of a mile long, from Ponte Sisto to Ponte S. Angelo. This district, though well built, is dull, when compared with the Corso and the adjoining streets.

South of Ponte Sisto, along the left bank of the Tiber and extending round the western base of the Capitoline, the foot of the Palatine, is the lowest, meanest, and dirtiest part of modern Rome. It is partly occupied by the Jews, who are cooped up to the number of 4000, in several rows of tall houses, near the streets of Ponte Sisto and Ponte S. Bartolommeo. They are not allowed to live outside their district, or to use the public streets of Rome, with their dirty bags, crying "vechi," old clothes. Some of the higher class carry trade with foreign countries, and are regular merchants; and Goggi, or "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkable healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy. Facing the Ghetto is the island of San Bartolomeo, with the church of that name, and an hospice kept by the philanthropie congregation commonly called the "brethren, do good to your fellow-men," which is remarkably healthy.
post. Proceeding farther south, along the left bank of the Tiber, is a succession of narrow streets, extending to the foot of the Palatine, with some of the most ancient churches in Rome, especially Santa Maria in Cosmedin, built in the third century of our era, and the church of St. John the Baptist, or Nuova sera, dedicated to Pudicita Plebeia by Virgina, daughter of the patrician Aulus, who, having married the plebeian consul Volumnius, was excluded from the society of Pudicita Plebeia by the will of the church of St. John. The Catacombs of St. Paul are represented by Liby (x. 23), is full of interest. The church of Santa Maria in Cosmedin is adorned with two rows of fine antique columns. It is also called Bocca della Verità, from a large stone mask with a large nose placed in front of the church and the Quattro Fontane, which unknown. In the same neighborhood are the churches of St. Giorgio in Velabro, Santa Anastasia, Santa Maria Eginatia, and of St. Teodoro, said to be on the site of the temple of Romulus, on the Palatine, at the southern extremity of the inhabited part of modern Rome, on the left bank of the Tiber. Beyond it, the Aventine, Palatine, and Celian hills stretch to the south and south-east. They are occupied with fields and gardens, and contain several churches, convents, and planted ruins. The most remarkable churches are: Santa Sabina and S. Alessio, on the Aventine, and S. Bonaventura and its adjoining solitary convent and garden, on the Palatine. The Celian, an extensive hill, has some interesting churches: 1. S. Gregorio, a fine building, dedicated to the memory of St. Gregory, by Domenico and Guido, representing the martyrdom of St. Andrew; a painting of Pope St. Gregory by Annibale Caracci; and a statue of the same pope. In the Aventine, a kind of modern Asia, rich, accomplished, and well informed, with a few of the finest old friends of his youth, and in the fields of S. Sisto, S. Savigliano, and other learned men of that period, was buried in this church, whose epitaph was still seen in the last century, but has been since removed, and no trace of it is left. Another Rotondo is an ancient circular building, transformed into a church in the 6th century, and is remarkable as exhibiting the various changes in the history of the arts through the dark ages. 2. S. Giovanni e Paolo, belonging to the Order of Barnabites, in a fine situation, commanding a view of the Palatine and Aventine, is much resorted to by persons religiously inclined, who retire thither for a time, and board in the convent, where they employ themselves in pious exercises, and in quiet meditation, which the solitude of the spot and the fine view over the city and the surrounding country is calculated to assist. A solitary palm-tree rises in the garden of the convent; there is another in the garden of S. Bonaventura, on the Palatine. No one has better deserve of the title of a more interesting church of a more impression which it produces, than Madame de Staël, in her "Corinne." The Villa Mattei occupies a considerable space on the Celian hill. The group of buildings connected with the Basilica of S. Giovanni, at the eastern end of the Celian, is described under Lateran. The Colosseum, triumphal arches, and other ancient remains are noticed hereafter. Between the Lateran and the Colosseum is the remarkable ancient church of S. Clemente. South of the Aventine, and between it, the Tiber, and the wall, is a large space of low ground laid out in fields, part of which are common, and go by the name of "Prati del Popolo Romanu." An artificial hill, called Mount Testaccio, rises on one side of them: it is formed of a quantity of broken pottery and earth, which has been thrown and has accumulated here from ancient times, and over which a green turf has formed. The modern Romans have excavated cellars in the side of the hill, where they keep their wine cool, and the place is resorted to on holidays by the people of Rome, especially the lower orders, something like the tea-gardens of London. On the other side, by the gate of S. Paolo, is the Protestant burying-ground, and near it is the pavement of Caius Cestius. The Tiburtine Hill, or eastern part of modern Rome, stretches up the slope of the Pincian and Quirinal hills, and occupies also part of the plateau which unites all the eastern hills of Rome. This part is not so densely built as the great central part with its palaces and villas, of churches, convents, and other large buildings, with spacious courts and gardens, and is intersected by two fine long streets, which cross each other at right angles on the summit of the Quirinal, forming there a small circus, with a fountain at each bifurcation, from which the place has received the name of "Le Quattro Fontane." We shall briefly describe this part of the town, beginning from the north. The terrace or garden of the Pincian Mount there is the fine new promenade or public walk, laid out during the French occupation. Next to it is the villa Medici, now the Academy of French pensionary artists; and the Sacromonte, with the church of the Sacro Monte, and the esplanade with the obelisk in front of it, from which there is a lovely view of modern Rome. From this esplanade a good street, called Via Sistina, leads in a south-east direction to the Piazza Barberini, which lies in the depression between the Pincian and Quirinal Hills. In this piazza, one of the largest in Rome, is the east end of the Piazza Barberini. It contains a good collection of paintings, among others, the celebrated portrait of La Cenci painted by Guido, who had seen her on the scaffold at her execution. The library of the Barberini palace has about 50,000 printed volumes, and many valuable MSS., autograph letters, and other documents. [BARBERINI.] At the north end of the Piazza Barberini is the church and convent of the Capuchins, with a garden, which is kept in excellent condition, like all the gardens of the convents of that order; and adjoining it is the vast and splendid patrician villa Piombino, called also Ludovisi, from Cardinal Luigi Ludovisi, nephew of Gregory XIV. It has beautiful walks, and in the apartments of this valuable collection of antique sculptures, and also the fresco of Aurora by Greco. South of the Piazza Barberini rises the Quirinal Mount, which bears on its summit the extensive pontifical palace and gardens. At Rome it is commonly called Monte Quirinale, from the two temples of Venus and Bacchus, with their horses, which stand in the square before the palace. On the east side of the square is the Palazzo della Consulta, and next to it the Palazzo Rospigliosi, which occupies an extensive gallery, and or summer house of the latter is the celebrated Aurora of Guido, which is considered the masterpiece of that great painter. A fine street, about a mile in length, leads from the square of the pontifical palace along the plateau of the Quirinal to Porta Pia, passing near the Thermes of Diocletian. It is crossed at the Quattro Fontane by another street, leading from the Piazza Barberini to Santa Maria Maggiore, from whence several streets lead to Porta Maggiore, Porta S. Lorenzo, and Porta S. Giovanni. The magnificent church of Santa Maria Maggiore on the Esquiline hill, which is joined to the Quirinal by the eastern extremity of modern Rome. Beyond it, north, east, and south, the whole expanse of the Esquiline is occupied by gardens, villas, and fields, with some solitary churches. The church of S. Martino ai Monti, with its ancient oratory and vaults, its modern embellishments, and the frescoes by Poussin, is worthy of notice. Between the west slope of the Esquiline and the south slope of the Quirinal are several streets inhabited chiefly by the lower orders, which extend to the Campo Vaccino. Further north, at the foot of the Quirinal, and in the gap between it and the Capitoline Mount, is the piazza which contains Trajan's column. The Capitoline Mount and its buildings are described under Capitol. The third great division of modern Rome, which lies on the right bank of the Tiber, consists of two distinct parts: Il Borgo, or Vatican, and Trastevere, properly so called, which are divided from one another by an inner wall. The Papal or Città Leonina, extends from the bridge of St. Angelo to the Place of St. Peter's. The group of buildings constituting St. Peter's and the Vatican palace are described under VATICAN. The other remarkable building is the Lateran, or the basilica of SS. Giovanni, at Spirito, the largest in Rome, situated close to the right bank of the Tiber. It comprises an hospital for the sick, which in the summer months contains from 1000 to 1200 patients at a time, a foundling hospital, and a lunatic asylum. The castle Sant' Angelo (of which the massive circular tower was built by Hadrian for his mausoleum, and the fortifications around it, consisting of ramparts, ditches, and bastions mounted with cannon, were added by Pope Boniface.
The palaces of the nobility form another class of interesting objects. It has been said figuratively, that every house at Rome that has a 'porte cochère,' or carriage-gate, is a palace; this may seem very witty, but it is nevertheless true that Rome contains many real palaces, built in various moods and on various styles and requiring the care of a greater number of those than any other country in the world. In point however of interior comfort, neatness, splendour, most of them are sadly deficient. The walls of Travertine or Tiberine stone, the pillars and columns are frequently made of marble and richly carved in the finest style, the ceilings are often of solid marble, the floor of the walls are finely decorated with mosaics and frescoes, the furniture is often of rich wood and the doors and windows are of those materials; indeed, the inside of the houses is often an ornament as well as a temple to the gods. The modern Roman however, the Borghese, Colonna, Doria, and Farnese, who live in country villas, are generally more comfortable and the windows are generally larger.

Eastwards from the Tiber, the Villa Madama, a country house of the Farnese family, is one of the most beautiful in Rome. The older part, built by Raphael, is one of the finest examples of Renaissance architecture in the city. The newer part, added by Bernini, is famous for its gardens and fountains. The Villa Medici, the property of the French Academy, is another of the most beautiful in Rome. It was built by Michelangelo for Pope Clement IX and is now used as a residence for the French ambassador and his family. The Villa Albani, the property of the cardinal of Albani, is another of the most beautiful in Rome. It was built by Raphael for Pope Julius II and is now used as a residence for the cardinal of Albani and his family.
Ciros remarks the good choice of those who built Rome in the most favourable spot in the territory, in a generally unhealthy region. (De Republic., ii. 6.) Horace however (Epist. i. 7) complains of the fevers which prevailed in the month of August. The improvements made by Augustus, and the reconstruction of the town after the great fire in the year 64 A.D., gave a great deal of life and activity to the city, and Frontinus (i. 18) observes that the increased supply of water by means of additional aqueducts had contributed to render the atmosphere purer than it was in the old times. After the fall of the Empire, the ravages committed by the barbarians, and the complete desolation of the Campagna during the dark ages, and of the abandonment of Porto, Ostia, and other neighbouring towns in consequence of the malaria. At a certain time a great pestilence was taking place in the walls; the population, which was much diminished, was leaving the southern part of the city for the northern, the hills for the plain of the Campus Martius.

As the southern hills, the Caelian, Aventine, Palatine, and Esquiline, became abandoned, they became also unhealthy, for populousness and salubrity go together in the whole Maremma region. In the eleventh century Petrus Dami- anus (Epist. x., ' Ad Nicolaum II., Pontificem'), draws a picture of the state of the country to which Rome was subject. But still the unhealthy parts are not entirely expunged, and is, much less in degree than that of the country without the walls, and especially of the lowlands towards the sea-coast. There are families and whole religious communities that reside in the desolate hills of old Rome without any remarkable inconvenience, though no one would venture to spend the summer months, at least from choice, outside of the walls between Rome and the sea. The insanities which produce the malaria, emanate from the volcanic soil of the Campagna acted upon by the rays of a burning sun; they seem to be of a dense heavy nature, seldom rising very high above the ground, unless wafted by the winds. Walls appear to stop the advance, fire escapes, foundations and pavements prevent their emanation. For an interesting account of this curious subject see Brocchi, 'Stato fisico del Suro di Roma,' Tournon, 'Etudes Statistiques sur Rome,' and an article on Tournon's book, in the 'Foreign Quarterly Review,' xx., January, 1833, and the article Campagna di Roma in this work.

It seems now proved that whenever the population has decreased within Rome, from political and other causes, the air has become less wholesome, and that the thinly inhabited districts are the most healthy. The same applies when Rome is in summer, when compared with the more populous parts of the town. Thus the neighbourhood of the Corso and the lower town in general, and even the low filthy streets are more healthy than the better situated eastern part of the fine street of Porta Pia, the neighbourhood of Maria Maggiore, and that of the Lateran are considered unhealthy in summer, whilst they are on comparatively high ground. The parts of the Quirinal and the Pincian which are built upon are the most desirable situations in modern Rome for fresh air and health. On the other side of the river, the thinly-built district of La Lungara and the Vatican are considered unhealthy in summer, whilst the densely populated part of Trastevere is less complained of.

It has been stated by some writers, but not upon sufficient grounds, that the malaria is encroaching upon the inhabited part of Rome, so as to threaten in course of time the depopulation of the whole city. Chateauneuf, who, we said, was the first to advance the theory, mistook the effect for the cause. He visited Rome at two different times: first in 1791, when the city contained 160,000 inhabitants, the streets were thronged with sumptuous equipages and liverys, and the splendid palaces were open to the gaze of numerous cottagers of all ranks. Again, after what the Papal State was reduced to one half, and the poorer half, of its territory. After a few years more of a precarious existence, the Papal Government was again upset by Napoleon in 1809, and the cardinal prelates, the foreign ministers, and a number of noblemen and other persons were driven away from Rome; numerous families were deprived of their accustomed means of support,

N 3
and the whole social system was violently overturned. The population then dwindled space, and in 1810 it was 123,000, of which no less than 30,000 were on the poor-lists made out by the rector of the respective parishes. (Fourron, vol. ii, p. 36.) It entered the city by the same road as before (by the Corso), but instead of equipages, I saw it filled with droves of cattle, goats, and half wild horses, driven along by a number of Tartar-looking herders armed with long spears and covered with dark cloaks. The population is now reduced to 100,000, and of this number one-tenth part are vine-dressers, herdsmen, or gardeners. The city presents everywhere the appearance of ruin; there are more houses than inhabitants (he means families), the houses are not repaired; when they get out of order, the occupiers remove to others. A multitude of convents have assumed the appearance of ruins; a number of palaces, no longer inhabited, are left without even a porter to take care of them. (Lettres écrites d'Italie.) And yet, though he had the recent history of the country before his eyes, Châteauneuf attributed this depopulation and decay to the advance of the malaria. The fact is, that wherever the population gets thin and miserable, there the marauder gains ground; it will take possession of houses and gardens from which the warmth of the blazing hearth, and the cheering breath of human life, and the cares of domestic industry have disappeared. (See on this subject an article in the Modern Botta of April.)

The population of Rome has rapidly increased since the peace of 1814; by the census of Easter, 1838, it amounted to 148,903 inhabitants, exclusive of 400 Jews. (Serratori, Statistica d'Italia.) An account of its distribution, occupations, habits, and other moral features comes under another head of this article.

The climate of Rome is generally mild and genial; frosts occur in January; but the thermometer seldom descends lower than 56° of Fahrenheit, and the midday sun generally produces a thaw. The tramontana, or north wind, sometimes however blows cold and piercing for days together. Snow falls at times, but it seldom remains on the ground for more than a day. Orange-trees thrive in the open air, but lemon-trees require covering during the winter months. Rains are frequent and heavy in November and December, but fog is rare. In the summer months the heat is at times oppressive, especially when the scorchia, or south wind, blows. The hour which follows sunset is considered the most uncomfortable in summer, and people avoid exposure to the open air.

The sky of Rome has been admired by most travellers for its transparency, its blue tinge, and the splendid colours of the sunset, which Claude has so well rendered. The general scenery of the country, the purple hue of the mountains, and the long waving lines of the plain of the Campagna, are noticed under Alex Longa. Within the walls of Rome there are many points of view. From the tower of the Senatorial Palace on the Capitol, there is a good panorama of Rome, embracing both the old and new towns; from the terrace of La Trinita de Monti is a fine western view of modern Rome; there is another view from the Janiculum, in an opposite or eastern direction; and lastly, from the gallery above St. Peter's is a splendid and extensive panorama, embracing the whole town, the Campagna, the distant mountains, and the long line of the blue hills.

The storm of the topography of Rome, the large map of Nolli, the atlas which accompanies Bunsen's Beschreibung der Stadt Rom, or the small map by the Society for the Diffusion of Useful Knowledge, may be consulted. Brocch's work above mentioned gives a good idea of the surface of the ground.

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<th>Date</th>
<th>Building</th>
<th>Architect</th>
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<td>1440</td>
<td>S. Stefano Rotondo restored</td>
<td>L. B. Alberti</td>
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<td>1450</td>
<td>S. Francesco</td>
<td>Giul. di Majano</td>
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<td>1460</td>
<td>Palazzo di Venezia</td>
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<td>1460</td>
<td>Santa Maria del Popolo</td>
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<td>S. Pietro in Montorio</td>
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<td>Hospital S. Spirito in Cerro</td>
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<td>1494</td>
<td>Cancelleria</td>
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<td>1500</td>
<td>Cloister Santa Maria della Pace</td>
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<td>1505</td>
<td>Palazzo Sora</td>
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<tr>
<td>1622</td>
<td>Collegio Nazareno</td>
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<td>1624</td>
<td>S. Andrea del Noviziato</td>
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<td>1624</td>
<td>S. Francesco di Paola</td>
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<tr>
<th>Year</th>
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<tr>
<td>1510</td>
<td>Palazzo Barberini</td>
<td>M. A. Buonarroti</td>
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<td>1512</td>
<td>Palazzo Mattei</td>
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<td>1512</td>
<td>Palazzo Madama (di Governo)</td>
<td>M. A. Buonarroti</td>
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<td>1512</td>
<td>Palazzo Pannifilippi</td>
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<td>1512</td>
<td>Santa Agnese</td>
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<td>1512</td>
<td>Curia Innocenziiana</td>
<td>G. Rainaldi</td>
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extensive, appear to have stood on the boundary of the Quirinal, on the ground now occupied by the palace of the Consulta and Rosaspina. Bufalini, in his map (1551), places them near the church of St. Silvester, on the Monte Cavallo. Some slight traces of these baths still exist in the Villa Aldobrandini. They were erected probably about A.D. 326, and were repaired in the middle of the fifth century by Ponsianus Perpenna and Magnus Quadratinus. In 1519 some of the ruins were still in existence, but they disappeared about 1527.

Paludio restored the plan, and in the reign of Clement XII. an excavation was made on their site, when a magnificent portico, with an ornamented ceiling, and walls painted with historical subjects, were discovered.

**Baths of Diocletian**, situated on the Viminal, and erected by Diocletian about A.D. 302. They were of vast dimensions. The extensive purposes of a mausoleum, and M. Angelo transformed the ancient temple, the caldarium, and a part of the frigidarium into a church with its dependencies. The church is called Santa Maria degli Angeli. The rest of the ruins consist of large brick masses with arches of enormous span; some of these masses still support parts of the vaulted ceiling. On a part of the site of the baths M. Angelo constructed a spacious and elegant cloister.

**Baths of Agrippa**, were enclosed within the space circumcised by the square of the Rotunda or Pantheon, the street of the theatre called Valles, the street of the Stimmate, and that of Gesù. They occupied a space about 500 feet from east to west, and 700 from north to south. According to Dion Cassius, they were constructed A.D. 279. The temple called the Pantheon has been sometimes considered a part of these baths.

**Baths of Nero**, situated on the ground which stretches from east to west between the square of the Pantheon and the square called Madama, and from north to south between the church of S. Eustachio and the street of the Cappelle. Eusebius fixes the date of their construction, A.D. 65. They appear therefore to have been commenced in the year of the great fire of Rome in the reign of Nero, and during the consulate of Quintus or Lucius Lecanius Bassus and Marcus Leucianus Crassus Frugi. One hypocaust alone of these baths exists in the inn of the Piazza Rondanini.

**Baths of Alexander**. An anonymous author quoted by Mabillon states that these baths stood between the Piazza Navona, the church of S. Eustachio, and the Pantheon. They are therefore contiguous to the baths of Agrippa. The baths of Alexander were built, according to Eusebius, in the year 229, and, according to Cassiodorus, in the year 230. They appear to have been an extension of the baths of Nero, as those of Neronia probably were an extension of those of Agrippa.

**Baths of Caracalla**. Commenced about A.D. 212, and continued by Elagabalus and Alexander Severus. They are situated on a prolongation of the Aventine, not far from the gate of S. Sebastian. They are perhaps the most extensive ruins in Rome; but being stripped of their marbles, columns, stuccoes, and paintings, they consist only of vast and lofty walls, corbels, and niches of brick and tile, and for the ordinary spectator possess in this dilapidated state little interest. (Barr.) At the extremity of the great platform the constructions are still tolerably perfect, as well as part of the castellum in a neighbouring vineyard. The ruins stand in three separate vineyards.

**Temples**.

**Temple of Romulus**. Erected by Maxentius to the memory of his son Romulus. These ruins, which are vulgarly called the stables of the Circus of Caracalla, are situated in a large quadrilateral enclosure forming part of the villa of Maxentius on the Appian way, and about one mile from the gate of S. Sebastian. From two sides of the temple we see this building as it appeared at two separate periods: a central emblem represents the building with a dome, and without a portico; the other with the addition of a portico. It may have served both for a temple and a tomb. The lower part or basement is purely sepulchral, with niches for the sepulchral urns. The ceiling is vaulted, and supported by a huge central pier.

**Temple of Bacchus**. At what time first constructed is uncertain. The tetrastyle portico of red Corinthian white
Temple of Jupiter Tonans, according to Nibby; Basan calls it the Temple of Saturn. It is situated on the Capitoline. It was built by Augustus, and is supposed to have been restored by Sept. Severus and Caracalla. O fragment of an inscription on the entablature over the columns of the angle, is read...ser. The portico was hexastyle, of the Corinthian order, and of white marble. The columns are deeply fluted. In order to space, the steps are constructed between the columns in a basement which supports them. The basement was a, with niches and divided by columns. Upon the frieze are carved instruments of sacrifice, and decorations which remain indicate that the building was highly ornamented. Between this temple and that...Condor, are the ruins of a sanctuary dedicated to Faustina, Younger. To the left of this temple are some chambers, one of which was a portico of cipollino marble, of the Corinthian order; the capitals are however adorned with Victories, and trophies. Each ruined, was restored by Septimius Severus. Bunsen calls it 'Porta Clivia et Schola Xantha.' (See the Plan of the Forum.)

Temple of Concord. The site only of this temple remains near the temple of Jupiter Tonans. Of this famous building, there remain only the ruins of the cela, which was originally covered with giallo antico and pavoazzented. Terraces of walls were formed of slabs of the same material and numerous fragments discovered in the late excavations. Various inscriptions and statues, and that it was also destroyed by fire. Owning to the narrow site on which it was placed, the cela was wider than the portico.

Temple of Antoninus and Faustina is in the Forum of Antoninus now the Piazzetta, and is said to be one of the few temples of antiquity which have not been destroyed. It was built by Antoninus Pius and Faustina, who were the emperor's wife and his wife in the Forum Romanum. To two sides of the cela of Peperino, once clothed with marble, as well as the magnificent marble entablature of the temple, and is surmounted by a pediment. Architecture at the top, with the return columns of the Corinthian order, each of a single piece of Carrara marble, still supports a considerable part of the entablature. In the frieze are griffins, candelabra, and other ornaments, in a fine style of art. The ascent to the temple was antiently by a flight of twenty-one steps; the steps of the entablature of the portico cut the dedicatory inscription to Antoninus and Faustina. The columns, which were once partly burnt, have been cleared of the surrounding earth. On the ruins of the cella has been erected a'pseudotemple' which is but an afterthought to this temple, with its steps, statues, and pediment, is a coin, published in Bunsen's 'Forum Romanum.'

Temple of Romulus and Remus, called by Bunsen, 'Ediculum Romani.' A circular temple in the Forum Romanum, presumed to be the temple of Antoninus and Faustina, is supposed to be and so badly restored from the ruins of the former temple, that in one instance the shaft of the base from the base is placed under the base, and in other cases, the entablature are of white marble. The internal part of the frieze is ornamented, but this appears to have been some of the old masonry used in the rebuilding. The portico and temple were placed on a high basement of travertine, which was covered with the vouers of marble, and in front there was a flight of steps.
two cipollino columns, half buried, and standing near the Edeas Penatium; one is without a capital, and the other has a capital and part of an entablature showing a return, as if they were decorative columns of an enclosure, like the Temple of Vesta. The Forum of Nerva

Temple of Peace, called also the Basilica of Constantine, was built by Maxentius, on the antient site of the Horrea Fiperatoria, and after his death dedicated by Constantine. The temple consists of three naves, has the northernmost still in good preservation, and the other two, though not in arches, embracing the whole length of the nave. The centre arch, at a later period, was altered into the form of a tribune. The vaultings of all three are decorated with enormous marble pendants and with vaults of walls with niches. The southernmost nave was similar, but without a tribune. All except the indications of the piers have disappeared, as well as the great centre nave, at the east end of which was the principal tribune, of which there are only a few fragments of the vaulted ceiling on the ground. High up in the piers there are still some fragments of the great marble cornice, which was supported by eight marble columns, one of which, still standing in the time of Paul V., was removed to the piazza of Santa Maria Maggiore. It is of white marble, of the Corinthian order, and fluted, eighteen Roman feet in circumference and forty-eight high. Winding brick staircases led up to the roof; one is still almost entire. The building was dedicated by Constantine, and faced the Colosseum, and part of an external arcade remains in this direction. The pavement was of giallo antico, pozzazzetto, and cipollino. At a later period this building was converted into a Christian church, at which time an entrance was formed towards the Palatine, on the Via Sacra.

Temple of Venus and Rome. Designed and built by the emperor Hadrian, who personally directed the construction. It suffered from fire, and was restored by Maxentius. Of this vast building the substructions of the surrounding colonnade and the great niches at the division of the cells, with some fragments of granite columns, are all that remain. [Habens, Architecture.]

Temple of Venus and Capitul, so called, stands in what is supposed to be the antient Horti Variani, and close to the church of Santa Croce in Gerusalemme. All that remains of this large edifice consists of an immense niche and two lateral walls of brick, belonging perhaps either to a great basilica or basilica. Near these ruins is a fragment of the Claudian aqueduct.

Temple of Nerva, situated in the forum of Nerva, was consecrated by Trajan to the memory of Nerva; it was one of the most sumptuous edifices in Rome. Only three columns and a pilaster, partly buried in the ground, on the south side, now remain. The ornaments were in the finest style, and the interior was adorned with a marble pavement for the moderns. (See Bunsen’s plan for the general design.)

Temple of the Sun, on the terrace of the Colonna gardens on the Quirinal hill. This temple, said to have been erected by Elagabalus, was of gigantic dimensions, of noble masses of marble, and highly enriched, if we may judge from the two great masses that are left—a part of an architrave and frieze, and the angle of the pediment. The temple was also adorned with sculpture, and also with inlaid mosaics. It was indeed bad, shows plainly that art was on the decline. Many fragments of sculpture dug up in the gardens have been fixed in walls at the back of these two masses. The architecture was not confined for four centuries to the entire height of the building would have been visible from most parts of Rome.

Temple of Juno no longer exists, but the site is placed, with every appearance of probability, by Bunsen, at the junction of the four great forums, in the immediate vicinity of the Mamertine prison, the arch of Septimius Severus, and the Basilica Paulli.

A temple for a long time called the Temple of Jupiter Stator, afterwards the Graecostasia, and lately by Bunsen, the Temple of Zeus and Mars, was afterwards the Temple of Minerva Chalcidea. It is situated in the Forum Romanum, next to the site of a temple of Castor and Pollux. The ruin consists of three marble Corinthian fluted columns on an isolated base of travertine; the columns support a part of the highly enriched entablature, which is in tolerable preservation. The proportions and execution of this fragment are the very finest, and, since the restoration or true architecture, it has served as the great model of the Corinthian order.

Pantheon. [PANTHEON.]

Porta Asinaria stands near the Porta S. Giovanni, which was built in its place by Gregorius XIII., and to this left of it on going out of the city. The antient gate is closed, and forms, with the walls, a picturesque brick ruin.

Porta Nomentana led formerly to Nomentum, now Lametiana; it stands near the more modern gate called Porta Pia. It was built by Honorius.

Porta Salaria, built by Honorius in his new walls, and substituted for the Porta Collina of Servius, called Salaria from the road to which it leads. Through this gate Alaric entered Rome, A.D. 498.

Porta Capena stands at an angle of the Capian hill, below the Villa Mattei, within the antient walls of Servius Tullius, and at a short distance from the Porta Latina. The works of Honorius still inviolate.

Porta Latina, now closed, stands between the Porta Capena and the gate of San Sebastian. The present gate was constructed by Honorius, A.D. 402, and repaired under Justinian, A.D. 550.

Porta Appia, or S. Sebastiano, situated on the Appian way, and built by Honorius in his extension of the Roman walls. This gate supplied the place of the antient Porta Capena, which was then closed. The fine semicircular brick towers were constructed either by Belisarius or Nurses.

Porta Portese, on the banks of the Tiber, in Trastevere, built by Urban VIII., and substituted for the antient P. Portuenses.

Porta Pinciana, situated on the Pincian, and now closed; originally built by Honorius, and rebuilt by Belisarius.

Porta Pia, substituted by Pius IV., for that built by Honorius, and called Nomentana, from leading to the Via Nomentana.

Porta S. Lorenzo, built by Honorius, A.D. 402, also opening on the Via Collatina. This gate is attached to the monument at the junction of the three aqueducts, the Aqua Marcia, Tepula, and Julia, which bears an inscription alluding to the repairs made by Caracalla. The structure called Marcia is commemorated by a coin of the March, which possibly may represent the original monument.

Porta Maggiore, situated at a spot called the ‘Spec Vesu’. Here are the antient gates of the Via Labicana and Via Praenestina, formed by the monument of the Claudian aqueduct. The Porta Labicana was disfigured by Honorius, but his barbarous construction has been in part removed, on which occasion the tomb of Eurysaces was discovered in the Vicus Laconiae, and the Claudian columns and the open courtyard, the magnificent Praenestine and Labican gateways, as they stood before the additions of Honorius disfigured them. The magnificence of these gateways was owing, in a great measure perhaps, to the circumstance of the Claudian aqueduct passing over them. The three great inscriptions on the attic above the gateways show, first, that Tiberius Claudius, the emperor, brought to Rome, the Claudian waters composed of the Cervian and Curtian aqueducts, and also the Attic and Lucrine, and the restoration by Vespasian; and the third, that by Titus. This magnificent façade consists of two great archways, and three piers, each decorated with two rusticated columns of the Corinthian order, on a rustic basement, and supporting an entablature and pediment. Above these is the lofty attic in which are the two water-channels. This attic is surmounted with a cornice. Severe in character, this structure is one of the best preserved, and one of the most imposing architectural masses in Rome. From this gate
may be seen the four aqueducts, Julia, Tepula, Marcia, and Aniene Vetus.

Porta S. Giovanni, substituted by Gregory XIII. for the ancient Porta Asinaria.

Porta S. Paolo, substituted by Honorius for the ancient gates of Servius called Trigemina, Minucia, Navalisa, and Laverna. Being built on the Via Ostiensis, it was called also Porta aurea; it was rebuilt by Belisarius, who constructed it on a new level, the ancient being 26 palms lower. The internal gate is older than the time of Belisarius, and is formed with a double arch.

Porta del Popolo, the chief entrance into Rome, the Flaminian Gate, was built by Honorius on a site a little higher up than the present gate, towards the Pincian hill, on a slight elevation; it was removed between the sixth and eight centuries to its present situation. The name belongs to it in the fifteenth century. Aided by Vignola, Pius IV. decorated the external front, after the design of M. Angelo; notwithstanding these great names, the façade is neither very striking nor in very good taste. The internal decoration of this gateway is by Bernini.

Porta Cavalleggeri and Angelica, one on each side of the Vatican, are of modern construction. The former is considered to be of modern design. The latter was built by Pius IV.

Tomb.

Sepulchre of Eugyssaces the Baker.—The exact date of the construction of this monument is doubtful; it was most probably erected between 589 and 803 A.D. It is situated at the junction in Bivis of the Via Labicana and the Via Praenestina, close to the monument of the Claudian aqueduct, which formed the majestic entrance into Rome from these two roads.

This singular monument was imbedded in the rude construction of the gate built by Honorius in front of the Claudian monument; and the upper part of the tomb was injured by the new constructions. The plan of this building is an irregular square, formed by the roads and the contracted site. The elevation is divided into three parts: the lower, or basement, of Alban masonry, is divided from the second by a band, on which is formed the second division. The second division is constructed with the circular stone-mortars (mortaria) for kneading the bread, which are placed in a perpendicular position, with flat-face piers at the angles; above these is a continuous band, on each of the four faces of which is repeated the inscription,

EEXT HOC MONUMENTUM MARCI VERGILI HURYSACS
PISTORIS REDEMTORIS APPART.

On this is the third story, in which three rows of mortars are placed horizontally, with their circular mouths towards the pavement, having originally a ball of stone carved in them to represent the dough. This story is bounded by pilasters at the angles with a capital in the Greek style. The pilasters support a frieze, and there was a cornice with a blocking course all round, and a pulvinus on two sides: above and between the extremities of the pulvinus was a band carved with a representation of circular loaves; from this band sprang a pyramidial roof, terminated with the representation of a wicker-basket used to carry bread in. In the principal front was a marble bas-relief representing Eugyssaces and his wife Atisia, and underneath a sarcophagus with the inscription,

PVIT ATISIA VXOR MIEIE
FEMINA OPITVA VIXISSIT
QVOS CORPORIS SEGDIT
QVOD SPERAT SVCT IN
HOC PANARIO.

Within this sarcophagus was a representation of a pannier, or wicker-basket, in which the ashes were deposited. Such is the frieze of this singular monument; it remains has the daily employment of the baker and the business of the bakehouse sculptured upon it.

Tomb of C. Publius Rubulus, stood originally without the walls of Rome till Titus, at the angle formed by two streets close to the ancient Porta Raturnena. This ruin, which is small, is of two stories, but the lower is buried by the accumulation of soil. It stands now at the extremity of the Corso and forms part of the external wall of a house in the Via Marforio, and at present appears to consist of the upper story only, decorated with four diminishing pilasters, two of which are imperfect, and part of the architrave and enriched frieze. Two tablatures are placed in the wall between the columns, generally opening similar to that of belvédère. The material is un

The style of this monument is simple, severe, and it appears to have been erected in the Roman style.

Tomb of the Clodii, a mass of scaffolding in the Via Marforio almost opposite it.

Tomb of St. Constantia, erected, probably by Constantine the Great, or by his successor. It was placed in a magnificent sarcophagus in the museum of the Vatican. It was converted into a church by Alexander IV., who built many changes from it, one of which was a pure specimen of architecture, for its arrangement of dovecotes, a dome, and for its iconography.

Pyramid of Caio's 'Cestius.' Augustus, for the ashes of C. Cestius, on the Via Ostiensis, has the following inscription, which has been erected in the space of

C. CESTIVS, ITALIM
OBTVS

This almost solid block of white travertine. The centre is a small cistern with arched passages, which lap meat from an opening and pour into a statue of Caelius, the god of the earth, now found in the base of the pyramid.

Tomb of the Via Appia, gaily turned up, a purpose different from the purpose intended by the Pope of the Via Appia.

Over its door is a tableau representing the Entrance of one of the Virgins into the Church.

Tomb of St. Callistus, on the Via Appia.

Romanus, daughter of St. Callistus, has the following inscription,

Round the tomb are constructed with white marble, surrounded by a small cistern, forming roof, and covered with a domed wall, built of marble, and surmounted by a small dome. The sarcophagus was found in the Via Appia.

In the decorated portrait, is a head of a figure of Victory, to commemorate the Victory on the Palatine.

The Victory on the Palatine.
both of the figures of Victory had slaves bound underneath them.

Mausoleum of Augustus, constructed by Augustus, between the Via Flaminia and the banks of the Tiber, during his sixth consulate. When it first became ruined is unknown, but being turned into a fortress, and becoming eventually the property of the people, it was restored by Nicholas V. in 1450, and the Clements VII. and IX. decorated it with modern statues. Clement IX. added the parapet.

Pons Miletus, now Ponte Molle, on the Flaminian way, rather more than a mile from the city. It was annually called not only Miletus, but Multius and Molvius. The construction is attributed to Aemilius Scarrus, about the middle of the seventh century of Rome. According to Livy (xxvii., c. 51), there must have been a bridge here at least a century earlier. At any rate, the legend of the angels only remains the basement of incised work in tufa. In the latter part of the last century the remains of this edifice were turned into an amphitheatre for bull-fights and fire-works.

To obelisks without hieroglyphics, which formerly stood at the entrance of the Mausoleum, now adorn the piazza of Santa Maria Maggiore and the Quirinal.

Mausoleum of Hadrian, now called Castle of S. Angelo, erected by Hadrian on the right bank of the Tiber, within the gardens of Domitia. This building consists of a circular tower whose present diameter is 185 feet, placed on a quadrilateral basement, each side of which is 253 feet. It was once highly decorated, but no vestiges of the decorative part remain. Procopius, who described it in the sixth century, before the destructions of the Saracens, and adorned it with statues, both of men and horses, of the same material. (Goth. lib. i.) Between the time of the rebuilding of the walls of Rome by Honorius and the Gothic war, it appears to have been already turned into a fortress, but mutilated. In the writing of the Goths, the Romans, being shut up in the building, were reduced to the necessity of throwing down the statues on their besiegers. In the tenth century it was fortified by a certain Crescenti, and afterwards increased in extent and strengthened by the popes Nicholas V., Alexander VI., and Urban VIII., the last assisted by Bernini. The ancient doorway, recently opened, is situated immediately in front of the bridge; at the same time the ancient spiral-way which led to the sepulchral chambers was uncovered. The rose with a gentle inclination to the summit of the building; part of the white mosaic floor with which the way was paved is still remaining.

Columbaria. Between the temple of Minerva Medica and the Poria Maggiori are two columbaria, or tombs. The first, to the memory of Lucius Arruntius, consul under Augustus, 7 B.C., consists of two small chambers, in one of which are some small cinerary urns; and in the other, some pictures on the ceiling, and some small figures and ornaments of stucco. The second consists of one chamber.

Columbarium in the Via Porta Pambili. This columbarium, the general plan of which was tolerably well preserved in 1829, consisted of several small chambers irregularly disposed. It has however been lately destroyed. The plan measured by W. B. Clarke, architect, was published in the Voyage to the Shores of the Mediterranean. Columbarium of Cneius Pompeius Hygeus and of Pompeia Vitalina stands in the same vineyard which contains the tomb of Scipio. The small urns and tablets in their several niches appear to belong to a period from the age of Augustus to the time of the Antonines. This columbarium is filled with niches with their ollae and lapidary inscriptions, and is partially decorated with arabesques.

Tomb in the Vigna di Lazzaro, at a short distance from the church without the walls. The date is uncertain. The square chamber of fine travertine masonry surmounted with a cornice is in high preservation, and also the three marble sarcophagi of the interior, which are highly enriched with bas-reliefs, and contain skeletons. The upper part, which was entirely disintegrated, prevents the preservation of its base entirely owing to its having been buried.

Bridges.

Pons Adus, now Ponte S. Angelo, crosses the Tiber immediately opposite the wall of the Castle of S. Angelo. It was constructed by Hadrian as an entrance to his mausoleum and the gardens of Domitia, which were much frequented by him, and in which he also built his circus. The whole of this bridge is ancient except the parapets, some trifling restorations of marble, and a small arch on the side of the Castle of S. Angelo. The bridge consists of three large arches and two small arches, with buttresses attached to the piers and stringers projecting beyond the face of them was restored by Nicholas V. in 1450, and the Clements VII. and IX. decorated it with modern statues. Clement IX. added the parapet.

Pons Miletus, now Ponte Molle, on the Flaminian way, rather more than a mile from the city. It was annually called not only Miletus, but Multius and Molvius. The construction is attributed to Aemilius Scarrus, about the middle of the seventh century of Rome. According to Livy (xxvii., c. 51), there must have been a bridge here at least a century earlier. At any rate, the legend of the angels only remains the basement of incised work in tufa. In the latter part of the last century the remains of this edifice were turned into an amphitheatre for bull-fights and fire-works.

Pons Sublicius, or Sublicean Bridge, first erected by Anecus Marcus, of wood, was destroyed by an inundation in the time of Augustus, and rebuilt of stone by M. Aemilius Lepidus, the censor, an event which is commemorated in a coin of the Aemilii. From this circumstance it took the name of Aemilian. It was restored by Antoninus Pius, and in little more than six centuries after was destroyed by a great inundation of the Tiber during the reign of Pope Adrian I. What remained of it after this was removed, in 1454, to make cannon balls, and nothing but the rubble remains visible which was left from it. From the coin it appears to have consisted of three arches, and was adorned with an equestrian statue of the censor.

Pons Fabricius, built by Fabricius, the Curator Vianum, a.D. 690; connects the city with the Isola Tiburtina, and is the best preserved of the ancient Roman bridges. The Goths, the Romans, being shut up in the building, were reduced to the necessity of throwing down the statues on their besiegers. In the tenth century it was fortified by a certain Crescenti, and afterwards increased in extent and strengthened by the popes Nicholas V., Alexander VI., and Urban VIII., the last assisted by Bernini. The ancient doorway, recently opened, is situated immediately in front of the bridge; at the same time the ancient spiral-way which led to the sepulchral chambers was uncovered. The rose with a gentle inclination to the summit of the building; part of the white mosaic floor with which the way was paved is still remaining.

Pons Janiculensis, now Ponte Sisto, connecting Tevere with the city above the Fabrician bridge. It appears to have been called Janiculensis under the emperors, and to have been restored by one of them. It was ruined in the eleventh and twelfth ages, and reconstructed under Sixtus IV. in 1774 by Baccio Pontelli.

Pons Pulatinus or Senatorius, now called Ponte Rotto, was below the Fabrician and Gratian bridges, and above the Sublician; only three arches of it remain, on the Tevere side. It was first built by P. Cornelius Scipio Africanus, and was repaired by Augustus. It was a very handsome bridge, and had a roof supported by marble columns. Being carried off by a great flood, it was rebuilt by Pius II. and, again by Gregory XIII. in 1575, after which it broke, and was never repaired.

Pons Triumphalis, called also Pons Vaticanus, was constructed in a bend of the river near the Vatican. It is conjectured to have been built by Caligula or Nero as a means of access to the gardens on the Vatican; and to have been ruined about the fifth century; some remains of the rubble piers of this bridge may be seen when the water is low.

Theatres and Amphitheatres.

Theatre of Pompey, built by and named after Pompey the Great, occupied the space circumscribed by the palace called Pio, the Campo di Fiorio, and the streets called Chiavari and Giuppone. Under the palace there are some ruins of this edifice.

Theatre of Marcellus, built by Augustus, and dedicated to Marcellus, son of Octavia, his sister, in honour of whom he named the portico attached to this theatre. This was the second solid theatre constructed in Rome, and consisted of three orders, the upper of which was entirely disintegrated. The remains of this building are in the Piazza Montanara, and a small part near the entrance to the Palazzo Orsini. A small portion of the curved part of the theatre shows the remains of two orders of architecture, the Doric and Ionic, both in a bad state of preservation. The height above the Ionic is supplied by the upper story of the modern dwellings, which are formed in the ancient curved front of the theatre. The style of the architecture is much superior to that of the later theatre, and the Palladian style of the Roman Doric and Ionic orders.

Flavian Amphitheatre, or Colosseum, commenced by Vespasian, in the last year of his life, on the site of the great pond formed by Nero within the extent of his Domus Aurea. AmphiThATRE.

Amphitheatre called Castrensis, a small brick amphitheatre.
there, at what time erected is unknown, but probably, if we may judge from the style of brickwork, in the first century of the Christian era. It originally stood without the walls of Servius Tullius, but during the reign of Honorius it was employed to form part of the new enclosure, and the arches were filled up. On the inside of the form of a semicircle, placed on three other semicircles, so that each half-circle had its apogee in the arch of the lower order, with their brick capitals, are well preserved; of the upper order there only remain a pilaster and part of an arch. During some excavations in this part, an Egyptian statue, and some pieces of marble with which the amphitheatre was decorated, were discovered.

**Arch of Titus**

Arch of Titus stands near the ruins of the temple of Venus and Roma. On the side facing the Colosseum is a finely cut inscription on the attic:

*SENEV. POPVLVSQVE ROMANVS.*

DIVO. TITO. DIVI. VESPASIANI. V.

VESUVIVIA. AVG.

Erected by Domitian, in honour of Titus, and to commemorate the great event of the conquest of Jerusalem. It is of Pentelic marble, and of an elegant design, but with only one arch. On each side were fluted columns of the composite order, of which only two on each side, and those incomplete, remain; the rest of the arch was restored by Pius VII. On the sides of the pier under the arch, which is highly decorated, are two very fine bas-reliefs, illustrating the victory of Titus over the Jews. In one of them is the golden eagle, over the triumphal arch, and in the other, horns of silver, and the golden candlestick with its branches. The triumph of Titus is represented also on the frieze on the outside of the arch.

**Arch of Septimius Severus**, erected A.D. 205, by the same emperor, in honour of Septimius Severus, and his sons Caracalla and Geta, for their victories over the Parthians, the Arabs, the Arians, and other eastern nations. In the long inscription on the attic may be recognised the entrance made by Caracalla when he changed the title of the Senate to Caesar, and by Geta, who was consul for P. F. OPTIMIS. FORTISSIMIS. QVE. PRINCIPIS. The arch is of Pentelic marble, with archways and transverse archways through the piers of the central arch. Each front is decorated with four fluted columns, and a series of bas-reliefs, which, though not of a high order, are highly interesting as a picture of the modes of warfare and the commissioner of a Roman army. From a medal of Severus and Caracalla, it appears that the attic of the arch was decorated with figures drawn by six artists; a veil was placed over the emperor between his two sons: on each side of the car was a soldier on foot and a soldier on horseback. The whole of the mouldings and the vaulting are highly enriched with carved ornaments. An accumulation of earth has been thrown up against the arches by Gaul, and was repaired by Pius VII., and afterwards by Leo XII., Pius VII., and Gregory XIV.

**Arch of Constantine**, erected in commemoration of his great victory over Maxentius at the Meta Sudans, and fronting the Colosseum. Formed with three archways, adorned with four beautiful columns of giallo antico on each side, and enriched with many fine bas-reliefs and statues, as well as with specimens of art of different workmanship, it shows the decline of art at that period. The fine parts are supposed to have been taken from a triumphal arch erected to Trajan, the situation of which is unknown. It is also possible that some might have been taken from the forum of Trajan. The statues of the Dacian prisoners are probably taken from an arch of Trajan, which the last of the Istrian was triumphal quadriga. The arch remained partially buried until it was excavated by Pius VII., who enclosed the basement within a circular wall. During the reign of his successor the whole arch was removed, so that the roadway now passes under it.

**Arch of Dolabella.** This single arch of travertine was constructed A.D. 19, by the consuls Publius Cornelius Dolabella and Caesar Junius Silanus. It stands near the church of St. Giovanni and Poo, and is supposed to be the entrance to the Campus Martialis, where the Equites, or equestrian games in honour of Mars, were celebrated, when the Campus Martius was inundated by the Tiber. This campus stands immediately to the left after passing the opening. It is flanked on the west by a remnant of the destruction of large niches belonging to the Nymphæum of Nero and Temple of Claudius. Nero took advantage of the arch of Dolabella, and passed his aqueduct over it, the arch of which is still extant.

**Arch of Gallienus,** upon the site of the Quirinal gate, dedicated to Galienus and Sabonna, by Marcus Aurelius Victor. The gate is formed of a single arch, adorned with four pilasters, and flanked with two buttresses, a part of one of which remains on the side towards the church of Santa Maria Maggiore. The structure is formed of large blocks of travertine, and is of a plain and simple but not a bad style of architecture.

**Arch of Titus**, erected across the Appian way, close to the gate of St. Sebastian, by the senate, to Claudius Nero Drusus, father of the emperor Claudius. It consists of one arch only, adorned on each side with two marble columns of the composite order; above the entablature may be attributed to a pediment, and there was also an attic. Caracalla used the arch as part of the line of his aqueduct for his Tiberianum. An extant coin gives a faithful representation of this arch when perfect. Excavations have lately been made round this building. The arch appears to have been veneered with marble; but the cornices were formed of solid blocks of that material.

**Arch of Junius Quadrifrons,** situated in the Velabrum; the exact date of its erection is unknown, but from its decorative style and beauty, it may be attributed to the period after Septimius Severus. The form is square, 115 palms on each face, with a large arch in each front, forming an open vaulted space. In each of the piers supporting the arch are two niches, the lower of which were small columns as a decoration forming a double order. The construction is formed of large blocks of white marble. The upper part is ruined, and it was held by the Frangipani as a fortress during the civil wars.

**Arch of Septimius Severus,** commonly called the Arch of the Gold-milhs, is situated also in the Velabrum, and close to the arch of Minus. This small structure, in a style which shows the decadence of art, is highly enriched, and consists of a single opening, square in form, and supported by four arches adorned with ornament. The following inscription shows it to have been erected by the bankers and dealers of the Forum Boarium, in honour of Septimius Severus, Julia Domna, his wife, and Caracalla:

*IM. CAES. L. SEPTIMIUS SEVERI, P.P. PERTINAX AVG.*

*ARAB. ADIAB. PARTH. MAX. FORTISSIMO. PELICISSIMO.*

*PONT. MAX. TRIB. POTEST. XII. IMP. COS. IIII. PATR.*

*PIET. PATRIAE ET.*

*IMP. CAESAR.*

*ANTONINO PIO. FELICISIV.*

*TRIB. POTEST. VII. COS. III.*

*FORTISSIMO. PELICISSIMO. QVE. PRINCIPIS.*

*P. F. PROCO. ET.*

*IVLIVSI AVG. MATHI. AVG. N. ET.*

*COSTRASV.*

*SENEV. ET.*

*PATER.*

*ET.*

*IMP. CAES.*

*M. AURELIUS.*

*OCTONNIUS.*

*ANTONINUS.*

*PARTHICO. MAXIMO. BRITANNICO. MAXIMO.*

*ARGENTARIO. ET.*

*NIGERIA. SIBILIS.*

*KYMY. INBRY.*

*DEEY. KYMM.*

*KYNY. KYRM.*

The name of Geta was originally in the dedication, but his name was erased after his death.

**Columns.**

**Column of M. Aurelius Antoninus,** in the Piazza Colonna

[Antonine Column.]

**Column of Antoninus Pius,** discovered on the Mount Citerio, in the house of the Mission, in 1789. It was of a single piece of red granite, and had a white marble pedestal, from an arch of Trajan, situated in the Via Latina, representing allied reliefs, with the inscription:

*DIVO ANTONINO AUGUSTO PIO.*

*ANTONINIVS AVGUSTVS ET.*

*ANTONINVS AVGSTVS.*

*FELICIVS.*

*FELICIVS.*

**The shaft was 68 Roman feet long, and was used to restore the obelisks erected by Pius V. This column, which is represented on the coins of Antoninus Pius, was enclosed with a fence, and most probably stood within the forum of Antoninus Pius, adjoining that of Aurelius, as it stood near the temple of Venus and Roma.**

**Column of Trajan,** formed of 34 pieces of white marble, situated in the forum of Trajan, and erected by that emperor as a decoration to his great forum. The height represents the height of the Quirinal cut away and removed for the level site of his forum, and is stated in the following inscription:
This column, admirable both for its proportion and for the design and execution of the bas-reliefs and ornaments, which are in the best taste, was the receptacle for the ashes of Trajan. The spiral bas-reliefs do not destroy the line of the pedestal, but only enrich it as they ascend.

Arcadius, called the Antonine column. The Trajan column is, with few exceptions, in a high state of preservation. A statue of St. Peter is placed on the pedestal at its summit, and is intended as third station of the pilgrim's route to St. Peter's.

Column of Phocas, erected in the Forum Romanum by the Emperor Phocas, A.D. 608, according to an inscription on the pedestal.

The era of the name of Phocas, made by Heracleius, is discernible on the pedestal of the fluted Corinthian column, which is of a much earlier date, probably of the time of the Antonines. On the top of the capital there was a gilt statue of the emperor. The pedestal is placed on a flight of steps of a bad construction, from which it is evident that the column was taken from some other structure.

Forums.

Forum of Nerva, situated near the Forum Romanum, commenced by Domitian, and dedicated to Pallas. It was however terminated by Nerva. It received the names of Trajan and Hadrian, by Domitian and Nerva. Two fluted columns of the Corinthian order, half buried in the ground, with a rich entablature and attic over them, adorned with a base-relief of Pallas or Rome, formed part of the internal decoration of the enclosure of the temple of Augustus. A long and regular line of wall belonging to this forum is remarkable for its height and massive masonry of Travertine, set without cement. It is highly probable that the wall was much more ancient than the date on the columns.

Through this wall there is an ancient archway with a masonry cut diagonally. See the Plan of the Forum, by Bunsen, for the extent and position of this forum.

Forum of Trajan, adjoining the forum of Nerva. (See Recent Plan.) This extensive forum only the colonnade column and part of the Basilica Ulpia can be seen; the rest of the site is buried under the adjacent streets and houses. The earth round the pedestal of the column was excavated in 1598, during the pontificate of Sixtus V.; and Pius VII. in 1812 and 1818, ordered the removal of the masonry and rubbish formed by the removal of the houses and excavation of the site of part of the Basilica. The columns are of grey granite, and have been replaced in their respective situations. The site of the steps and pedestals at the entrance, can be distinguished, and numerous fragments of marble capitals, entablatures, and ornaments are ranged round the area.

Miscellaneous.

Mammertine and Tullian Prisons, situated near the Capitol, close to the forum, built prior to the reign of Sertorius Tullian, and enlarged by him. Part of the front, forty-five feet long and eighteen high, is constructed with large blocks of tufa without cement; a part is also buried in the earth.

C. Lyttus, C. F. ATVrtV. M. CoceRVS... NERVA. COS. EX... s. c. repared this office to the time of Domitian, A.D. 23. The prison was divided into two floors, and the round hole through which criminals were dropped into the lower prison still exists.

Tabularium and Exaratum Sancta, place for the public archives and treasure, constructed on the site of the Capitol, by Quintus Lutius Catulus. The inscription referred to by Nardini after Poggio is:--

Q. LyTtv. Q. F. Q. N. CatvLy. COS. oNR aX yTcERVS. N. S. PaCUniVS. CaLVNut.

(See Plan of Rome, by Bunsen.)

Spiridion, commonly called the Sotte Sale, is near the baths of Titus, enlarged by Trajan. It is a large brick ruin, and may be classified among the Pisane, or reservoirs. It is thought to be older than the time of Titus, though it was applied to the use of his baths. It consists of two floors, the lower of which is buried in the ground; the upper is divided into nine chambers, with the opening from one to the other it is diagonal line. The construction is very solidity.---"
of the famous Palatine library, built by Augustus, and the magnificent temple of Apollo connected with it, and built by the architect of the Temple of Concord, the Arch of Titus; it then crossed the valley between the Celius, the Carinus, and the Velia. The space from that mentioned place to the point from which it commenced, almost entirely through the Forum, was, it is now mentioned, was then a lake or swamp. (Niebuhr, Hist. Rome, i. 288.) The town itself, which had about the same extent as the Pomerium, was probably surrounded on all sides by walls and a narrow ditch. Towards the Capitoline and on the eastern side of that hill, the walls of the town were built on a hill, then to descend into the plains between the Celius and Esquiline, whence the Venus Taurica in that district received its name. The principal of these Esquilians quarters, which was the so-called known hypothesis. (Niebuhr, loc. cit.)

The three hills north of the Palatine, that is, the Quirinal, Viminal, and Capitoline, were occupied by Servius Tullius, and the last of these hills was their citadel. Their town Quoquinum was erected on the hill of that name. When the Latin and Sabine towns became united, the valleys between the hills must have been drained, and colonized by which this effect was obvious, the entire plan of the city was the same as that of the Capitoline Park. Now, what came down from the top of the Velia between the Quirinal and the Capitoline, and the bend proceeded between the latter hill and the Capitoline as far as the temple of Vesta, where it turned to the right towards the Comitium towards the gate of the Palatine. The Seven hills inhabited by the three principal men were united into one town, and surrounded by a wall; the king Servius Tullius. The Pomerium had been extended with the increase of the city, but the Aventine, then included in the new wall, did not lie within the Pomerium. It had been inhabited by the Lupercale and the squares of that territory, and in early times, where the walls were higher, the ground was flooded from the Velabrum. The Fagodium, according to Niebuhr, the wide plain between the Palatine and the Celius-Septianion and the Colossaeum. That fortification consisted in some places of a wall, towers at certain intervals; in other places the hills rendered artificial fortifications unnecessary, the instance, on the western side of the Capitoline. The eastern part from the Colline to the Esquiline gate, one eighth of a mile in length, was fortified by a wall and a rampart. From the border of a most 100 feet broad and feet deep, was raised a wall 50 feet wide and above it faced towards the most with diaphragms, and shanked towards the east wall. This wall was now almost in the same state as that of the Aurelian 2, Porta Magica, or Magonia, at the north extremity of the hill, which led towards the northern part of the Forum or the Forum Romanum, and the Porta Lata. This gate, within which augurs could be taken, ran, according to Gallia (xiii. 14, 2) round the foot of the hill; but it seems to have been extended even before the union of Rome with the foot of the neighbouring places, for, according to the description of Tacitus (Annal. xii. 24), the Poternenem crossed not only the sides of the hill, but a considerable portion of the adjoining plain. It ran from the Forum Boarium through the valley of the Circus Maximus, including the Arx Magna, to the Arx Comitium, along the foot
lay probably—5. Porta Fontinalis, from which, in the time of the Republic, an arcade led to the altar of Mars in the Campus Martius. 4. Porta Ratmema, probably on the northern side of the Capitoline, and likewise leading to the Campus Martius. 5. Porta Carmentalis, on the southern side of the Capitoline, and near the present Vicolo della Bufa. The gate, together with the—6. Porta Triumphiaphis, and 7. Porta Flumentana, lay in the line of the wall which ran almost parallel to the Tiber on the east side of the river; the remains are still visible to some extent. Of the wall of Servius Tullius few traces remain; but it existed in the eighth century of Rome, as appears from the description of Pliney (iii. 5), and from Dionysius of Halicarnassus (ix., p. 634).

During the early part of the Roman Republic, no mention of any great architectural works as those which were built during the period of the kings; but, with the increase of the population, many of the uncultivated and uninhabited vales must have gradually become covered with houses. About 120 years after the establishment of the republic, when the city was taken by the Gauls, the whole was consumed by fire, with the exception of the Capitol, a few houses on the Palatine, and some of the works above enumerated, the remainder being swept away from destruction. The scene presented must have been picturesque; the structures and buildings had been erected upon Roman antiquities. Down to the fifth century of the city, private houses were generally covered with shingles, and there continued to be a number of groves within the walls of the city. But towards the close of the same period the Roman people, threatened with the conflagration and the end of the second Punic war, Rome began to be embellished with temples, which however, both as to material and architecture, were far inferior to the temples of Greece. Hellenic influence also began to be built. The city itself was not spared, though we have no reason to suppose that they were neglected. At a somewhat later period we find public places, streets, and parks formed under the porticos, commonly paved with large square blocks of tuff or of travertine. In the year 176 B.C. the censors ordered the streets of the city to be paved with blocks of basalt, which were laid on a stratum of gravel, such as is still visible in a part of the Via Appia. At the time of the war with Hannibal, the district near the river, between the Capitoline and Aventine, was almost entirely covered with buildings, and it was called Extra Portam Flumentanam.

The private houses had from the earliest times been very simple in structure; but after the conquest of Greece, and the introduction of Hellenic influence, more elaborate and better structures were built. In the Palatine and Capitoline districts, and other parts of the city, use was made of the ancient structures in the construction of the new. Thus, the Valeria, or Quirinal, blocks of tuff or of travertine, and the use of the ancient temples and forums. The most modern of the temples in the city were the Temple of Serapis, the Temple of Venus Genetrix, and the Temple of Vesta. The last, which was erected in the time of the Emperor Commodus, was the largest and most magnificent of the temples.

Of all the splendid buildings which were raised during the later part of the republic, scarcely any traces exist, with the only exceptions being the arches, the triumphal arches, and the triumphal arches of Augustus. Among the chief works of Augustus, the so-called Temple of Fortuna Virilis, not far from the theatre of Marcellus; and perhaps also the three columns of the Temple of Portunus, which still stand.
and theatres, which were raised during his long and peaceful reign, were almost innumerable. The whole plain on the Palatine rose to a new town, which in splendour and magnificence far surpassed the city of the hills: this new town was one mass of temples, arcades, theatres, and public places of amusement, not interrupted by any private habitations, and for the purposes of supplying the city with water had been built as early as the year 313 B.C., and the first (Aqua Claudia) was begun by Appius Claudius. It ran almost entirely underground, and conveyed the water from a distance of about eight miles in the valley of the Porta Capena into the city. The aqueducts (Anio vetus, 273 B.C.; Aqua Marcia, 145 B.C.; Tepula, 127 B.C.; Julia, 35 B.C.) were constructed, but it was not until the Imperial period that this kind of architecture reached perfection, and most of the remains which are still extant belong to the period of the Empire. They were mostly built upon arches, which had an easy inclination, so that the water ran gently from its source towards the city. Augustus built two new aqueducts (Aqua Aeslana or Augustae, and Aqua Tarentina), and increased the Marcia. Subsequent emperors added the Aqua Claudia, Anio novus (both in A.D. 50); Aqua Traiana, A.D. 111; Antonianus (A.D. 212); Alexanderina (A.D. 230); and Julia (A.D. 300). (Frontinus, De Aqueductibus Urbis Romae: Plutarch, Rom. 1, 13; Strabo, Rom. 1, 10, 30.) The Iulian aqueducts entered four regions, made by Servius Tullius, had remained unaltered; but Augustus, for the convenience of administration, divided the whole city, both within and without the walls of Servius, into fourteen new regions, a division which continued to be used by emperors and architects until the time of Constantine, when they gradually gave place to the Ecclesiastical division into seven regions. Each of the Augustan regions, according to a survey taken in the reign of Vespasian, contained nineteen, or, according to a later account, twenty-two vicus, with as many sacro in palatino, where two to three acres were crossed each. Each vicus seems, on an average, to have contained about 230 dwelling-houses, so that every region contained rather more than 3,000. About one twenty-fifth part of this number, or about 110, was the habitations of the rich (latini), with a portico in front and an extensive inner court (atrium). The remaining twenty-four twenty-fifths consisted of insulae, that is, habitations for citizens of the middle and lower classes; they had no portico in front, but mostly an open space which served as a shop or workshop. In the interior they may have had a court, but of smaller extent than the atrium of a domus. The number of these insulae was about 44,000. All Roman houses were very high. Augustus fixed 70, and Trajan 60 feet as the height, above which walls were not to be built. The framework and the upper story was generally of wood. It was a law of the Twelve Tables which also occurs in the Roman legislation of later times, that no two houses, whether domus or insula, should be built closer than twenty-five feet from each other, so that an opening of five feet could be left between them. The fourteen regions of Augustus are:—1, Porta Capena, to the south of the gate of this name. 2, Collimontana, which embraced the whole of the Colium hill. 3, Isis of Serapis, the valley between the Caelus, Palatine, and Esquiline. 4, Via Sacra, or Templum Pacis. 5, Regia Esquilina. 6, Alta Semita. 7, Via Latina. 8, Forum Romanum. 9, Circus Flaminius. 10, Palatium. 11, Circus Maximus. 12, Piscina Publica. 13, Aventinum. 14, Regio Trasteverina. The Puteoli, houses completing many of the buildings of his predecessor, began the Prastorium camp on the north east side of the city, in the Campus Viminalis, and surrounded it with high walls. The wealthy Romans at this time had their principal seat of recreation in the gardens of the Colliena to the Porta Collimontana; they did however not form streets, but lay in gardens within the fields between the high roads which issued from the city; and hence they are generally called Horti, as Horti Macedonae, Pallatinian, Esquiline. All that had been done for the embellishment of the city previous to the reign of Nero was eclipsed by the magnificent buildings of this emperor; but the greater part of these works, together with those of former days, perished in the conflagration which took place in the last year of the fire. The plan of restoring Rome was organized and proved to be impracticable: he proposed to make Rome a port, and to connect it with the sea by long walls from the Capitol to Ostia. But all that he could do, notwithstanding his profusion, was to restore those parts of the city which had been destroyed. The face of the new city however assumed a totally different aspect. On the ruins of the whole plain on the Palatine rose the called Golden House of Nero, which occupied a space—a large town. The greatest care was taken to clear new streets wide and straight, and that the buildings should not exceed a reasonable height. In order to render possi- bility of the execution of these plans, especially, long, the city were measured, and the heaps of ruins were removed and conveyed in ships to Ostia to fill up the marshes vicinity. All the new buildings were massive, and the fire-proof perpano, without the old was necessary to extend the city beyond its former limits. time afterwards, in the reign of Vespasian, a measure of the circumference of Rome was taken, according to which it amounted to 33.5 Roman miles. The work was continued to the Embodiment of the city; but Commodus a great part was again consumed by a fire. destroyed all the buildings in the Palatine. Septim. Severus exerted himself to restore the parts which had been burnt, and to ornament the city, and some of his buildings are still extant. But the grandeur and magnificence thermae of Caracalla, south of the Porta Capena, surpass all the works of his predecessors. Almost all the palaces, or their remains, which still exist at Rome, too the title "palace of the emperors," but some of these objects of the fortification may have rendered it necessary to enclose parts which were not covered with buildings Janiculum, which seems to have been fortified in the earliest times of the republic, and which was fortified in the reign of Janus, together with the Regia and tiberina. On the north it embraced the whole of the Carthage, and then proceeded northward to the Praetor. Most of the gates in this new wall were destroyed and named after the great roads which connected the cities in the Servian wall. The walls of Rome as well as the gates, differ in many parts from those by Aurelian. The names of the gates of the Aurelian's beginning on the north and proceeding to the east and west are: Porta Flaminia, Pinciana, Salaria, Nomentana, Tarpeia, Porta Carmentalis, Porta Latina, Appia, and Ostiense. Seven bridges connected eastern and western sides of the river. The whole area of these new fortifications was about 21 miles in length, and about five miles in breadth: the individual had become useless on account of the disappearance of rubbish which had accumulated near the gates; but they were restored by this emperor. (Plutarch, Leben der Stadt Rom, p. 618.) Though the walls, as already observed (p. 87), do not much exceed the height of fifteen or twenty feet on the inside, owing to the accumulation of rubbish, they are in many places as high as fifty feet high on the outside. The Praetorian camp, south of the Porta Nomentana, was 1000 feet, a distance reaching the Aurelian wall; but Constantine destroyed the western side of the camp, which faced the city, and the remaining sides serve as continuations of an Aurelian wall. Some remains of these fortifications are still visible. After the time of Constantine, when the emperors at the Roman nobles had adopted the Christian religion, decay and destruction of the ancient edifices commenced. The building of numerous churches was the immediate result of the conversion of the Aurelian wall; but Constantine destroyed the western side of the camp, which faced the city, and the remaining parts of the edifices were carried away and used by any person who chose to take them. During the fifth century of our era great calamities were inflected upon Rome by the ravages of the northern barbarians, though it is a mistake to suppose "the buildings of Rome..."
of the external history of Rome, and endeavoured to trace the gradual development of the Roman constitution, so far as the facts now at our command, and the conclusions we can form from the circumstances and the laws of the case, will warrant. All we have done in the present paper is to give facts and conclusions, and to illustrate them with the help of historical knowledge, where it was not already by ancient authorities. For the rest, we refer the reader to the works of the moderns, of whom we shall not attempt to mention those whom we consider the most important. The works of Teodorico and his immediate successors not only took the greatest care to preserve what remained, but even exerted themselves to restore the public buildings which had suffered or were beginning to decay. The population however rapidly decreased during the 5th century, and became impoverished, so that towards the end of the 1st century the inhabitants of the city of Rome were not very prosperous, and even within its precincts extensive districts were uninhabited. The most remarkable buildings of former days indeed still existed, but after the reign of Domitian they fell into neglect, and thus one after another they fell into decay and ruin.

The ancient writers who furnish information respecting the topography of ancient Rome are: Varro, Livy, Pliny, Festus, two little works commonly ascribed to Aurelius Victor, the commentaries of Varro, and the treatises of Pliny and Suetonius, Strabo, Dionysius, and Dion Cassius. The principal modern works on the topography of Rome are: Flavius Blondus, Roma Insatiable, Floriomet, 1742. These books contain all the information that is to be found in ancient Rome, as far as it can be obtained, and also the information that can be obtained by modern research. The principal modern works on the topography of Rome are: Flavius Blondus, Roma Insatiable, Floriomet, 1742. The author of this book lived about the middle of the 15th century. In this book he mentions the city of Rome, which in his time was very extensive, and which has been made a capital at times when most of the authentic documents had perished in the capture of the city by the Gauls, and upon such numerical combinations as seem best to agree with certain symbolical theories which were familiar to the Romans. But for the sake of completeness and for the use of modern writers, according to which the foundation of Rome is referred to the year 753 B.C., tradition had already handed it down as the year in which the city was founded. In commemoration of this event the festival of the Palilia was celebrated on the 21st of April. If, according to our supposition, Rome was founded by the Alban population who left their home because they were dissatisfied with the dictatorial government, we see why the colony adopted the old kingly rule, which, though abolished in the metropolis, continued to exist in the colony for nearly two centuries and a half. It is another proof that the colony was not founded under ordinary circumstances, but by a secession, and at a time when the capital was at a distance, and that intermarriages having taken place between the colony and the other Latin towns; and hence the legend of the rape of the Sabine women.

The constitution of the colony on the Palatine was a limited monarchy, for in the reign of Romulus, whom the legends call the first king of Rome, it is said that there existed a senate consisting of one hundred members, which, like that of the Latin towns, had criminal jurisdiction, and the preparation of new measures, which were to be laid before the assembly of the people, who might either accept or reject them. How long this Latin colony stood alone and unconnected with any of the towns on the neighbouring hills, cannot be historically ascertained. There existed on the Caelius and the Esquilinus an Etruscan settlement, which was said to have been founded by Carthi Vibenna, who seems to have come with a band of malcontents from Vulci, and who is said to have joined his forces to those of Romulus in the war against the Sabines. It seems to show that the Etruscan settlement in these parts was older than that of the Sabines. The Etruscan town, which Niebuhr calls Lecurnium, seems to have fallen into a state of dependence upon the town on the Palatine (Roma), which seems to have been inferior to it. The Etruscan town, which had been compelled to leave their fortified places on the hills, and to descend into the plain. (Vicus Tuscus; Varro, De Ling. Lat., iv., p. 14, ed. Bip.) The Etruscan colony seems from time to time to have had a certain measure of jurisdiction, and the last accession of this kind may have been those Etruscans who, after the war with Perusinae, remained behind and inhabited the Vicus Tuscus.

The Latins on the Palatine had made the Capitoline hill their capital (Aterna), but a band of Sabines, led by T. Aius, who settled on the Quirinal and Viminal (this settle-
ment is called Quirium by Niebuhr, appear to have been hostile to the Latin colony, and to have taken from them the Capitoline. A short time afterwards however the three different cities or tribes appear reconciled to one another, and united into one state, with a new pomerium, which included the actual limits of the city. The Latin and Sabinus parts of the new state enjoyed equal rights, and each of them was at first governed by its own king and senate of one hundred members. The gods of these two were the Dii Majorum Genitores. The Etruscans, on the other hand, were stationed in their own parts, as kings of their states, and did not obtain equality of rights until the time of Tarquinius Priscus. Their gods were the Dii Minorum Genitores.

Rome was thus, in its origin, a state consisting of three distinct elements, which together formed the Populus Romanus, and each of which exercised a certain influence upon the whole, an influence which is discernible in various ways down to the end of the republic. Each of them also seems in some particular departments to have given the tone to the rest. The Latins appear to have had the superiority in political wisdom, and accordingly their influence in this respect prevailed over the two other tribes, while all those political institutions, the introduction of which is ascribed to the Latins, the best of little constitutions and formalities. As regards religion, each of the three tribes retained its own peculiar worship and rites, though the influence of the Sabines seems to have prevailed in most of the public and civil matters relating to the military institution, the influence of the Etruscans and Sabines appears to have predominated; and the Roman armies, down to the time of Camillus, were drawn up in the Etruscan manner. This original diversity however was, in the course of time, effaced by the subduing influence of the Romans, the various elements of the Roman state appear united into one organised body, the constitution and vital energy of which have attracted the attention of political inquirers in all ages and countries.

The sons of T. Tatius, the king of the Sabines, Romulus governed alone, and it was determined that in future there should only be one king, chosen alternately from the Latins and Sabines. Romulus is said to have divided each of the three tribes: Sabines (the Latins), Tities (the Sabines), and Luceres (the Etruscans), into ten curiae, and each curia into ten decuries, so that each tribe contained 100 decuries, whereas they were sometimes also called centuriae. The decures were not identical with the gentes, but were a subdivision made for the purpose of representing the curia, as each decury in early times had to appoint one senator and one eque. (Gotting, p. 62, &c.; Liv., 1. 36; Festus, v. Centurianta Comitia.) Tribunes, curiones, and decuriones were at the head of these respective assemblies, representing them respectively in public, religious, and military affairs. Each tribe also consisted of 100 gentes or houses, so that on the whole there were 300 gentes. These gentes did not necessarily consist of families, but by blood, but were such that the members of each gens had one common name, generally ending in ius (nomen gentilicium), had the right to inherit the property of a gentilis who died without a male heir, and had their common sacred rites (sacra gentilica) and sacred places (sacra). Each gens contained a number of families. To belong to a gens was a characteristic inseparable from a Roman citizen. Hence every citizen had, besides his personal name, another which was derived from that of his gens, of which Caius Julius Caesar is an example. Centurion is the name of the individual, and Julius that of his gens.

Besides the Roman citizens, or burghers, contained in the tribes, curiae, and gentes, we find from the earliest times a class of dependents called clibantes (libentes), who were under the patronage of the burghers. What they originally were is not quite certain, though it seems probable that they partly consisted of poor emigrants who had accompanied the first settlers on these hills, and partly of other poor and opulent burghers (the latter are thought to have owed various neighbouring places, and settled there under the protection of the established colonists). In subsequent times their number was increased by freemen, who, on being manumitted, had a relation to their former masters similar to that of the tributary (tribo) to the knight (civis), and was one of the noblest features in the history of the Romans. The clients were indeed citizens, but they could not vote in the comitia curiata, or receive the honours; they either tied the lands or tended the flocks of their patrons, or sailed the various trades which the burghers were not allowed to carry on. Numa Pompilius is said to have divided the clients into two classes, those of the city and those of country. The Latin and Sabinian clients of the latter type, were descendants of Roman clientes, or freedmen, or were in some cases lease-holders or crafts or crafts, while the latter were subdivided into husbandmen. Servius Tullius gave some clients the right of voting in the comitia curiata, and incorporated them into his four city tribes (tribus urbanae) of the Sabines. Henceforward the Sabines were no longer divided into centuriae, but each was represented by its own decuriones, oneuma, or, as far as this bill was not occupied by Luceres. In the reign of Ancus Marcius, rome, who was a Sabine, being come to Rome, had the Arventine and the valley between it and the Palatine assigned for his residence. (Gotting, Cor. Rom. Staunton, f. 221, &c.) Some of these new states, such as the Aequi or the Umbrians, were once a great power in Italy, and the bulk of them formed the class which is henceforth called Plebes, and which in numbers far exceeded the Roman included in the tribes, who are from this time distinguished by the name of patricians (patres or patres). As the plebeians did not enjoy the full rights of citizens (non optimo jugo), they had also no connexion with the patricians, that is, a marriage between patricians and plebeians was not a Roman marriage, and consequently the children of such marriages were not the privilege of becoming citizens. He sprung from persons who could contract a legal Roman marriage, or, to use the legal phrase, had connubium, which was a consequence of a marriage where there was connubium, that the children of such marriages were the power of their parents. Hence the plebeians were not a part of the Roman citizens. This restriction as to marriage was subsequently sanctioned by the laws of the Twelve Tables. As was strictly observed till the year 445 B.C., when it was away with the Lex Canuleia. The plebeians differed from the citizens, inasmuch as they had their own sacred, were regulated by the pontiffs, their own auspices, some of their own gentes, the independent possession of landed property, and did not require the protection of a patron. To old burghers, in contradistinction to the plebeians, and not the privilege of the latter; the plebeian, a man of nobles, a character which they had not possessed unless we apply that name to the relation in which stood to their clients. In the army the plebeians form a distinct body, and in the country they always formed the majority. Hence Tullius Hostilius increased the number of the major number of centuries of equites, each decury having formerly appointed one eques, to six, so that each centurion now appointed two equites instead of one. The two orders, patricians and plebeians, stood opposed to each other, without their mutual relations being accurately defined; nor the plebeians themselves appear to have formed a corporate body with a regular internal organisation. This was an evil, which Tarquinius Priscus first endeavoured to remove, but was in vain, because by admittance into the old tribes, each of which thus consisted of a majority of the old burghers and a number of noble plebeians (maiores gentes, and minores gentes: Cae, De Rep. It was probably as an assembly of the two classes that Tarius Priscus did not place the plebeians on a footing of equality with the patricians, at least in the main porch; and it was reserved to his successor, Servius Tullius, to organise the body of the plebeians and to fix their rights and duties with regard to the city. He divided them into thirty local tribes, four of the minor (tribus urbane), and twenty-six for the counties. For further
particulars respecting his new constitution see the article
Servius Tullius. His successor, Tarquinius Superbus, the last king of Rome, not only upheld what his predecessor had done for the plebeians, but his oppression was equally felt by both orders. This led, in 510 B.C., to the abolition of the kingly power and the establishment of the Republic.

The constitution of Rome during the kingly period was an imitation of the office of the emperor or pontifex maximus of the people (populus). At the head of it was the king, as chief magistrate, high-priest, and commander of the army. On the demise of a king, the assembly of the curia (comitia curiata) elected the successor. The election of a successor was held under the presidency of the pontifex maximus. On the death of a pontifex maximus as well as the imperium from the populus, and was inaugurated by the augurs or the college of pontiffs. All other officers were appointed either by the particular bodies or districts of the people, whose affairs they managed, or by the king, but always from among those in whom the people themselves had already shown their confidence. The populus thus in reality possessed the supreme power, and even if it be true, as stated by Livy (6. 8), that the king had the power of electing the tribes and curiae, he still they were always elected from those who were equites, or had held one of the great offices to which they had been appointed by the populus.

The senate of the Romans on the Palatine consisted of one hundred senators. This number was increased by a hundred members when the Sabine tribe became united with the Latin; and when at last the Etruscans also obtained equal rights, the senate was increased to the number of four hundred in the fourth year of the Republic. This number seems to have remained unaltered down to the time of the Gracchi. (Dionys., v. 55, 60; Liv., Epit., lib. 60.) The senate was convoked by the king, who also proposed the subjects for discussion. The majority of voices, when adopted by the senate, was the law. But in matters of necessity, was decisive (Senatus auctoritas, decretum, or consilium). But the decrees of the senate did not become law until they obtained the sanction of the populus (jussum or resum populi). [Senator.]

The tribunes (comitia curiata) consisted of the burgesses only. These assemblies met either to decide on matters concerning the gentes, or concerning public affairs. In the former the pontiffs presided. The latter related either to matters connected with the constitution, or to religion, or to military affairs. The tribunes were elected by the king or his viceregent. In these assemblies the chief magistrates were elected, and the measures prepared by the senate were laid before the people, who might either accept or reject them. In former times the tribunes had the power of law, lex regia, or tribunatum, according as it had been passed under the presidency of the king or of the tribunus celerum. The decision as to war or peace, after the subject had been proposed by the senate, was likewise made by the assembled populus. By the authority of the debtors of the king and of the senatus, the populus gave to the king, he became the supreme judge, but he was allowed to transfer this power to deputies (questores, or the assembly of the populus), but there was no appeal from his sentence. In the constitution of Servius Tullius, the plebeians, being contained in his five classes, were admitted to the national assemblies of the centuries, which were distinct from the comitia of the curiae, which still continued to be held. [Servius Tullius.] The plebeians did not obtain the privilege of meeting as a body independent of and unconnected with the patricians before the year 491 B.C. (comitia tributa). At the close of the kingly period we find Rome mistress of nearly all the tribes of Latium and of a part of the Sabine territory. In the territory of the Sei, the first two Roman colonies, Signia and Circeii, were founded, though Osilia, founded by Ancus Marcius, is also sometimes called a Roman colony. On the Etruscan side of the Tiber, Rome was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probably occupied by the Sabines. After the death of Ancus Marcius, the populus was and the Etruscan was the line of the city. It was in possession of the Janiculum, which was probab
laj down their power, to which however they were at last compelled by the people. The usual magistrates were now again elected, both orders became reconciled, and in 449 B.C. the laws of Valerius and Horatius declared that plebeians should be leges and binding on the whole nation (Livy, iv. 241), and no more magistrates could be drawn from whose sentence an appeal might not be made to the people. Various other measures were at the same time taken to secure the plebeians in the possession of their newly acquired rights. But they still continued to be molested, and a law was passed by which a plebeian was not to be held a freeman if he were not the friend of the patricians. The two estates. The consulship however was obtained in 446 B.C. by the tribune Caiusius (regutica Caiusius), who devoted himself to the service of the plebeian party, and in 445 B.C. when the plebeians participated in this dignity also.

After these arrangements, though frequently violated by the patricians, Rome enjoyed a short period of internal tranquility and prosperity. The elections of the patrician and plebeian tribunes were conducted by the wars with Fidenae, which was destroyed in 446 B.C. with the Acquians, who were defeated, in 448 B.C. at the foot of Mount Agduis, by the dictator A. Servius Pescans, and with the Veii. The war with Veii lasted for several years. After the Gauls had taken possession of Etruria and Apulia, the Gauls were induced, by an inroad of the Veneti into their own territory, to quit Rome and return home; though the city was indeed soon rebuilt, its weakness encouraged the Acquians, Volscians, and Etruscans to renew their hostilities, which however did not bind them to any considerable union. The two cities, Sulmona and Nepete, were founded in Etruria, as a barrier against the enemies. The Hermus and Latii also endeavored to shake off the yoke of their alliance with Rome, and renewed the contest for their liberty. The two cities, Falerii and Tusculum, after these terms were completely subdued in 306 B.C., while the Latins, induced by the repeated incursions of the Gauls, soon renewed their alliance with Rome.

The opposition of the patricians, together with the numerous and wasteful campaigns, and the invasion of the Gauls, had reduced the plebeian to a condition which was little better than that before the first secession. Two important persons, L. Licinius Siculo and L. Sextius, were determined to keep the plebeian party in bounds, and procure for their own order a share in the government. In 375 B.C. both of them were tribunes, and in this capacity proposed four rogations to the following effect:—1. That the more consular tribunes should be appointed, but two consular tribunes at a time, and that no citizen should possess above 500 jugera of the public domain, and should not keep above a certain number of cattle among them; 3, that the amount of interest paid by debtors to that day should be deducted from the capital, which was to be paid off in ten years; 4, that instead of the duumvirs who kept the Sibylline books, decemvirs should be elected, five of whom should be plebeians. The ensuing contest was carried on with the utmost violence. In the following year ten patricians and ten plebeians were called to meet, and in the year next following the second year, when the patricians had secured the decemviral power for themselves, two other tables were added. When the task was completed, the decemvirs were unwilling to
The excitement at Rome had been tremendous, and the mediation of Camillus, who had just returned from a victory over the Gauls, was necessary to allay the fury of partisanship. Lucius Sextius Lateranus was the first plebeian consul, 368 B.C., and a temple was erected to Concordia as a monument of the happy reconciliation of the two orders. But in spite of the triumph of the rights of the patricians, being determined to retain all that they could, curtailed the consular dignity of one important part of its rights, and reserved to themselves exclusively the jurisdiction of the first consul (the ancient surname). Accordingly they created the office of dictator to read the edicts.

However, it was a consequence of the advantages now gained by the plebeians, that all the other great civil and religious offices were gradually thrown open to them: the pontificate in 336 B.C.; the priesthood in 336 B.C.; the pretorship in 336 B.C.; and at last, in 300 B.C., by the Ogulnian law, the offices of pontiff and augur. The old distinction between patricians and plebeians thus gradually disappeared in all matters of real importance, and Rome, internally strengthened, united, and consolidated, seemed now enabled to direct her whole energy against external enemies. But this internal harmony was at first more apparent than real, for the patricians made many a secret. In 327 B.C., they were incensed against the Carthaginians, and a colony was formed in their territory, a colony that was to form the nucleus of the Roman empire. But these matters did not prevent them from keeping the plebeians away from it by electing either a dictator or an interrex. The law respecting the interest of money was likewise not always observed, and the reigning tribunes were elected for years after years. The Romans complained of many cases to complaint. The beneficial work of the new constitution did not fully manifest itself until after the year 339 B.C.

The first plebeian dictator, C. Marcus Rutulius, carried on a war against the Faliscans and Samnites (363 B.C.), which was terminated by a peace. Caere obtained a truce for one hundred years by giving up to Rome half of its territory (353 B.C.). The last war against the Gauls, which had lasted for some time and was terminated (343 B.C.) by L. Furius Camillus. The treaty with Carthage was renewed in 345 B.C., probably on account of the Greek pirates, who, about this time invested the coasts of Latium, and against whom the Romans were unable to protect themselves. (Livy, viii. 27.) The great power which the Romans had gradually acquired and shown in the various contests with their immediate neighbors, now began to be displayed in the war against the Samnites, which soon brought them into contact with all the nations of the region. The Samnite war was long and bloody, and the Volscians and Turcini, which opened the Romans the way into Campania. The Samnite war lasted from 343 to 341 B.C., and ended in a treaty with Rome, whose power was gradually augmented throughout Italy. (Sallust.) The Latins declared war against Rome, and they demanded to be put on an equality with Rome, that one of the consuls and half of the senators should be Latin. The consequence was a war with the Latins, and a continuation of the conquest of Campania, for which the Latins had interceded. The Romans were successful against both, and in 339 B.C. all Latium was subdued. Some of the towns retained the Roman franchise with or without the subjection, others lost their fortifications and part of their territory; the Latin confederation was dissolved, and the communities and connubium, which hitherto existed among many of the Latin states, was abolished.

The establishment of a Roman colony at Fregellae and its fortification led to a second war with the Samnites, which was fought against the Faliscans and Palatine, two Greek colonies, which, relying upon this alliance, ventured to insult the Romans. A Roman army marched into Campania, and Palatine, was fell, in 236 B.C., by treachery. Neapolis opened its gates to the enemy. In the same year, the war in Sardinia commenced, and lasted till 315 B.C. Appulia submitted to Rome in 318 B.C. The Etruscans, Umbrians, and Gauls now rose successively against Rome, and the Marsians, Pelignians, Acquincums, and Hernines made common cause with them. But in the end, all were subdued. And as they were not all actuated by the same spirit, the Romans subdued them all, and the Acquincums were annihilated. The Samnites in the meanwhile entered into an alliance with the Etruscans, Umbrians, and Gauls, against Rome, the third war, which lasted from 293 to 290 B.C., when they were compelled by M. Curius Dentatus to make peace. All Latium, Etruria, Campania, Samnium, a great part of Appulia, and several other Italian nations now submitted to the overwhelming power of Rome.

The internal state of the republic during these wars was tolerably quiet, as the plebeians had gradually acquired the power of the patricians. The last war with the Gauls, however, was resisted by the Boanenses, who were not included in the tribes or classes, among all the tribes; but this arrangement lasted only till 304 B.C., when T. Quinctius Rutilus threw all the liberated into the four city tribes. The last assistance of the Boanenses was from a renewal of the attack on the personal liberty of a debtor; but the law of the dictator Hortensius pacified them by securing to the plebeians their rights, and by giving to them the delicta these.

In 284 B.C. the Taruntines in southern Italy secretly induced the Etruscans and Boans to revolt; the Samnites also again took up arms, and the Lucanians and Bruttians laid siege to Thurii, where they were defeated by the consul Fabrius Lucius, who left a Roman garrison at Thurii. The Gauls destroyed one Roman army, but the Boans were defeated in 283 B.C. The Taruntines insulted a Roman fleet which had been driven into their port by a storm, and were forced to drive away the Roman garrison, and plundered the town. But being pressed by a Roman army under Aemilius Barbula, Taruntium sought and obtained the aid of Pyrrhus. (Pyrrhus.) The war with Pyrrhus and the Taruntines lasted from 281 to 275 B.C., and the Taruntines surrendered their territory and possessions to the Romans, and Rhesia and also soon fell into their hands. The war with Taruntum made the Romans masters of the whole of the southern peninsula; and all Italy, from the Sicilian Straits to the river Macra in the north of Etruria, now recognized the supremacy of Rome (262 B.C.). Colonies, chiefly Latin, that is, colonies which had inferior rights to the Roman colonies, were established in various parts to ensure the submission of the conquered nations, and the Italian states retained their old forms or retained their old amenities, modified according to the circumstances under which they had submitted to Rome. Some towns, however, such as Capua, seem to have retained almost independent states.

The Roman constitution had now gained its perfection, and out of an exclusive aristocracy a moderate democracy had gradually been developed, in which all classes exercised their proper influence with the power to counterbalance each other. This constitution lasted without any important alteration for a considerable time, and it was not until a century later that it was again modified in order to meet the circumstances under which it had submitted to Rome. Some towns, however, such as Capua, seem to have retained almost independent states.

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The Romans now advanced towards the north, gained a second victory over the Gauls at Clastidium, and took possession of Mediolanum (222 B.C.). The Gauls in Gallia Cisalpina, despairing of support, submitted, and in Roman hands which strengthened its power in these parts by two new colonies, Cremona and Placentia. A year after this event Istria was added to the Roman republic. While the Gallic war was carried on, Illyrians, who had risen to the first war with Illyrium, which lasted from 230 till 228 B.C. The Illyrian queen Teuta was compelled to give up a part of her dominions to Rome, to pay tribute, and to stop the piracy of her subjects; some Greek towns, which had been subject to her, were declared free. The next war in connection with Illyria was with Greece. (Plutarch, Rom. viii. 9.) A second war with the Illyrians, in 219 B.C., made the Romans masters of the whole coast of Illyria.

While Rome was thus engaged, the second Punic war was caused by the operations of the Carthaginians in Spain. It lasted from 218 till 202 B.C. (Punic Wars.) Great as the sufferings were to which Italy was exposed during the presence of the Carthaginian armies, and although the majority of the Italians had sided with the enemy, the Romans soon recovered their losses and established their power more firmly by new colonies in Italy. Spain was added to their former possessions, and when the navy of Carthage was destroyed, Rome was mistress of the sea. But the republic had gone too far, and with the Carthaginians and in Spain, the Romans lost the simple and manly character for which their forefathers had been distinguished: demoralization and corruption began to manifest themselves in their public as well as in private life.

Philip III., king of Macedonia, after the battle of Cannae, had concluded a treaty with Hannibal. The Romans, into whose hands the treaty fell, sent a fleet to Ilyrium, which compelled the king to a shameful flight. This was the prelude to the first Macedonian war, which lasted from 196 till 202 B.C., and was carried on with little vigour. A peace was at last concluded, which was not honestly meant by either party. Accordingly, five years later, when Athens implored the assistance of Rome against Philip and Arrianus, a second war with Macedonia commenced, which lasted from 200 till 197 B.C., and was terminated by the battle of Cynusacephale, gained by Quintius Flamininus, by which the power of Macedonia was broken. Philip was confined to his own kingdom, and became a vassal of Rome. Flamininus proclaimed the liberty of Greece, but nevertheless he remained several years in Peloponnesus to watch the movements of Antiochus the Great and the Aetolians, to arrange the affairs of Greece, and to foster the dissension among the Greeks. Meanwhile, many of the cities of Asia on which the Macedonians might have attacked Antiochus, but their wars in Spain and the north of Italy caused the outbreak of the war to be deferred until 192 B.C. Antiochus, invited by the Aetolians, landed in Greece. In the south they obtained a partial victory, but in Asia, they were defeated; the battle of Magnesia decided the victory, and the power of Syria was broken. Eumenes of Pergamus and the Rhodians were richly rewarded for their services towards Rome, and acted the same part towards Antiochus as Masinissa acted towards Carthage. The Aetolians afterwards concluded a peace with Rome, but on very hard conditions. The Galatians in Asia, and Ariarathes, both allies of Antiochus, sued for peace and obtained it. As a condition of this, it only required one more blow to effect its complete submission.

But the Romans had to contend in northern Italy, from 200 till 191 B.C., and in Spain from 197 B.C., with more determined enemies. In Spain, peace was not restored until 179 B.C., when Tit. Sempronius Gracchus, the father of the celebrated tribune, by his humanity conciliated the Celtiberians. The Istrians, Sardinians, and Corsicans likewise made a fruitless attempt to shake off the Roman yoke. The empire of the Romans was then extended, and portioned out with the luxuries of Greece and Asia, and had rapidly increased. As one instance of many, we may mention the manner in which the Baccanalia were celebrated at Rome. (Livy, xxxii. 6-13.)

Pompeius the Great, successor of Philip III., in Macedonia, who had inherited his father's hatred of the Romans, declared war against them in 171 B.C. This war was at first very unfortunate for the Romans, but in 165 B.C. L. Aemilius Paulus decided the fate of Macedonia in the battle of Pydna. Gentius, king of the Illyrians, had been ally of Perseus, and this circumstance led to the Illyric war, which ended in a division of Macedonia. In Egypt, Aemilius Paulus saw that Roman soldiers behaved with a cruelty which has perhaps been equalled in the history of the Roman republic. (xvi. 34.) Eumenes and the Rhodians, who had drawn themselves the suspicions of the Romans in the war against Perseus, were treated no differently. Others, such as the Prussians of Bithynia, Massinissa in Numidia, Seleucus of Tyre, and the kings of Egypt acknowledged the supremacy of Rome, which by cunning and fraud gained the means of completely reducing them submission prompted.

The first blow was directed against Carthage, which long endured the insults of Massinissa, the ally of the Romans; and when at last she attempted to redress the wrongs, the Romans razed Carthage to the ground (146 B.C.), and her territory became a Roman province under the name of Africa. (Punic Wars.) In Macedonia two years before Carthage, the consequence of which was that Macedonia was reduced to the form of a 131 B.C. was the fate of Greece after the fall of (146 B.C.).

Some years before these events (153 B.C.) a new war broke out in Spain, as the inhabitants of Segeda strictly enforced the Roman law to be given to the Gallic tribes. The wars continued till 141 B.C., and then the Gauls were reduced to a state of servitude. (Gnaeus and Lucius, sons of Scipio Africanus,) after his death, Brutus penetrated indeed as far as western coast, and in 132 B.C. returned to Rome with a large army; but the natives nevertheless did not submit. Masinissa offered the most determined resistance to the Romans: after these bloody wars was apparent quiet, and Roman commissioners were sent to the affairs of the country.

During this period Italy appears to have enjoyed prosperty such as she had not seen since the period of revolution increased Max. iv. 1, 11.), but a formidable insurrection broke out in Sicily. In this island the extensive estates of red men were cultivated by numerous slaves, who, being ill used by their masters, rose under Eunus and Clemens, and after the death of the former, were received by P. Rupilius at Enna. Attalus, the last king of Pergamus, left in 133 B.C., his kingdom as an inheritance to Rome; the dispute arising out of this gift led to the Roman's taking of Asia into the form of a province, and the tributaries were admitted as a reward of assistance to the Romans.

How completely the old distinction between patricians and plebeians had now disappeared, may be inferred from the fact that a large proportion of the senators, who were plebeians. Ever since the wars of Hannibal, the number of plebeian senators had increased that of patricians. The only distinction which now existed was that between nobles or illustres, and common citizens, the laws which were made during this period had little or no relation to the constitution, but were for the most part tended to counteract the growing love of luxury (leges rusticae), to fix the age at which persons might aspire to different offices of the state (leges annales), to prevent the extermination of the patrician race (leges hereditum), &c. After the reduction of Macedonia (168 B.C.) the treasury (serarium) of the Roman republic was so stored, that the head-tax (tributum) which the city citizens had hitherto paid, was abolished. But during this apparent indifference in regard to constitutional matters a state of things had gradually been developed, which was like a volcano, and gave the first example of civil war. An active and thriving middle class did not exist. The country they had been accustomed to was in extreme poverty. The illustrious families had almost monopolized the lucrative offices of the republic, and the small land owners, on account of the constant wars, had been compelled to neglect their fields, and in thousands sold them for their nobles. Such reduced persons wandered homeless, with their wives and children, and lived in extreme poverty. (Plut. Tib. Gracchus, c. 9.) The only remedy was to provide this multitude of desolate persons with lands, and to raise them to the of an independent
middle class. This was undertaken by the two brothers, Tiberius and Caius Gracchus, to the end that they might procure the welfare of the citizens, and thus win the favor of the people; and thus the people were summoned, and proposed, and how they ended is related in the articles Gracchius and Agrarian laws. The aristocratic party gained the victory in this contest, but it was followed by crime and bloodshed. Several regulations of the agrarian law were nullified or passed over, and a great thing was done for the public domain that they occupied, extended (as before) their possessions by purchasing the smaller portions of the poor, and expelled the impoverished peasantry from their paternal roof. (Appian, Civil, i. 27.)

In Italy several petty rebellions of the slaves in Campania and Sicily were suppressed, and the inhabitants of Campania and Sicily became the scene of a second insurrection of the slaves, who carried on a fearful and destructive war with Rome (103-99 B.C.). The proconsul M. Aquilius succeeded in subduing the insurrection in the North, whereas in the South, which was governed by the Hierarch, the power of the Senate, the kingdom of Cyrene was given to the Romans by the will of the last king.

At Rome, where peace had only been restored by violence, a fresh attempt was made to introduce an Agrarian law, but the motion was defeated in the Senate, in a most proli
cipal, who acted merely from selfish motives, was put to death with his associates (99 B.C.). (See Cic. pro Rabir., c. 9.) It was about this time that two other important subjects began to attract general attention; first, the Judicia, which was established in Rome in time advanced from 91 B.C., the tribune Livius Drusus endeavored to remedy the evil by adding 300 equites to the senate of 300, and by giving to this new senate of 500 all judicial powers in matters affecting a person's caput or civil condition. This attempt however had not the desired effect. The second question was, whether the Roman franchise should be given to the Italian subjects and allies of Rome. Many sensible Romans saw the necessity of such a measure; but the powerful part of the Roman world was opposed to it. The question did not come to any definite conclusion. The Italians however persisted in their demand, which, in 91 B.C., led to the bloody and destructive Social or Marian war. The Romans, seeing that there was no hope of gaining their object, intended not to renew the war, but M. Curius and his army now became disaffected to the republic, with a senate of 500 members and two consuls, and to make Corfinium, under the name of Italica, its centre and capital. The Latins and Umbrians remained faithful to Rome, and prevented their joining some other places in Etruria, the Roman franchise by a Lex Julia. (Göttingen, p. 448, B.C.) In the first campaign the Romans were unsuccess
ful, but Cn. Pompeius Strabo defeated the Italian allies at Asculum, which he took and destroyed (89 B.C.). The Italians gradually submitted, and received the franchise.

Thus the great mass of the inhabitants of the peninsula became Roman citizens. The dangerous designs of Marius and Sulla induced the Senate to franchise the allies that were still in arms, on condition that they should announce in the Senate that they had abandoned the war, and in the ensuing civil contest they joined the party of Marius. The new citizens were, according to some writers, divided into 15 new tribes; according to others, into 18; and according to Plutarch, 18. It was afterwards gradually increased to 50, a number which remained till the latest times. The province of Gallia Transpadana received in the same year, by the Lex Pompeia, the Jus Latii, that is, those political rights which the Latins had before the full franchise, and which were expressed by the term commerium. In the dictatorship of Julius Caesar the Transpadani were placed on a footing of equality with the rest of Italy, and obtained the Roman franchise. The circumstance of Rome obtaining this exclusive right to all the Italians without altering its constitution accordingly, was a great mistake, and the first step towards the dissolution of the republic.

The early Mithridatic wars, which followed, and the civil war between Marius and Sulla, see the articles Mithridates, Sulla, and Marius. The first Mithridatic war lasted from 87 till 84 B.C. After its conclusion, Sulla returned to Italy, forced his way to Rome, and after having been made perpetual dictator, seized the power, and restored peace and save the republic by a new but ill-judged constitution [Sulla], according to which the aristocracy were to form the basis of the republic, just as the Gracchi endeavoured to base it on an independent middle class.

Period III.—From the Constitution of Sulla to Augustus. From 81 till 30 B.C.—In the year 83 B.C. the second Mithridatic war broke out, in which the Romans were defeated, and, in 81 B.C., they concluded a peace with him. After the death of Sulla, in 78 B.C., M. Aemilius Lepidus attempted to repeal all the leges of Sulla, but he was defeated in a battle by Lutatius Catulus, and fled to Sardinia, where he died. The tribunes also exerted their utmost power to recover the positions which they had lost by the Sullan legislation, and many fruitless attempts, their object was attained in 70 B.C., in the consulship of Pompey and Crassus, when, by the lex Aurelia, the senate was deprived of the exclusive possession of the curule power. The judicial power was now divided among the senators, the consuls, the praetors, and the tribuni aeraei. Thus the constitution of Sulla was abolished after it had been in force for about ten years.

The history of Rome from this time forward is little more than the history of the ruling men. (Cic. pro Archia, 74 B.C.) M. Mithridates commenced the third war against the Romans, which led to the complete subjugation of all Asia Minor, Syria, and Phoenicia. Other Roman generals in the east, such as L. Aulus Plautius, governed the province of Britain, and won a victory over the mountain tribes on the northern coast of the Euxine as far as the river Don and the Palus Maeotis or Sea of Azof. In 63 B.C. Rome was saved by the watchful care of Cicero from the destruction with which the conspiracy of Catiline threatened it. (Cicero; Catiline.) The suppression of this conspiracy could not prevent the republic from hastening towards its ruin. Between the years 38 and 50 B.C. Cesar completed the conquest of Gaul; and in 36 B.C., by the treaty of Lucca, the Roman world was divided among the triumvirs. When Pompey died (48 B.C.), it was decided by the Senate to divide the empire between Caesar and Cesar, but he was assassinated in 44 B.C. His opponents, whose republican spirit had survived the republic, were unable to restore it; and in the following year a second triumvirate was formed by Octavian, Antony, and Lepidus, whose object was the total destruction of the republican party. This object they pursued by proscriptions and a series of despotical and cruel measures, until they began to quarrel with one another. Their quarrel led to a new civil war, which ended in the battle of Actium, and placed Octavian (Augustus) at the head of the Roman world. Thus ended the Roman republic.

When the time when the constitution of Sulla was abolished, no thorough reform of the republic was attempted. All that we read of are isolated measures, some of which were calculated to promote the democratical interests, such as the laws of Clodius, by which the power of the magistrates was very much limited; while others were intended to introduce gradual improvement, and to preserve as much of the old forms as possible. The numerous innovations of Caesar, in all departments of administration, are the most important changes that took place during this period. They were not very useful, but they paved the way to the monarchical government, to which the republic submitted the more readily, as for many years it had been accustomed to the almost absolute rule of individuals, who, being only concerned about their own advancement, had brought indescribable sufferings upon the nation. One man at the head of the state, without a rival,
was the only remedy for the public evils. A longer con-
tinuation of that state of affairs which had existed for the
last 50 years, would probably have broken up the Roman
empire, and made Italy a scene of blood-bed and misery.
The Roman republic, at the end of its dissolution, pre-
hended from many countries, which were for the most part
administered as Roman provinces:—Italy and all the
islands by which it was surrounded: all Gaul as far as the
Rhine, nearly all Spain, Illyricum, Pannonia, Dalmatia,
Greece (then included in the Black Sea, and Thrace, the
Danube here formed the boundary); in Asia all the
countries between the Caspian Sea, the Parthian empire,
the Persian and Arabian gulf, the Mediterranean and the
Caucasus, that is, Colchis, Armenia, Syria, Palestine,
Phoenicia, and other whole of the coast of the northern
coast of Africa, Mauritania, Numidia, the territory of
Carthage, Cyrenaica, and Egypt. In some of these
countries however the power of Rome was not firmly
established: it was an Imperial garrison.

Period II.—The Empire to its Downfall, from 30 B.C.
till 476 A.D.—The spirit of antient Rome and its moral
greatness were gone, and freed, which can only be based
on virtue, had perished. The state therefore, as well as the
magnanimous impulses, the moral sense, and the
enjoyments, and who were unenoughed about the conse-
quences to future generations, preferred the mild rule
of man to the late turbulent and convulsed condition of
the republic.

As the history of all the Roman emperors is given in
separate articles, we shall only make a few general ob-
servations on the administration of the empire, and subjoin
a chronological list of the Roman emperors down to the
time of Justinian.

The government gradually concentrated in his own person all
the great offices of the republic, though the officers them-
selves, mere shadows of former days, still continued to be
appointed. He thus in effect acquired the sovereign power,
being free from all restraints, as the means for its
enjoyment, and the consequences of the passing of the
armies, to impose taxes, to decide on peace and war; he
had the command of all the legions, and the power of life
and death over all Roman citizens, both within and without
the city. The senate, after the removal of those whom
Augustus had reason to fear, was filled up with individuals
who were his mere creatures. Tiberius indeed restored
to the senate part of its former power, but the more the in-
fluence of the soldiers increased, the more the state of the
Senate declined, which was the consequence of this loss,
who was, in the court of justice, which took cognizance
offences committed by senators, crimes against the state
or the person of the emperor, and of the maladministration
of provincial magistrates. The relation between the emperors
and their subjects, was daily more and more defined as
benevolent, subduing, and suitably disposed towards the
more or less despotic disposition of the head of the
state. No provision was made for a regular succession; the
first five emperors all belonged to the Julian and Claudia
families. (Tent. Hist., l. 17.) The succession depended
upon the will of the actual emperor, who appointed his
successor, either by adoption, or by giving him one of the
titles, Caesar, and Princeps. Cncestives; or by making him
his colleague in the quality of tribune or proconsul. In
cases where no person was designated, the senate exercised
the right of election. But this privilege was soon assumed
by the soldiers, who proclaimed the emperor, and the san-
tion of the senate became a mere form. The numerous
body-guards of the emperors (proritians), who, in their
sudden and frequent (camp) formation, were in effect possessed
the sovereign power; and on some occa-
sions they sold the empire to the best bidder. The
numorous legions in the provinces however soon became
accustomed with this secret of despotism, and availed them-
selves of it.
The election of magistrates was restored to the people
by Augustus, but in most cases he recommended or even
elected the candidates. Tiberius invested the senate with
the right of confirming the elections, subjecting the
candidates who were recommended by himself, and the
comitia merely received information of the election when
it had taken place. In the third century however we find
that the emperor alone exercised the right of election.
The senator was at first nominally under the control of
the senate. Augustus formed a separate sarrerim for milita-
tary purposes. The fiscus was the name for the property of
the emperor as such, which must be distinguished both from
the serarium and the private property of the emperor. But
gradually the emperors took the whole administration of
the finances to themselves, and the term fiscus then be-
came equivalent to serarium in the republican period.

With respect to legislation, we find that in the reign of
Augustus many laws were passed (Lex Julia et Papia Pop-
piae, De Adulteriis, &c.), but after his death we scarcely know
of any more. The emperor himself of course passed laws for
the settling of extraordinary matters, as in cases of appeal, he
appointed an especial council, which seems to have been distinct from his privy council for the adminis-
tration of the empire. (Spatr. Hist., 15.)

The Judicia Publica were usually held by the senate, but
while causes were, as before, tried by judges whom the praet-
us appointed. The administration of the city engaged a
great deal of the attention of Augustus and his successors
as the monarchy depended much more on the peace and
security of the Empire. The Senate was nearly reduced to
division and administration of the provinces, see the article
PROVINCE. In the reign of Caracalla all subjects of
the empire were made Roman citizens by a constitution of
that emperor.

In the state the government of the Roman empire re-
mained, with a few and not very important alterations, down
to the time of Diocletian. The measures of this emperor
and Constantine produced a complete change in the form of
government. (Diocletian.) The power of the prince in soldiers ceased, and it succeeded the governor of the court, with its ministers and innumerable
officers. The maintenance of these functionaries and of the
numerous armies required heavy taxes necessary, and the
wealth of the state was diminished by the dissipation of the
division and administration of the provinces, see the article
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PROVINCE. In the reign of Caracalla all subjects of
the empire were made Roman citizens by a constitution of
that emperor.
the small river Drinus (Drina), and a line drawn past
the town of Scutari towards the great Syria, near the
east of Cyrenaica. All the countries east of this line
belonged to the Eastern empire, and those west of it to
the Western empire. The capitals, Rome and Constantin-
ople, had each its senate, with equal privileges; but the
bond of union between the two empires was weakened by
the course of events, and they soon began to feel jealous of
each other. The emperors of the East contrived to avert
the invasions of the barbarians, and to turn their attention to
the West, which was also more exposed to such invasions,
was destined to fall first, the Eastern empire, which had
the advantage of a more favourable position for its capital,
and had also greater means and better armies, prolonged its
existence for many centuries. And even after it had lost
all its provinces, and was confined to a very narrow space, it
nevertheless maintained itself in this west-born condition
until the year 1453 A.D., when Constantinople was taken by
the Turks under Mohammed II.

A Chronological List of the Roman Emperors.

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| Nepos            | 475 |
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The following is a list of the most important works on
Roman History:

The ancient authorities on which the history of Rome is
chiefly based are the works of Livy (with Freinsheim's
'Supplements'), Dionysius of Halicarnassus, Polybius, Dio-
dorus Siculus, Appian, Dion Cassius, Varro, Cicero, Sallust,
Caesar, Velleius, Tacitus, Piutarch, Suetonius, Florus, Eu-
ropolus, Aurelius Victor, Cornel, Nepos, Orosius, 'Scripto-
tores Historiae', Ammianus Marcellinus, Procopius, Zonaras, Xiphilinus, Laurentius Lydus, and many other
amateur authors, who, though not professing to write the
history of Rome, yet incidentally furnish much valuable
information.

Among the modern works on the history and constitution of
Rome, we may first mention the valuable monograph of
Sustinius (contained in his 'Gravina', 'Antiquitates Romanarum'), Ludg. Bat., 1694, &c., 12 vols. fol., namely,
'De Antiq. Jure Civium Romanorum', 'De Antiq. Jure Italiano', 'De Jure Antiq. Provinciarum' of Peri-
zonius, 'Animaevaciones Historiae' of Wolfgang. Lazz.'Resp.
Rom. in exteriis habitudine, confr. Lucilius, etc.' of Fel.
Libri XII', Basel, 1551, and Frankfort 1598; Cuspiniusianus,
'De Consulibus Romanorum Commentarii', Basel, 1553,
'Genealogiorum Rom. de Familiae Principum Regum, Princip.
Consarum Romae, Franciae, et Inguar', etc., and
Piglius, 'Annales Romanorum, rec. auct. et illustr. A.
Schoutus, Antwerp, 1615, 3 vols. fol.; P. Rolandus, 'Fasti
Consulares, Traiect. Bat., 1715; Ch. Rollyin, 'Histoire
Romaine, depuis la Fondation de Rome jusqu'a la Bataille
d'Actium', Paris, 1738, 16 vols. 12mo, or 9 vols. 4to. This
work has often been reprinted, and has been continued and
completed, in Rollyin's spirit, by J. B. L. Creviers, 'Histo-
ire des Empereurs Romains, depuis Auguste jusqu'a
Constantin', 12 vols., Paris, 1749. This work of Crevier has
likely been often reprinted, by J. d. Becourtter, etc., in
'thite de la France', 'Histoire des Empereurs de la
Blicque Romaine, ou Plan Général de l'Ancien Gouvernement
de Rome,' La Haye, 1766, 2 vols. 4to.; by the same author,
'Sur l'incertitude des Cinq Premiers Siècles de l'Histo-
rie Romaine', Utrecht, 1735, reprinted in La Haye in
2 vols. 8vo.; Montuesque, 'Considérations sur les Causes
da la Grandeur des Romains et de leur Décadence,' Paris,
1734, often reprinted; Adam Ferguson, 'The History of
the Progress and Termination of the Roman Republic',
London, 1783, 3 vols.; Hook, 'History of Rome,' London,
P. Ch. Lorovine, 'Histoire Critique de la République Ro-
maine,' Paris, 1807, 3 vols. 8vo.; 'Die Geschichte der Römer
erklärung ihrer klassischen Schriftsteller,' 2 vols.,
Leipzig, 1767-90; G. A. Reuter, 'Grundriß der Geschichte,
Erd- und Alterthumskunde, Literatur und Kunst der Rö-
mer,' Stuttgart, 1794, a second edition appeared in 1811;
Ch. F. Schulze, 'Kauf der Demokratie und Aristokra-
tie in Rom,' etc., Altenburg und Erfurt, 1802; Miezi,
'Italia svanti il piramidi de' Romani,' Perugia, 1810, 8vo.
with an atlas; B. G. Niebuhr, 'Römische Geschichte,' 2
vols., Berlin, 1811. The first volume of the second
collection, which was much altered, appeared at Berlin, 1827;
and a third edition of the same volume in 1828; the
second edition of the second volume appeared in 1831;
and the third volume was edited, after Niebuhr's death, by Dr.
Classen, Berlin, 1832. The work only brings the
history down to the end of the first Punic war. The first
two volumes have been translated into English by J. C.
Hodgson and C. Thrivull. The whole work has been
Compare the reviews of the first edition of Niebuhr's work
by A. W. von Schlegel, in the 'Heidelberger Jahrbücher.'
1817, and by W. Wasmuth, in his 'Die ältere Geschichte
des Römischen Staates,' Halle, 1819; Fr. Buchbolz, 'Phi
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Jesuitische Untersuchungen über die Römer, 3 vols., Berli- 
ning, 1819; K. L. Blum, "Entlehnung in Roms alte Ge-
utsche", Berlin, 1826; Geschicht der Entwicklung der 
Entstehung u. Ausbildung des Bürgerrechts im alten Rom; 
Hamburg, 1829; K. D. Hüllmann, "Römische Grund-
verfassung", Bonn, 1832; and by the same author, "Ur-
sprünge der Römischen Verfassung, durch Vergleichen-
erklärung", Bonn, 1833; W. Drumeau, "Geschichte Roms 
in seinem Ubergange von der Republikanischen zur Mono-
archischen Verfassung," &c., 4 vols. 8vo., Königsberg, 1834-
35; H. Malden, "History of Rome," vol. 1., London, 1830; H. 
C. Reiff, "Geschichte der Röm. Bürgerkriege," &c., Berlin, 
1832; J. R. Aschmann, "Geschichte des römischen 
Reiches," vol. 1., London, 1830-1840; J. Rubino, "Untersu-
chungen über Römische Verfassung und Geschichte," vol. i. 
Cassel, 1839; Dr. Fr. Fießler, "Geschichte des Römischen 
Staates und Volkes," Leipzig, 1839; C. Göttling, "Geschichte 
der Römischen Staatsverfassung." Halle, 1849.

The history of the Empire has been written by Tillemont, 
"Histoire des Empereurs et des autres Princes qui 
regné dans les Six Premiers Sicles de l'Eglise," Paris, 
1788, 4 vols. 4to.; republished, in 1797, 5 vols. 8vo.; 
Crevier's continuation of Rollin, mentioned above; 
"Les Femmes de Douze Cours, avec des Notes Hist. et Crit.," 
p. M. de Sertes, Amsterdam, 1722, 2 vols. 8vo.; Gibbon, 
"The History of the Decline and Fall of the Roman Em-
pire," London, 1788, 4 vols. 8vo.; a very curious work, 
often been reprinted. D. G. H. Hübner, "Geschichte der 
Römer unter den Imperatoren, wie auch der Gleichzeitigen 

The "Thesea" of Graevius and Sallengro contain many 
good historical antiques; but, besides these, we may 
mention, Joh. Rosini, "Römernach Antiquitates Corp-
us absolutissimum, cum Notis Dempsteri," Traject, ad 
Aven, 1701; Samuel Plistus, "Lexicon Antiquitatum Roman-
iam," 2 vols., London, 1704; Dr. A. Adams, "Romish 
Antiquities," London, 1791, often reprinted; Friedr. 
Creuzer, "Abriss der Römischen Antiquitäten," Leipzig 
and Darmstadt, 1824.

The private life and manners of the Romans are described in 
C. Meiners, "Geschichte des Vorfall der Städt und der 
Staatsverfassung der Römer," Leipzig, 1752; J. H. L. 
Meirootto, "Über Stett und Lebensart der Römer in 
verschiedenen Zeiten der Republik," second edition, Berlin, 
1802, 2 vols. 8vo.; W. A. Becker, "Gallia, oder Römische 
8vo. von Mirbach, "Römische Briefe aus den letzten Zeiten 
der Republik," 2 vols., Mist, 1833; M. Rouleau, "Observations 
sur divers points ohcurers des Histoire de la Civilisation 
d'ancien Rome," Bruxelles, 1836; W. A. Becker, "P. Burmann, 
Vestigia populi Romani," Lugd. Bat., 1734, 4to.; D. H. 
Hegewisch, "Versuch über die Römischen Finanzen," Altona, 
1804, 8vo. R. Boase, "Grundthüge des Finanzwesens im Römi-
sehen Reich," 2 vols., 8vo.

Works on military affairs: Guisehart, "Mémoires Militaires 
4to., and Rast, "Römische Kriegsfallthümer." 

As chronological tables of the history of Rome: C. J. 
Zumpt, "Annales veterum Regnorum et Populorum, 
inprimis Romanorum," Berolini, 1819, 4to.; a second 
appearance appeared in 1838. Zander, "Tabellen der 
Römischen Geschichte," second edition, Göttingen, 1829, 4to.; F. 
Fiedler, "Zeitschiften der Römisch. Gesch.," &c., Wesel, 1827, 
4to., and "Zeitschiften der römischen Gesch.," Al-
tona, 1840, 4to.; Chlton's "Fasti Hellenici." 

The works on particular points of the Roman constitution 
or particular events in Roman history, are too numerous 
to be mentioned here.

ROMAN LANGUAGE AND LITERATURE.

It is intended in the following paragraphs to present merely 
an outline of the history of the language and literature of 
ancient Rome, as separate notices is given in this work to 
every writer of importance.

The language of the Romans is usually called Latin; for 
though Rome and Latium were originally distinct commu-
nities, their language appears to have been always the same. 
Ancient Latin, designated by the name of the Latin language 
and in the way of the accusative singular of most nouns of the third declension in Greek, and not 
appear, if we may judge from the omission of words in 
all syllables ending in -m before words beginning with a 
word, to have been usually pronounced in Latin...
as *laren* instead of *luem* corresponds to the ancient forms of *nucem*, *bovem*, *suerem*, instead of *nucem*, *bovem*, *suerem*, and also to the common accusative *cinem* from *cinem*.

**Mennas** is a name of Mars, who was called *Mennas* in the Oscan language. *Sina* is instead of *sinas*. *Pleorcs* is the older form of *purces*. The root of this word is *ple* as in *ple-mus* and *im-ple*; and the comparative is formed by adding *tio* or *tor*. *Pleoros* afterwards became *plae*, in the same way as *reverus* or *reversus* was shortened into *revs*.

3. *Satyrus* is to be understood in the same sense as the *longa satiate ludo* of Horace (Carm., i. 2, 37), and *bena soli* in the sense of *pae soli limen*. *Stia* appears here to signify coarse. *Behra* is an old form of *sidera*, being used like the genitive in the same way as *filium* and *fremere*, *rubus* and *rufus*, &c.

4. *Semius* is instead of *Semones*. The Oscan language has frequently a phrase *p* which is found in common Latin, as *pax praet. Venus* for *Venus* et *sex tertius* instead of *advenae*, the *e* being omitted as in *decit, fusc, fer*.

The future is here used in the sense of an imperative. *P* was frequently used in the old language where *b* occurs in the latter forms, as *popicu*s, *Poplicula*, *syracu*s (syracu*s), *salvus* (salvus). *Pruphis*, *pruphis*, are connected with *prohibere*.

Two of the earliest specimens of Latinity which have come down to us are the inscription on the Columna Ros- tus, erected in the Forum to commemorate the victory of C. Marius over the Gauls (B.C. 107), and the *Senatus-Consultum de Buchanalisbus*, which was passed B.C. 186. (See Orelli, Corpus Inscrip. No. 349; Drakenborch's Lat. vol. vii. p. 97, &c.) In both of these many of the grammatical forms differ widely from those which are found in the earlier inscriptions. Inscriptions, &c., and the third from the death of Marcus Aurelius to the time of Cassiodorus, B.C. 539.

First Period.—From the time of Livius Andronicus, B.C. 240, to the death of Augustus, A.D. 14; the second from the death of Augustus to the death of Marcus Aurelius, A.D. 180; and the third from the death of Marcus Aurelius to the time of Cassiodorus, B.C. 539.

**First Period**—From the time of Livius Andronicus, B.C. 240, to the death of Augustus, A.D. 14. —The Romans may be said to have possessed no literature for upwards of 500 years from the union in introducui et quinque annos ut olim biceps et cinctus in the same way as *cinem* and *suerem*. When none of the most eminent members of the Roman aristocracy, who began at length to study the Greek language, Cato himself learnt Greek from Ennius; and Scipio Africanus, his son Scipio Nasica, and M. Fulvius Nobilior delighted in his society. At the same time, the later comedy of the Athenians was most successfully imitated by Plautus, whose comedies have had some influence both for the taste of the people and even for the aristocracy, though the latter do not appear to have shown him any patronage.

In the year B.C. 155, the study of the Greek philosophy was introduced among the Romans, by the embassy which the Athenians sent to Rome, consisting of a collection of the most eminent philosophers of the age, namely, Carneades of the Academy, Diogenes the Stoic, and Cratinus the Peripatetic; and though the study was condemned by Cato and many of the old school, it was made great by Cicero and the Roman nobles. The study of the Greek language and literature was still further promoted by the conquest of Achaea, and by the influence of the distinguished Achaeans, prisoners, who were distributed among the towns of Italy. Among these was Polylus, who attracted the attention of Paulius Aemilius, and was appointed by him instructor of his two sons, Fabius and Scipio. Though Polylus did not write in Latin, he produced a great influence upon Roman literature. He showed the Romans how the history of their own state ought to be treated; and by his influence with Scipio and the most distinguished Romans of the time, he produced a great impression upon the literary taste of the age. From this time it became the fashion for all well educated Romans to write in Greek language, and Greek rhetoricians and philosophers found abundant employment in Rome. Literature however was chiefly prosecuted by the great and noble; the body of the people appear to have remained uneducated.

It is evident from the preceding account that it will be seen that Roman literature only arose and spread in connection with the study of the Greek literature; and the consequence was not only that the Roman writers made the Greeks their models, but that they rarely attempted a composition which they did not write in Greek language. An exception however must be made in favour of the Roman historian, which was essentially home-born, and had nothing similar to it in the Greek language. This species of composition appears to have arisen from the practice, which has prevailed in Italy from the earliest times to the present day, of the country-people making rude extempore verses in ridicule of one another. Lucilius, who was the contemporary of Scipio Africanus and of Lælius, with whom he lived on the most intimate terms of friendship, was the first writer on the constructed Romans, which were considered in the time of Horace as essential requisites in a satiric poem. (Hor. Sat., i. 1, 61.)

The first century before the Christian era was the most brilliant epoch of Polyaenus, the last of the Augustus period of the Augustan age. The writings of Cicero had brought the Roman language into perfection; and almost every species of literature was cultivated with success. In didactic poetry, Lucretius rivalled, and we may say surpassed, all the Greek didactic poets, in his great philosophical poem, which, for vigour of conception and splendour of diction, will bear comparison with the best efforts of the poets of any age and country. In lyric poetry, Catullus and Horace made the first attempts to introduce this species of composition among the Romans; while Tibullus, Propertius, and Ovid produced the most beautiful elegiac poems. During this period also, the epic poem of Virgil appeared; but there was no great dramatic poet. In prose, we possess the histories of Sallust, Cæsar, and Livy; the agricultural and antiquarian treatises of Varro; and the scientific, letters, and philosophical and historical works of Cicero. The chief characteristic of the literature of this age originated in the leading feature of the Roman character. The Romans were a practical and not a speculative people; and consequently they wrote no poetry in a practical point of view, as a solace in adversity, or as an important auxiliary to the study of oratory. The latter subject, at least under the republic, was more studied than any other branch of literature, since it opened the way to the highest dignities in the state; and the influence of this study may be traced in almost all the works of the

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writers of this period. We especially see it in the 'Aeneid' of Virgil, and in the histories of Sallust and Livy.

Second Period:—From the death of Augustus to the death of Marcus Aurelius, A.D. 180.—In this period the decay of the Latin literature commenced. By the overthrow of the republic, oratory was confined almost entirely to private causes, and soon degenerated into the art of the rhetorician. Quintilian made a noble but unsuccessful attempt to recall his contemporaries from the empty declamations of the schools to the true subjects of oratory; but a false taste had already vitiated the great bulk of the community. Oratory however still continued to form, as it had done under the republic, the chief study in the education of the higher classes; and consequently the false principles of taste on which it was taught may be traced in all the writings of that period. We see it in the works of Seneca, the younger Pliny, Vel- leius Paterculus, and even to some extent in those of Tacitus. In the poems of Lucan, Valerius Flaccus, and Silius Italicus, the art of the rhetorician is still more conspicuous; they abandoned the study of nature, and were constantly striving after effect; in addition to which, they were all close imitators of the 'Aeneid,' which, from its deficiency in truth to nature, must have produced a most injurious effect upon subsequent poets, who made it their model. Under the Antonines the deterioration in the character of the literature became still more apparent; as we see in the writings of Salinus, Petronius, and Appuleius, though during this period Gaius and other jurists continued to write Latin worthy of the age of Cicero.

Third Period:—From the death of Marcus Aurelius to the time of Cassiodorus, A.D. 539.—The civilization which prevailed during the early part of this period, the subsequent removal of the seat of empire from Antipolis, almost extinguished all literary activity. The great mass of the Roman people had no time to enjoy or appreciate the works of the age; and when the patronage of the great was drawn, there was no encouragement for the poets of this age. The period in which the poets of this age flourished was that in which the poetical literature of Rome was least esteemed. The poets of this period, who were inferior to most of the poets of the period, were mere versifiers, as, for example, Julius Calpurnius; the historian, who wrote with the title, only compounding Latin history, or of the history of barbarians and conquered peoples; but even at this time the jurists Ulpian, Papinian, and others continued to write in the verse, in contrast with that of the age. The following is a table of the poets of this age:

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<td>666</td>
<td>88</td>
<td>Plotinus</td>
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<td>672</td>
<td>81</td>
<td>Valerius</td>
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<td>676</td>
<td>78</td>
<td>L. Cicero</td>
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500 134 L. Calpurnius
520 134 C. Faunus
530 134 C. Celsus Antiquus
540 134 Sempronius Aelius
550 134 C. Lucretius
560 123 S. Turpinus
570 114 L. Licinius Crassus
580 108 M. Antonius
590 104 L. Aelius Stilo
600 98 Claudius Quadrigarius
610 94 Valerius Antius
620 91 L. Cornelius Sicinna
630 90 L. Pomponius Bononiensis
640 89 P. Rusticus
650 88 T. Quintus Atta
660 87 M. Catullus
670 86 M. Solinus
680 85 P. Iunius
In the preceding list the principal Roman jurists are inserted, but a complete list of them, with the relative proportions, which they have contributed to the 'Digest,' is given under Justinian's Legislation, p. 164.

Works on the Roman Language and Literature.—The following list of works, though far from complete, may be useful to those who are studying the language and literature of antient Rome. It is hardly necessary to premise that the works here enumerated have very different degrees of merit, and that some are merely mentioned as the best or only works of the kind, or as the best known to the writer.


Language.—Folliola, 'De Ling. Lat. Usu et Præstantia,' ed. Mosheim, Hamb., 1723, 8vo.; Facioliati, 'De Ortu, Interitu, et Instauratione Lingue Latinam, reprinted at Lips., 1725; Tursellinus, 'De Particularis Lati, Orationibus,' often reprinted; Allen, 'Doctora Copulatam Linguam Latina,' 12mo., Lond., 1830, with a notice of the same work in the 'Journal of Education,' No. 8; Döderlein, 'Lateinische Synonyme und Etymologie,' 6 vols. 8vo., Leipzig, 1826-1838; Struve, 'Über die lateinische Declination und Conjugation,' 8vo., Königsb., 1823; Schneider, 'Elementarihe der lateinischen Sprache,' and 'Formslehre der lateinischen Sprache,' Berlin, 1819, 1821, a valuable work for the archaeology of the language; Allen, 'Etymological Analysis of Latin Verbs,' 12mo. Lond., 1836; Scheller, 'Ausführliche Lateinische Sprachlehre,' 8vo., Leipzig, 1803, translated into English by Walker, 4th edition; Grotefend, 'Grammatica Lingue Latinae,' 4th edition; and 'Lateinische Sprache,' 2 vols. 8vo., Hannover, 1829-30; Zumpt, 'Lateinische Grammatik,' 8vo., Berlin, 6th edition, 1828, and frequently reprinted, translated into English by Kerrick, with a notice of the same work in the Quarterly Journal of Education,' No. 1: this grammar is far superior in the syntactical part to any other. The student will also derive considerable information from those works which treat of the comparative grammar of the Indo-Germanic Languages, as Bopp's 'Vergleichende Grammatik des Sanskrit'.
The historical origin of the Roman Law is unknown, and its fundamental principles, some of which even survived the legislation of Justinian, are older than the remotest records of history. The early composition of the laws of the Roman law as to families, agnation, marriage, testament, succession to intestates, and ownership, was no doubt custom, which, being recognised by the sovereign power, became law. As the many changes in the civil and ecclesiastical law were least intimate; or rather, we may consider the law of religion as originally comprehending all other law, and its interpretation as belonging to the priests and the king; and the Roman law did not at any period of the civil law, even in the period of the kings. These laws, which are mentioned under the name of Leges Regiae, were propounded by the king, with the approbation of the senate, and, confirmed by the plebeian in the Comitia Curiana, and, after the constitution of Servius Tullius, in the Comitia Centuriata. That there were remains of this ancient legislation existing even in the Imperial period, is certain, as appears from the notice of the Jus Civile Papirianum or Papirianum, which the Pontific Maximus Papirius is said to have compiled from those sources, about or immediately after the expiration of Tarquinius Superbus (Dig. 1, tit. 2), and from the distinct references to these Leges made by late writers. Still there is great uncertainty as to the exact date of the compilation of Papirius. Its real composition is, as he is variously called Caesiun, Sexius, and Publius. (Dion. Hal., iii. 36; Dig. i. tit. 2.)

But the earliest legislation of which we have any important remains is the compilation of the code called the Twelve Tables. The original bronze tables indeed are said to have perished in the conflagration of the city after its capture by the Gauls, but they were satisfactorily restored from copies and for memory, for no ancient writer who cites them ever expresses a doubt as to the genuineness of their contents. It is the tradition that a commission was sent to Athens and the Greek states of Italy, for the purpose of examining into and collecting what was most useful in their codes; and it is also said that Hermodorus of Ephesus, then an exile in Rome, gave his assistance in the compilation. It is certain, however, that there is nothing in the Twelve Tables to prove that the laws of Solon and those of other Greek states, if they had any effect on the legislation of the Decemviri, served rather as models of form than as sources of positive rules. The tables were completed and made public by the Decemviri, in B.C. 451, and in the following year two other tables were added. This compilation is quoted by the ancient writers by various titles: Lex XII. Tabularium, Lexes XII, sometimes XII, simply (Cic. Legg. ii. 2), Lex Decemviral, and others. The rules contained in these tables long continued to be the foundation of Roman law, and they were never formally repealed. The laws themselves were considered as a text-book, and they were commented on by the jurists as late as the age of the Antonines, when Gaius wrote a commentary on them in six books (Ad Legem XII. Tabularum). The actions of the Twelve Roman law, called Lexes Actiones, were founded on the provisions of the Twelve Tables, and the demand of the complainant could only be made in the precise terms which were used in the Tables. (Gaius, n. 11.) The rights of action were consequently extended by the Edicts of the Praetors. The brevity and obscurity of this ancient legislation rendered interpretation necessary in order to give the laws any application; and both the interpretation of the Twelve Tables and the actions of the Twelve were committed to the College of Pontifices, who yearly appointed a member of their own body to decide in all doubtful cases. The civil law was thus still inseparably connected with that of religion (Jus Pontificum), and its interpretation and the knowledge of the forms of procedure were still the exclusive possession of the patricians.

The scanty fragments of the Twelve Tables hardly enable us to form a judgment of their character or a proper estimate of the commendation bestowed on them by Cicero (De Orat. 493). It is to be supposed they were intended to make a complete set of rules both as to religious and civil matters; and they did not confine themselves to what the Romans called private law, but they comprised also public law. ("Fons publici privatae juris," Liv. iii. 51. 3.) Their mixture of religious and civil laws may have arisen from the necessity for integrating the care of persons of unsound mind, theft, homicide, interdicts, &c.

They also comprised enactments which affected a man's status as a Roman in the case of one of the Twelve Tables, which did not allow to a marriage contracted between a patrician and a plebeian the character of a legal marriage, or, in other words, that between patricians and plebeians there could be no connubium (i.e. a legal or direct legal relation) by the various enactments which gave to the plebeians the same rights as the patricians, and by those which concerned public administration, the fundamental principles of the Jus Privatum, which were contained in the Tables, remained unchanged, and are referred to by jurists as late as the time of Ulpian.

The old Leges Regiae, which were collected into one body by Papirus, were commented on by Granius Flaccus in the time of Julius Caesar (Dig. 50. tit. 16, a. 144), and there were probably preserved to modern times. The law of the Twelve Tables has been often collected, but the best essay upon them is by Dirksen, "Versuchen zur Kritik und Auslegung der Quellen des Römischen Rechts," Leipzig, 1823. The fragments of the Twelve Tables also have been often collected. The best work on the subject by the hand of J. G. Goethofreus, which, with the more recent work of Dirksen, "Uebersicht der bisherigen Versuche zur Kritik und Herstellung des Textes der Zwölf-Tafel-Fragmente," Leipzig, 1824, seems to have exhausted the subject.

For about one hundred years after the Legislation of the Decemviri, the patricians retained their exclusive possession of the forms of procedure. Appius Claudius Cæcus drew up a book of the forms of actions, which it is said that the clerk Gaius Flavius stole and published; but the theft may be doubted, though that of the publication of the forms of procedure, and of a list of the Dies Fasti and Nefasti, rests on sufficient evidence. The book thus made public by Flavius was called Jus Civile Flavianum; but it is not probable that this was only a compendium. The publication of these forms must have had a great effect on the practice of the law: it was in reality equivalent to an extension of the privileges of the plebeians. Subsequently Sex. Aelius published another work, called "Jus Aelianum," which was to be complete, and that of Flavius, which was meant to complete the work of Aelius. This work, which was extant in the time of Pomponius (Dig. i. tit. 2, § 39), was also called "Triterpinta," from the circumstance of its containing the laws of the Twelve Tables, a commonplace of interpretation, and the Leges Actiones. This work of Aelius appears to have been published later times as one of the chief sources of the civil law (Valutus cunabula juris); and he received from his contemporaries Ennus the name of wise. ('Epitome Curtius homo Cäna Aelianus Servus.')
Secutus Aelius was Curule Aedile, b.c. 200, and Consul, b.c. 192.

In the Republican period new laws (leges) were enacted both in the Comitia Centuriata and in the Comitia Tributa. The Leges Curiaei, which were enacted by the curiae, were limited to cases of agradation and the conferring of the imperium. The Comitia Centuriata were made independent of the senate by the Lex Publilia (Livy, viii. 19), which granted to the two orders of the Twelve Tribes the right to pass the lex (Legg. xxv. 336), and subsequently the Lex Hortensia (b.c. 286), gave to the Plebeians the full force of leges without the consent of the Senate (Livy, viii. 12; Gaius, i. 3; Gell., x. 27); and a Plebeian law was accordingly sometimes called a lex. The law generally took its name from the gentile name of the magistrate who proposed the law (proeat), or, if he was a consul, from the name of both consuls, as Lex Aelia or Aelia Sentia, Papias or Papis Poppaea. If the proposer of the law was a dictator, praetor, or legatus, the name of the Lex, or Plebiscita, generally, took its name from the person who proposed the law. It appears that the Senate gradually came to consider the law as the representative of the curiae, and that its content, in many matters relating to administration, the care of religion, the censorium, and the administration of the provinces, became the law. It does not seem as if the Romans themselves had a very clear notion of the way in which the Senate came to exercise the power of legislation; but they imagined that it arose of necessity with the increasing population and the growth of the state. The Senate thus became an active administrative body, and, as an easy consequence, that which it enacted (constitutum) was observed, and this new source of law was termed Senatus Consultum (Dig., i., tit. 2). It seems probable that the Senate began to exercise the power of making senatus consulta after the passing of the Hortensian Lex, though it is not pretended that the Hortensian Lex or any other lex gave this power to the Senate. Senator consulta are recorded as designated by name and number in certain cases, but the reason which seems to show that whatever binding authority senator consulta might have acquired under the Republic, they were not then viewed as laws properly so called, or as having the full effect of laws. But from the time of the Lexes, Plebiscita, Senatus Consulta, and the legislation of the republican period had reference to the disputes between the two estates of the patricians and plebeians, and to other parts of the state.

The general character of the Edict has been already stated. It is described in other words as "viva vox juris civilis," as a mode by which the rigid rules of the civil law were altered and supplemented by the edicts of the times. The changes introduced by positive enactments into the law Privatum of the Roman law seem to have been very important. It was not consistent with the Roman notions to consider the law of the times and most of the legislation of the Republican period had reference to the disputes between the two estates of the patricians and plebeians, and to other parts of the state.

The Edict did not affect to make new law, but to adopt it as law which had been sanctioned, provided it was not against the jus Civile; to give an action where by a bond fide occupant of land had no right to the land, and to protect a man in bond fide possession of property, without affecting to give him ownership, which the law alone could give him by virtue of usucapion; to aid parties by fictitious actions, which were always of a kind, the thing which the fiction supposed, was that which would have given a strict legal right. A great part of the efficacy of the Edict consisted in extending the remedies by action; and after the abolition of the Leges Actions (with the exception of the Actio Damni Infecti, and of matters which belonged to the cognizance of the Centurii) by the Lex Aebutia and two Lexes Juliae, the mode of proceeding in actions was settled by the formula of the Edict. Still even here it seems probable that the praetors followed the actions, and that the actions are justified, but not necessarily, according to the Edict. The Actions were named after their author, as Publician or Lucian, &c. The commentators on the Edict were numerous under the early emperors. Labeo wrote at least four books on the Edict of the Curule Aediles. Sabinius Cavius wrote a work on the Edict. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum. Sabinius Cavius wrote a work on the Edict, which was called Edictum Perpetuum.
making new laws by Senatus Consulta prevailed under the Cæsars after the time of Augustus, and the Imperial Constitutions are mentioned as one of the recognised sources of law in the time of the Antonines. (Gaius, i. 5.)

With the establishment of the Imperial Constitution begins a new epoch in the Roman law. The leges of Augustus and those of his predecessors were, so to say, printed on the jus privatum, though they did not affect the fundamental principles of the Roman law. A Lex Julia came into operation, a. d. 13, but it is better known as the Lex Julia Papia. Poppaea, because of the circumstances attendant on its establishment and the name of one of its promulgators. This law had for its object the encouragement of farmers and therefore contained a variety of provisions making for the prosperity of the agricultural classes. It is not known whether it was passed at the Comitia Centuriata or Tributa. A Lex Julia de Adulteris, which also contained a chapter on the dos, is of uncertain date, but was probably passed before the former Lex Julia came into operation. Several leges Juliae in those times were proclaimed as one of the decrees of the dictator Cæsar.

The development of the Roman law in the Imperial period was not affected by direct legislation. New laws were made by Senatus Consulta, and subsequently by the Constitutiones Principium; but that which gives to this period its striking characteristic is the effect produced by the Responsum and the writings of the Roman jurists. The aim of the Lex Julia Poppaea was to bind the jus pontificale with the jus civile, and the knowledge of both was confined to the patricians, jurisprudence was not a profession. But with the gradual separation of the jus Civile and pontificum, which was partly due to the political changes by which the estate of the plebeians was put on a level with that of the patricians, there arose a class of persons who were designated as jurisperitœ, jurisconsulti, Prudentes, and by other equivalent names. Of these jurisperitœ the earliest was Tiberius Conon, or Tiberius Comnas, a plebeian praetor, jurisconsultus maximus, and consult. a. d. 281: he is said to have been the first who professed to expound the law to any person who wanted his assistance (publico proficiens); he left no writings, but many of his Responsum were recorded. Tiberius Cononius had a long series of successors who cultivated the law, and whose responsum and writings were acknowledged and received as a part of the jus Civile. The opinions of the jurisperitœ, whether given upon questions referred to them at their own houses, or with reference to matters in littiro, were accepted as the rule by which an executrix or an arbitrator could be guided. Accordingly, the mode of proceeding, as it is described by Pompeianus, is perfectly simple; the judges in difficult cases took the opinion of the jurisperitœ, who gave it either orally or in writing. Augustus, it is said, gave the opinion of a jurisperitœ of different character. Before his time, their responsum, as such, could have no binding force, and they only indirectly obtained the character of law by being adopted by those who were empowered to pronounce a sentence. Augustus gave to certain jurisperitœ the responsum iuridici, and directed that they should give their responsum 'ex ejus suaeuctoritate.' In the time of Gaius (i. 7) the Responsum Prudentii had become a recognised source of law; but he observes that the responsum of the only one to be so considered who had received permission to make law (jura condere); and he adds that if they all agreed, their opinion was to be considered as law; if they disagreed, the judex might follow which opinion he pleased. The matter is thus left in some obscurity, and in want of more precise rules. But it is only conjectured what was the precise way in which these licensed jurisperitœ under the empire were empowered to declare the law. It is however clear, both from the nature of the case and the statement of Gaius, that their functions were in the nature of a formal position, or to say it in another way, a law in a given case, and that they had no power to make new rules of law as such; further, the licensed jurisperitœ must have formed a body or college, for otherwise it is not possible to conceive how the opinions of the majority could be ascertained and known to the people.

The commencement of a more systematic exposition of law under the empire is indicated by the fact of the existence of two distinct sects or schools (scholae) of jurisperitœ. These schools originated under Augustus, and the heads of each were respectively two distinguished jurisperitœ, Ann. Labeo and Aelius Capito. But the schools took their rise from other jurisperitœ. The followers of Capito's school were Sabinieni, derived their name from Massutus, a pupil of Capito, who lived under Tiberius and was appointed legatus in Africa. Some of the school, especially the later, which looked out for positive rules sanctioned by time; but more learning and a greater variety of knowledge, accordingly he was ready to make innovations, for he was more confident in himself; in other words, he was a master of the art. Pompeius, who was himself a Sabinius, often refers to discrepant opinions between the two schools, but it is not easy from the instances which he mentions, what ought considered as their characteristic differences.

As the emperors made no use of public or printed edicts in the exercise of the law, but they were most voluminous writers. Massutus wrote three books Juris Civilis, which formed model of subsequent writers. The commentaries on the second of those which were written on the Institutes of Justinian. Commentaries were also written on various leges, and on the Constitutiones of the imperial period; and finally, the writings of the earlier jurisperitœ were collected, and a long series of writers to whom the name of classical has been given, ends, about the time of Alexander Severus, with Modestinus, who was a pupil of Ulpian. Some may be referred to the vast mass of the writings of jurisperitœ, and the most recitals of their works as presenting the Digests; and the Index Florentinæ, but with the exception of the Institutes, which were selected by the compiler of the Digest, great mass of juridical literature is nowhere lost. (Jure suum antiquum, for which there is no parallel in the imperial Constitutions. A Constitutio Principii was made by Gaius (i. 5) to be that which the emperor has used to Decretum, Edictum, or Epistola; nor has it been doubted that such constituition has the force of law, being of-equal binding force with Senatus Con un. After the time of Gaius, Constitutions became more common, and few Senatus Consulta were passed. The Decretum of the emperor was a decision made in a matter of such importance as to be a law, and was therefore given the name of jure decr. Or Edict, or Leges Edicatae, were formed by name, and to the Edicta of the magistrates, and were in effect Leges Rescriptum was a general term which comprehended Edicta and Subscriptions. The Rescript was the emperor's interpretation of existing law, or the advice which he gave to a person or to individuals who consulted him. Sometimes Constitutio or Rescriptum are used as equivalent. (Gaius, i. 122; Decretum and Rescriptum, being decisions in particular cases, could not by their form have the force of law, but when determined and made in a particular case by a general application, it gradually obtained force of law.

With the decline of Roman jurisprudence began to appear compilations or collections of edicts, as they were then called, the earliest were the Code Gaii, which was a digest of the sporadic and prolix nature of which are only known from fragments. The Code Gaii is in the Roman jurisperitœ, so far as we know it, began with constitutio Sept. Severa, and ended with those of Decumanus Maximus (Epigraphicus) and Pudens, a work of which is known, contained constitutio, as well as digest of Declian and Justinian, and perhaps some of a later date. Though the codes were mere private collections, they were not considered as authority, and the codes of Theodosius I and Justinian were in force.

The code of Theodosius was compiled under the authority of Theodosius II, emperor of the East. It was promulgated in the Eastern empire in 431-438; and in the same year it was confirmed in the Western empire.
Valentinian III. and the Roman senate. This code consists of sixteen books, the greater part of which, as well as the Novellae, subsequently promulgated by Theodosius II, are extant in their original form. The commission who compiled it were instructed to collect all the Edicta and Leges Generalis from the time of the Emperor Gratian, and to follow the Codes Gregorians and Hermogenianus as their model. Though the arrangement of the subsequent code of Justinian differs considerably from that of Theodosius, it is clear from a comparison of them that the compilers of Justinian's code had consulted them, and that the more ancient parts of the two are very much alike. The valuable edition of the Theodosian Code, by J. Grotthus (6 vols. fol., Lugd., 1665), re-edited by Ritter, Leipzig, 1736-1743, contains the first five books and the beginning of the sixth, only as they are epitomized in the Breviarium; and this is also the case with the edition of the 'Jus Civilis Antequiulaniunum,' published at Berlin in 1815. But recent discoveries have greatly contributed to improve the first five books.

The most recent edition of the 'Jus Civilis Antequiulaniunum' is that of Bonn, 1835 and 1837.

The legislation of Justinian is treated of under Justinian's Legislation.

There are numerous works on the history of the Roman law, but it will be sufficient to mention a few of the more recent, as they contain references to all the earlier works. After Justinian's legislation, Theodosius sent to the provinces of which there are numerous editions: Geschichte des Romischen Privatrechts, by Zimmerm; Geschichte des Römischen Rechts, by F. Walter, 1840; and for the later history of the Roman law, Geschichte des Römischen Rechts im Mittelalter, by Savigny.

HISTORY OF MODERN ROME.

Period I.—Rome under the Gothic Kings.—After the battle of Valens at Adrian 493, the central government of Emperor Theodosius was divided into two, and more or less independent courts were disposed of the crown of the West. A rapid succession of puppet emperors followed each other on the slippery throne. At last Odosacer, an officer of the Imperial guards, of Gothic birth, some say of the tribe of the Heruli, most probably of the Ostrogoths, assumed the supreme power in the name of his son Romulus, a mere youth, whose mother was a Roman by birth, and whom he caused to be proclaimed Augustus. The assumption of Romulus Augustus was given him in return of the delivery of the clergy of Rome to the imperial army, which he had promised. But this did not secure to the Ostrogoths the Herulian, or the imperial title. The form of administration continued as before. Rome had its senate, its praetorium, and praetextus urbi. The consuls had been appointed, ever since the time of Arcadius and Honorius, separately, in the East and the West in the first year after Odosacer's assumption of power, there was no consul named for the West. Zeno refused to appoint one, in order that he might not countenance the usurpation of Odoacer; and Odoacer did not appoint one himself, not wishing to irritate Zeno. At last, in the year 490, on the representation of the ambassadors of the Ostrogoths, consul for the West, and he continued to appoint a consul every following year. In the year 483, Simplicius, bishop of Rome, having died, the clergy assembled to elect his successor, in the presence of the prefect of the praetorium, and were assured in this matter by Odoacer, that no election of the bishop of Rome should be made in future without the sanction of the prefect. Felix was then declared to be elected. In the same year Theodoric, the king of the Ostrogoths, of the tribe of the Amali, one of the most powerful of the Goths; public service, and of the imperial house. Theodosius, however, distinguished him from another Theodoric, his contemporary, made peace with the emperor Zeno, who appointed him general of his guards, bestowed upon him part of Dacia and Syria, and of the other provinces, and appointed him cos- assassin of the emperor, and the last for the following year. In the year 487 Odoacer defeated and took prisoner Fava or Faba, a chief of the Rugi, who had possessed himself of part of Noricum. Frederick, son of Fava, appealed to Theodoric, who was residing at Novara in Moesia, and who was related to him, and this was the origin of the pretense of the quarrel between Theodoric and Odoacer. It appears that Zeno had entered into a secret agreement with Theodoric to the effect that Theodoric should take Italy from Odoacer, probably however on the condition of acknowledging the emperor of the East as his suzerain. In the year 490 Theodoric marched towards Italy, and with the whole tribe of Ostrogoths, his subjects carrying along with them their carts' wives, children, cattle, corn, and other provisions, and even their hand-mills. Odoacer met the invaders on the banks of the Isonzo; but being defeated, he retreated towards Ravenna; and after several meetings, he was defeated by Theodoric. Odoacer then betook himself to the citadel of Ravenna. Theodoric advanced to Milan and Pavia; but having met with some reverses, he was obliged to keep himself within Pavia. In the following year, 490, Odoacer advanced against him, assisted by some troops sent him by Alaric, king of the Visigoths of Gaul and Spain. A battle took place, in which Odoacer being again defeated, he withdrew to Ravenna, whither Theodoric followed him, and fixed his camp in the neighbouring pinets, or pine-forest. The siege lasted more than two years, during which all the rest of Italy submitted to Theodoric. At last Odoacer surrendered through famine, in February, 493. Theodoric made his entrance into Ravenna, and was received by the archbishop at the head of his clergy. At first he treated Odoacer with kindness, but he afterwards caused him to be put to death. The Roman people chose Anastasius, the chief judge of the imperial palace, president of the Roman senate, to request of the emperor Anastasius, who had succeeded Zeno, the royal robe, or, in other words, the investiture of the kingdom of Italy, which Anastasius granted, and Theodoric assumed the title of king. He fixed his residence at Ravenna, which he occupied for several years after his accession. In the year 498 Anastasius, bishop of Rome, having died, great disturbances took place on the occasion of electing his successor. The synod of Caesarea, led by a certain Lausus, the two parties came to blows, many persons were killed, and anarchy prevailed in Rome for a long time. Theodoric, who was an Arian, did not, perhaps through policy, interfere in the quarrel. In the end, both parties, tired of disorders, submitted, and appealed to him, when he summoned the two claimants to Ravenna, and declared Symmachus to be duly elected by a majority of votes. In the year 500 Theodoric visited Rome, where he was received by Symmachus, and by the senate and the people, with great pomp. The following year, 501, he consecrated the Basilica and the Senate-hall; and lastly he addressed the people in a place called Palatina, promising to maintain the existing constitutions enacted by the former emperors. An old chronicle quoted by Muratori, who has written the life of Fulgenzius, king of the Ostrogoths, speaks in high terms of the decorum, splendour, and order which prevailed, and of the applause of the people. Theodoric gave public games in the Circus for the amusement of the people, and an annual donation of gold and corn. Theodoric gave also two hundred pounds of gold annually out of the revenue of the duty on wine for repairing the imperial palace and the city walls. He named Liberius prefect of the praetorium; and after having published several edicts, and caused the solemn promise that he had made to the people to be engraved on a brass tablet, which was fixed up in a public place, he returned to Ravenna.

The long reign of Theodoric was for Rome and all Italy a period of peace and prosperity. He himself carried on war in Gaul and in Spain, and added part of those countries to his dominions. He gave in marriage his only legitimate child Amalasonta to Eutarcia, a noble Goth, who was appointed consul and councillor of the emperor Justinus in the consulship, a.d. 519. Justus had been appointed consul by the Theodoric, that no election of the bishop of Rome should be made in future without the sanction of the prefect. Felix was then declared to be elected. In the same year Theodoric, the king of the Ostrogoths, of the tribe of the Amali, one of the most powerful of the Goths; public service, and of the imperial house. Theodosius, however, distinguished him from another Theodoric, his contemporary, made peace with the emperor Zeno, who appointed him general of his guards, bestowed upon him part of Dacia and Syria, and of the other provinces, and appointed him cos- assassin of the emperor, and the last for the following year. In the year 487 Odoacer defeated and took prisoner Fava or Faba, a chief of the Rugi, who had possessed himself of part of Noricum. Frederick, son of Fava, appealed to Theodoric, who was residing at Novara in Moesia, and who was related to him, and this was the origin
exerted the jealousy and ambition of the Eastern court, and when, two years after (A.D. 521), Justinian was made consul in the East, he strove to rival Zutric in the splendor of the public games, and the sums which he distributed among the people of Constantinople.

Under Theodorac more particulars are given of his long and important reign; here we confine ourselves to those which concern more especially the city of Rome. That prudent king strove to win the affection of the people of Rome by his liberality, his respect for their municipal customs and privileges, his deference towards the senate, which was the sustaining power of justice in his dominions, and his protection of the Roman church and clergy. The works of Cassiodorus, and the panegyric of Theodoric by Emnidius, bishop of Pavia, are evidence of this. Iliterate himself, Theodoric encouraged literature and science, and it appears, from one of the letters written in his name by Cassiodorus, that a great number of students from distant countries repaired to Rome. Theodoric enacted that the students should not leave Rome till they had completed a certain course of studies according to their respective pursuits, which was probably ascertained by an examination, and this may have led, in course of time, to the establishment of academic degrees. Towards the end of his life Theodoric became suspicious, because he perceived, that notwithstanding his wealth and power, there was still in the hearts of the native Italians a dislike of foreign domination. It was then that the patrician Severinus Boethius, being accused of treason, was tried and condemned to death by the senate of Rome, a sentence which was at first commuted by Theodoric, but after a period of imprisonment, but after a time Boethius was put to death, and shortly after Theodoric put to death also the patrician Symmachus, the father-in-law of Boethius.

John I. bishop of Rome, on his return from Constantinople, whether Theodoric had sent him on a mission to Justinian, or whether, as it is supposed, he was appointed by the latter to succeed the See, on account of his personal enmity against the Franks, or because he was no longer able to govern the church, in Italy, was still in the hearts of the native Italians a dislike of foreign domination. It was then that the patrician Severinus Boethius, being accused of treason, was tried and condemned to death by the senate of Rome, a sentence which was at first commuted by Theodoric, but after a time Boethius was put to death, and shortly after Theodoric put to death also the patrician Symmachus, the father-in-law of Boethius.

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One of the first acts of Athalaric, or rather of his mother, Amalasunta, and her minister Cassiodorus in his name, was to depose Boethius from his See, and to enjoin the people of Rome to obey the edicts of Theodoric. A letter was afterwards written to the senate expressing satisfaction that in choosing Felix for their bishop the Romans had conformed to the desire of his grandfather, which had been expressed with a view to the public good by recommending them a person well deserving of the pastoral dignity. Some years after, when Boniface II. died, he indicated in his will a certain Vigilius as his successor in the See of Rome. This however was resisted by the clergy and people as an improper interference, and being set aside, John II. was elected, A.D. 532. But as much bribery and corruption had been employed by the rival parties at the election, the senate passed a consultum forbidding under severe penalties any bribe or promise for the purpose of obtaining an election, or declared to be a sacrilege. Such promises were also declared to be void. Electoral disputes were to be decided by the senate or other judicial courts, but the expenses of the suit were not to exceed the sum of three thousand solidi. If it concerned the See of Rome, the expenses were to be raised to ten thousand if it concerned other metropolitan sees. This decree, with the sanction of Athalaric, was engraved on marble and placed in the front of the Vatican Basilica. Athalaric left to the clergy and the people of Rome the right of electing their bishop, but reserved to himself that of confirming the election.

Amalasunta had begun her regency with great wisdom; she had been carefully brought up by her father's directions, and she caused her son to be educated, after the manner of the Romans, in the liberal arts. It seems however that the Gothic officers, who rather despised it as weak and offensive that they wanted a Theoderic, who could not and that instead of ought to keep con exercise himself in to give way, and to himself up to drink A.D. 454 or 455. A datus, a nephew of datus had been given, had been tried an ill-acquired rich family of Theodoric showed himself sonto arrested in Lake of Bolsena. datus did not brose a favouring empire, order troops to occupy the Franks a possession of and at the secret proposal, but, some to oppose his datus, people was put to death of Amalasunta.

In the surprise, they advanced at the prison columns at the troops, at the preservice, and at the Vitiges, which the Goth he got a stopping vine some Peter, within to gain a good understanding with the emperor of the East, and to cherish the Roman senate and the Roman people.

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In the surprise, they advanced at the prison columns at the troops, at the preservice, and at the Vitiges, which the Goth he got a stopping vine some Peter, within to gain a good understanding with the emperor of the East, and to cherish the Roman senate and the Roman people.

One of the first acts of Athalaric, or rather of his mother, Amalasunta, and her minister Cassiodorus in his name, was to depose Boethius from his See, and to enjoin the people of Rome to obey the edicts of Theodoric. A letter was afterwards written to the senate expressing satisfaction that in choosing Felix for their bishop the Romans had conformed to the desire of his grandfather, which had been expressed with a view to the public good by recommending them a person well deserving of the pastoral dignity. Some years after, when Boniface II. died, he indicated in his will a certain Vigilius as his successor in the See of Rome. This however was resisted by the clergy and people as an improper interference, and being set aside, John II. was elected, A.D. 532. But as much bribery and corruption had been employed by the rival parties at the election, the senate passed a consultum forbidding under severe penalties any bribe or promise for the purpose of obtaining an election, or declared to be a sacrilege. Such promises were also declared to be void. Electoral disputes were to be decided by the senate or other judicial courts, but the expenses of the suit were not to exceed the sum of three thousand solidi. If it concerned the See of Rome, the expenses were to be raised to ten thousand if it concerned other metropolitan sees. This decree, with the sanction of Athalaric, was engraved on marble and placed in the front of the Vatican Basilica. Athalaric left to the clergy and the people of Rome the right of electing their bishop, but reserved to himself that of confirming the election.

Amalasunta had begun her regency with great wisdom; she had been carefully brought up by her father's directions, and she caused her son to be educated, after the manner of the Romans, in the liberal arts. It seems however that the Gothic officers, who rather despised it as weak and offensive that they wanted a Theoderic, who could not and that instead of ought to keep con exercise himself in to give way, and to himself up to drink A.D. 454 or 455. A datus, a nephew of datus had been given, had been tried an ill-acquired rich family of Theodoric showed himself sonto arrested in Lake of Bolsena. datus did not brose a favouring empire, order troops to occupy the Franks a possession of and at the secret proposal, but, some to oppose his datus, people was put to death of Amalasunta.
pillage and slaughter a.d. 539. In the year 540, Vitiges, disheartened by the disaffection of his troops, surrendered himself at Ravenna to Belisarius, and was sent to Constantinople, where he was treated with considerable leniency. The Goths however cleared another king in the person of Totila, a brave officer, who soon recovered the greater part of Italy, while Belisarius was absent in the East. Rome and Ravenna however remained in the possession of the imperial forces. In 543 Belisarius returned to Italy, but with an insignificant army, as is pointed out by Procopius. The following year entered it by the treachery of some Isaurian sentries, who opened the Porta Asinaria to him in the night. He exerted himself to save the inhabitants, of whom comparatively few were killed by his soldiers. He then went to Ravenna, and left the provinces of the province had been given to Pelagius, who pleased the cause of his countrymen. Totila, having assembled the senate, reproached them with their ingratitude for the protection and kindness that they had experienced at the hands of Theodoric and Athanagild, whom they had deserted for the Greeks, who had treated them much worse than the Goths. He however forgave them, and lived with the Romans, so say Anastasius and the writer of the "Historia Miscellae," "as a father in the children in whom which are not close relations, those entertained in Lucania inducing him to quit Rome, he partly destroyed the walls, but he spared the public buildings. Taking along with him the senators and other principal citizens, he proceeded towards Campania; and Belisarius, receiving the news, hastened to intercept Totila near the walls as well as he could, in the expectation of Totila returning, as he did in the following year, 547, but was repulsed before the city. In 543 Belisarius was again recalled, and in 547 Totila laid siege to Rome, which he again entered through the treachery of some Isaurian sentries, who opened the Porta Capena. The Greek garrison were taken prisoners, except 400 men, who shut themselves up in the Museum of Hadrian, determined to sell their lives dear; but in vain. This remarkable fact may be partly explained by the circumstance of Rome being doubly protected by the presence of her bishop, who was highly venerated in all the West, and by the temporal jurisdiction exercised over it by the Greek bishop. The new bishop of Rome was elected by the joint votes of the clergy, the senate, and the people, but was not consecrated till he received the approbation of the Exarch. The Longobards never formed a compact kingdom; they did not possess all Italy, as the Goths had; the Eastern emperors retained a considerable part of the country, and their power, though distant, was still considered formidable. [LONGOBARD.] The Romans however did not always live on the best terms with the Byzantine Exarchs and their delegated dukes, for we read of several instances in which the dukes committed acts of violence against the clergy, and even against the bishop. [MARSU.] The affair at Constantinople, sometimes encouraged by the Byzantine delegates; we, find in year 638, the treasury of the Basilsica, or church of the Lateran, broken into by the imperial garrison, and the contents partly used for the formation of the trodden army. The church of Santo Stefano at Constantinople, an act of violence which, Muratori observes, the Longobards never perpetrated in the countries subject to them. The removal of the treasuries, it is said, took eight days. The emperor Constans II. visited Rome about a.d. 660, and was received with great honours by pope Vitalianus, but on his departure he took away a quantity of bronzes and other valuable ornaments, among the rest the bronze plates which covered the roof of the Pantheon. Occasional displays of the power of Rome and that of Constantinople, about points of doctrine or discipline, served to alienate the Romans still more from their allegiance to the emperors. Lastly came, in the early part of the eighth century, the great schism of the Iconomachi, or Iconoclasts, which led to a separation of the Rome from the Eastern empire. [Leo III. Iuses.]]

The people of Rome, those of Ravenna, of the Venetia, and of Italy in general, refused to obey the orders sent from Emperor Leo to destroy the images. Pope Gregory II. condemned the Iconomachia as heretics Leo, being irritated, laid a capitation tax upon his Italian subjects, but the pope opposed this measure. Duke Basilius, Marinos Spataribus, military commandant of Belisarius,treasoned against other imperial officers at Rome, conceived against the life of the pope, being encouraged, it is said, by the Exarch Paulus; but the people of Rome rose in defence of their pontiff, killed Jordanus and another of the conspirators, and obliged the pope to return to Rome. [VOL. XX. - R.]
In the following year, 742, the Exarch of Ravenna, with whom Luitprand was still at war, unable to resist the

Longobards, appealed to the pope to mediate between them, and Zacharias repaired with some difficulty to Pavia, where he prevailed on Luitprand to make a truce with the Exarch, and to restore some districts belonging to Ravenna, and two-thirds of the territory of Cesena; the king agreed to this proposal, and until the return of the ambassadors whom he had sent to Constantinople.

Luitprand died about 743. He was one of the ablest and wisest kings that the Longobards ever had. His successor Ratchis, at the recommendation of the pope, concluded an amicable treaty with the king of the Franks. Five years afterwards however Ratchis, for reasons which are not known, broke the truce, invaded the Pentapolis, and besieged Perusia. Zacharias with part of his clergy returned to the city, and the king, in the following year, concluded a peace. Soon after Ratchis abdicated the crown, and retired to Monte Cassino, where he became a monk. His brother Athulf succeeded him, and peace was maintained as long as Pope Zacharias lived. His successor Stephen III was either not so conciliating or not so successful, for after his accession (A.D. 755, according to others 752), war broke out again in Italy. Athulfus became master of Ravenna, and threatened Rome, demanding her submission and a capitation tax from all the inhabitants of the city. After the death of Zacharias, who died in 752, Stephen was visited by John Silentiarius, an imperial commissioner, but Athulfus was deaf to their remonstrances. The pope then went to France, where he crowned Pepin, the son of Charles Martel, king, declaring him the king of the Franks. The Carlists, or Christians of Rome (Peuin et Baxz). Pope Stephen at the same time pleaded his cause with Pepin against the Longobards, and it was resolved in a council of the Frankish nobles to make war against Athulfus. Pepin met Athulfus with a great army, and after a victorious battle (A.D. 757) Athulpus was taken and brought up in Pavia. After a short siege, a treaty was concluded by which Athulfus promised to leave Rome in peace, and restore the towns of the Longobards, which he had captured when the pope was in Pavia, and the keys of the sepulchre of St. Peter, and with the gift of a cross of gold or Frankish coin, and the previously mentioned ambassadors to Picturers. The pope sent an embassy to Charles Martel, about the year 740, with presents and the keys of the sepulchre of St. Peter, and with an offer of transferring the residence of the archbishop of Rome to him, provided Charles would protect Rome against the Longobards. It does not appear that Charles interfered actively in this business, but he sent an embassy to the pope with rich presents. This however was the beginning of the relations of the Franks and the Longobards. After the death of Gregory, his successor, Zacharias, adopted a different course of policy, and, instead of applying for assistance from beyond the Alps, sent an embassy to king Luitprand, to beg of him to let the duchy of Rome have peace, and to give up the time-honoured Roman title to the Roman people. It appears that the citizens of Rome, independently of the imperial garrison sent from Ravenna, had their own militia, which must have been of some importance, as we hear repeatedly of its setting in the field, either against or with both Longobards and Greeks. Much confusion however arises through Paulus Diaconus and other old chroniclers applying indiscriminately the word Romans to all the subjects of the empire in Italy, as well as to his successors, for the Eastern empire was still called Roman. Thus we hear of the Romans defending the soldiers of Luitprand near Ariminum and Fano, which probably refers to the imperial troops under the exarchs of Ravenna. Luitprand, under the command of Zacharias, and the Longobard and Roman forces compelled Trasmund to submit. Luitprand obliged him to take clerical orders, and appointed his nephew duke of Spoleto.

Zacharias had an interview with Luitprand at Orta, when the king received him with great honours, and restored all the prisoners made in the preceding war, not only those belonging to the duchy of Rome, but also those belonging to Ravenna and its territory. At the same time Luitprand entered into a treaty with Zacharias, by which the latter renounced the territory of Spoleto, and the duchy of Rome, which he had occupied, but he gave them in writing as a donation to St. Peter, and not to the duchy or the empire. The duke of Chiusi and other personages of his court were sent to escort the pope back to Rome.
him with excommunication if he violated the territory of the duchy of Rome, and Desiderius returned to Pavia. Adrian had applied for assistance to Charlemagne, who passed the Alps and besieged Desiderius within Pavia. Desiderius surrendered in 774, and the kingdom of Italy passed under the nominal rule of the French emperor.

Period III. — Rome under the Emperors of the Carlovingian Dynasty, A.D. 774-888. — Charlemagne, having assumed the iron crown of Lombardy, confirmed Pepin's donation to the pope, who acknowledged him as patriarch of the West, and the papacy being thus exalted, the sovereignty of Charlemagne over Rome was confirmed by Pope Leo III, who crowned him at Rome emperor of the West, with the title of Carolus I., Caesar Augustus, a title which was acknowledged by Nicaeoplias, emperor of the East, who defined the limits between the two empires. [Charlemagne]. Those limits in Italy were the old boundary between the Longobard duchy of Benevento and the Byzantine provinces of Apulia and Magna Graecia. Rome and Ravenna were included within the limits of the new Western empire, of which Rome was still the nominal capital. From that time the popes assumed a temporal authority over the city and duchy of Rome, subordinate however to the emperor of the West as their suzerain; and they began to coin money with the name of the pope on one side and that of the emperor on the other, to be a great vassal of the empire, but his authority was also limited by that of the senate and the general assemblies of the people and clergy. The name of Roman republic was even preserved, and the public prayers, the mass and the nobles, were made subjections to numerous nobles or barons in the duchy of Rome and the Romagna. [Romagna.]

The period of the Carlovingian supremacy was upon the whole prosperous for Rome. The Western emperors made ample donations to the papal see, and the popes being by this object of ambition in those times, and the fountain-head of clerical dignities, Rome became the resort of numerous applicants, and again assumed the appearance and bluster of a great capital. But the public peace was often disturbed at Rome by the continual seditious proceedings of the clergy. Last year the interdict was once more threatened against the city, and the feeling of the violence and atrocities committed on those occasions are given under Leo III. Under Louis the Pious, successor of Charlemagne, and his line of emperors, the papacy, on the ground of the old Norman, was to be held an object of ambition of the Frankish race, the popes being therefore thought to have been deprived of his duchy, and the election of Adrian was confirmed. Adrian was married before he took priest's orders, and his wife Stephanie was still living separate from her husband with a daughter, who was betrothed to a noble Roman. The emperor, brother of the Curator of S. Marcellus, and bibliothecarius of the Roman see, carried off the girl and married her clandestinely. It seems that the pope undertook to separate them, when Eleutherius, a violent man, went to Stephanie's house and killed both mother and daughter. The emperor, being deprived of his duchy, and the election of Adrian was confirmed. Adrian was married before he took priest's orders, and his wife Stephanie was still living separate from her husband with a daughter, who was betrothed to a noble Roman. The emperor, brother of the Curator of S. Marcellus, and bibliothecarius of the Roman see, carried off the girl and married her clandestinely. It seems that the pope undertook to separate them, when Eleutherius, a violent man, went to Stephanie's house and killed both mother and daughter. The emperor, being deprived of his duchy, and the election of Adrian was confirmed. Adrian was married before he took priest's orders, and his wife Stephanie was still living separate from her husband with a daughter, who was betrothed to a noble Roman. The emperor, brother of the Curator of S. Marcellus, and bibliothecarius of the Roman see, carried off the girl and married her clandestinely. It seems that the pope undertook to separate them, when Eleutherius, a violent man, went to Stephanie's house and killed both mother and daughter. The emperor, being deprived of his duchy, and the election of Adrian was confirmed. Adrian was married before he took priest's orders, and his wife Stephanie was still living separate from her husband with a daughter, who was betrothed to a noble Roman. The emperor, brother of the Curator of S. Marcellus, and bibliothecarius of the Roman see, carried off the girl and married her clandestinely.

Adrian II. being elected pope in 867, without the knowledge of the imperial commission appointed to elect him, was deposed by his consecration, Lambert, duke of Spoleto, entered Rome with a party of soldiers, and, upon the pretexts that the people were rebels against the emperor, he plundered the town, broke into churches and monasteries, and carried off many precious objects. The people, however, deserted the emperor, being deprived of his duchy, and the election of Adrian was confirmed. Adrian was married before he took priest's orders, and his wife Stephanie was still living separate from her husband with a daughter, who was betrothed to a noble Roman. The emperor, brother of the Curator of S. Marcellus, and bibliothecarius of the Roman see, carried off the girl and married her clandestinely. It seems that the pope undertook to separate them, when Eleutherius, a violent man, went to Stephanie's house and killed both mother and daughter. 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was crowned king of Italy, at Pavia, by a council of bishops, and afterwards repaired to Rome, where he was crowned emperor by pope Stephen VI., in February, 891. Pope Stephen soon died, and a double election followed, one part of the clergy and people of Rome choosing a deacon named Berengarius, and the other part electing Lambert, bishop of Pavia. Formosus remained master of the field, and Sergius fled to Tuscany. In 894 Arnulf came to Italy from Germany with a large army, being invited both by pope Formosus and by Berengarius. He took Brescia and Bergamo, the last stronghold of German sojourners, committed the pope to its atrocities, which so frightened the other towns of Lombardy, that they opened their gates. On the death of Guy, his son Lambert remained to dispute the crown against both Berengarius and Arnulf. In 895 Arnulf repaired to Rome, drove away the partisans of Lambert, who had occupied the Leonine or Vatican suburb, and was received at the Milvian bridge with great honour by pope Formosus and the Roman senate. He was crowned emperor by Formosus, and received the oath of allegiance of the clergy and people of Rome. Retreating to the north, he crossed the Alps into Germany, his troops being harased on their march by the revolted population of Lombardy. The history of Italy during the later part of the ninth and the first part of the tenth century is confused, heterogeneous, and involved, and it is impossible to ascertain dates and facts accurately. In the year 897, pope Stephen VII., who had disinterred the body of his predecessor Formosus, and thrown it into the Tiber, was seated by the restored Romans, cast into prison, and trepanned. John IV., a council of Romans, and the senate of Rome, annulled the election of Arnulf, and confirmed that of Lambert as lawful emperor. In the same council it was again decreed that no pope elect should be consecrated without the Imperial sanction; and it was likewise forbidden, under a penalty of excommunication, to go on the pilgrimage, to stir the pontifical palace at the death of a pope, a practice which became customary on the part of the relatives of the deceased, not only in Rome, but in other Italian cities.

John then proceeded to Ravenna, where he met Lambert, and held another council of seventy-four bishops, in which, among other things, it was decreed that every Roman should be at liberty to appeal to the Imperial court. Learning of this event, confirmed the pope in the possession of the bishopric of Rome, the Exarchate, and the Pentapolis. In the following year Lambert was killed while hunting, and Berengarius was acknowledged by most towns as sovereign of Italy.

In the year 898 the Hungarians entered Northern Italy, committed dreadful ravages, and defeated Berengarius. In the same year Ludovic, or Louis, king of Provence, came into Italy, was proclaimed king at Pavia, and in the following year was crowned emperor at Rome by Benedict IV., whom he also administered justice to those who resorted to him.

In the year 902 Berengarius reappeared in the field, defeated Ludovic at Verona, and took him prisoner, but allowed him to return to Provence. After the death of Benedict IV., at Rome, the usual disorders took place on the election of his successor Leo V., who, after two months, was deposed and imprisoned by Christopher, his chaplain, who, in 904, was also driven away by another faction, and Sergius III. was elected pope. Sergius completely restored the magnificence of the Lateran, which had been lowered by the Saracens from Sicily were now devastating Southern Italy; the Spanish Moors, having formed a settlement at Frasinetto on the coast of Liguria, overran the neighbouring towns of Liguria and the Huns entered the Alps to devastate the plains of Lombardy. It was then that Berengarius permitted the towns to fortify themselves with walls, ramparts, and ditches. At Rome, Theodora, a woman of whose charme er, and her daughter Marozia, wife of Alberic, paid considerable influence in minor affairs, and also in ecclesiastical affairs, and they brought about the election of John X., said to be Theodora's lover. [John X.] This pope crowned Berengarius emperor in the Vatican, with great pomp, a.d. 916. About the same time the Saracens were completely routed and destroyed on the banks of the Liris, by the united troops of Berengarius, and of the dukes of Benevento, of Naples, and of Gaeta.

In the year 921 several Italian nobles and the archbishop of Milan conspired against Berengarius, and called to the throne Roldulf III., king of Burgundy. After much fighting, Berengarius was assassinated at Verona, in March, 922. He was by all accounts a good, just, and humane prince, an age of barbarism. Hugh, duke of Provence, being carried by a strong party, came into Italy, drove Autudis, and was crowned king at Milan, a.d. 926. During this period of confusion, Rome was left to itself and its factions. The last of the Lo- rozian satelites entered the Lateran palace, murdered Peter, the pope's brother, and dragged the pope to a dungeon, where he soon after died; it was said that he was strangled. His successor Leo VI. died soon after, and Berengarius, having left his armed bands outside of the walls, is said, by Lutprand, to have behaved insolently towards the Roman nobles, and to have given a blow in the face to Alberic, Marozia's son, while the latter, by his mother's influence and that of his brother-in-law, Roger, king of Sicily, left the pope. Alberic, with the help of Beatrix of Austria, whom he had married, and his brother John XI., attended to his duties as pope, but he allowed him no share of temporal power, and watched him closely.

Alberic assumed the title of prince and senator of all the Romans, "De Graia humilis princeps alque omnium Ro- mani protector," It is said that he had even the senate of Rome consist at that time of a certain number of counts, each of whom presided over a region, and the "princes senatus," or president, was also the head ma- son. He was a great favourite in those parts, and such a power, "Romano post Tempus Reipublicae Libere," Albertus secured money in his name, with the legend "Albertius P." He governed Rome till his death, which happened about the year 954, and he appears to have administered it wisely; he was very moderate in his taxes, and very lenient in his economical affairs, and the clergy and convents. King Hugh was thus regarded on the north, and devastated its territory, but he could not enter the city. At last Hugh, through his tyranny and debauchery, became odious to the Italians, who induced him to deliver the keys of the city to his brother-in-law, who had taken refuge in Germany. Berengarius arrived with some troops, and entered Milan, where many Italian nobles and prelates joined him. Hugh, who had retired to Pavia, sent his son Lotharius to Milan, proposing to transfer the crown to his brother-in-law, the modest and venerable Lotharius so pleased the assembled people, that they unanimously proclaimed him king, but Berengarius exerred at the authority in his name, a.d. 946. Hugh returned to Provence, where he died. In the year 949 or 950 Lotharius made war upon the bishop of Ravenna, who was not a prince. He was murdered by Berengarius, who was proclaimed king, with his son Adalbert as his colleague, and both were crowned at Pavia. Beren- garius wished his son to marry Adelaide, the widow of Lotharius, who was only twenty years of age and on her request he shut her up in prison. The attempt was made in Latin verse by a contemporary nun called Rosenda. A priest found access to Adelaide's prison, and led her out disguised to Adisland, bishop of Reggio, who gave her a letter to her great-grandfather, the famous Countess Matilda. Otho of Germany, archbishop of Ravenna, being informed of all this, came to Italy with an army, but was defeated at Adalbert's march at Taurinum, and afterwards turned to Germany. He however allowed Berengarius to retain the crown of Italy as his vassal, after swearing fidelity to Otho in the presence of the court and army, except Otto Fruli and the March of Trevisio, which were kept under his immediate dominion. Otho himself handed to Berengarius a sceptre of gold, in token of investiture.
From this transaction arose the claims of the kings of Germany upon the kingdom of Italy. Berengarius however soon forgot the lesson that he had received: he laid siege to Canossa, intending to revenge himself upon Azzo, but Otto came again from Germany, defeated and deposed Beren- garius, and was himself elected king of Italy, as the archbishop of Milan, with the antient crown and other insignia of the Longobard kings. [Orso I]

Meantime, prince Alberic having died at Rome, his son Odostrus, a mere youth, assumed the title of prince of Benevento. Of this, it is certain that there were in that city, at the time, no less than 40 convents of men and 20 of nuns, chiefly Benedictines, besides a vast number of regular canons.

In the year 996 the Roman army came to Ravenna with a numerous army. Pope John XVI., having died about that time, Otto sent the archbishops of Exarchate, and Adalbert, son and colleague of Berengarius, to his residence at Ravenna, till he was deposed by Otto.

Pope John XII. crowned him emperor. He swore to respect the authority of the Roman see, and not to encroach upon its temporal rights and possessions. He was acknowledged sovereign of the old Aquitaine, and was acknowledged as the retained lord of the Roman duchy as a great imperial feudatory, in the name of the Carolingians. It has been observed by some writers that the imperial dignity was thus restored to the French kings, as the name of France was then restored to Italy, and that, to be elected pope, it was necessary to be consecrated deacon, or regens etus (De Administrando Imperio) calls Otto king of Saxony and France. But in the year 963 Otto returned to Rome, being called there by numerous complaints against pope John, who, it was said, had treated the towns in his dominions with cruelty and with violence. John escaped, and Odostrus became the new pope, and the new pope was the Vatian, whom having beard the charges against John, deposed him, and elected Leo VIII. The clergy, senate, and other orders, styled Pirmates Romanes civitates, sanctiated his deposition, and swore not to proceed in future to elect a pope without the emperor's consent. In the following year, after the departure from Rome, John re-entered the town, called together another council, which declared the election of Leo VIII. unlawful, and to put to death or mutilate many of those who had taken part in the former council. Mota and other cities of the kingdom were thus put under an emperor; and the chronicle Gerbert. [John XII.] Upon hearing this, Otto marched against Rome, but pope John dying, his faction elected Benedict V., whilst Leo remained with the emperor. Odo strus besieged Rome, and reduced it by famine. Bene- dict was then captured, and brought to Rome, where he was ex- cuted.

Both Leo and Benedict however died soon after, and Odo having sent the bishops of Speyer and of Cremona as his commissioners to be present at the election, John, bishop of Paris, was elected by the clergy and people, through the influence of pope Benedict XII., however, having incurred the dislike of the nobles by his haughtiness and hauniness, was seized by the prefect of Rome, and taken prisoner to a castle in Campania, where he remained ten months, after which, through fear of Otto, he was liberated and restored to Rome. Otto came to Rome, and hanged thirteen of the principal people, styled by some, tribunes, who had taken part in those proceedings; the prefect however escaped.

Rome remained tolerably quiet during the remainder of Odostrus's reign. In the year 973, it again fell a prey to disorder. A faction, at the head of which were a cardinal called Francone and a certain Crescentius, seized pope Benedict VI., and strangled him. Francone took possession of the papal chair; but he was soon driven away by the people of Rome and the Pope. Benedict VII. was then elected with the approbation of Otto II. a.d. 974. Nothing particular seems to have occurred at Rome till Otto II.'s death, which took place in the city in the year 983.

During the long minority of Odostrus III., there was anarchy at Rome. Cardinal Francone, who styled himself Boniface VIII., having returned to Rome, put to death pope John XIV., and again usurped the papal chair; but he died suddenly in the year 983, and his body was dragged through the streets by the populace. John XV. was elected his successor, but Crescentius, who is styled senatore di Roma, probably the chief senator, and by others consul, quarrelled with the pope, took possession of Hadrian's mausoleum, and obliged John to run away. Crescentius however soon after recalled him, and went with the senate in a body to ask his assistance. The deacon Romanus of Salerno says that the nobles, ' Romani Capitanei', had assembled in numbers at Rome. In the year 998 the empress regent Theophania, young Odostrus's mother, came to Italy, and visited Rome, from whence she issued several placta and diplomas. We are informed that at this time there were less than 200 convents of men and 20 of nuns, chiefly Benedictines, besides a vast number of regular canons.

In the year 998 Odostrus III. came to Ravenna with a numerous army. Pope John XVI. having died about that time, Otto sent the archbishops of Mainz and the bishop of Utrecht, and the Romans elected Bruno by the name of Gregory V. Otto crowned emperor at Rome. He cited before him Crescentius for his conduct to the late pope John, condemned him to exile, but forgave him at the intercession of the actual pope. But after Otto's departure, Crescentius quarreled with the new pope, and drove him out of Rome. Gregory repaired to Pavia, where he assembled a council, and deposed Crescentius. Crescentius however kept up a correspondence with the Byzantines, and his design was to place the duchy of Rome again under the allegiance of the Eastern empire. He arrested the legates of Gregory, and caused John, bishop of Piacenza, a Greek by birth, but who was raised by Otto to the dignity of the chair, to procure the imperial crown for him as an intruder. In the year 998 Odostrus came to Italy, and having collected an army, he marched to Rome, taking with him pope Gregory. The Romans in alarm seized the anti- pope John, pulled out his eyes, cut off his nose and tongue, and threw him into the Tiber river. After this event, Odostrus was deposed and exiled from the empire. In the year 1001, while Otto was at Rome, he was entreated by a certain holy abbot called Nilo to give up to him the person of that unfortunate man, and the emperor was inclined to release him, but pope Gregory insisted upon his being hanged ignominiously through the streets of Rome, for he was charged with the sedition of God. Crescentius, who had shut himself up in the castle of S. Angelo, was taken, but some say that he capitatulated; he and twelve of his partisans were beheaded by order of the emperor, and their bodies hung on the castle battlements. In the following year pope Gregory died, and Gerbert, archbishop of Ravenna, who had been Odostrus's pre- ceptor, was chosen pope by the name of Sylvester II. In the year 1001 a quarrel broke out between the Romans and the people of Tibur, which was settled by the intervention of the emperor. In the year 1003, the town was sacked by the people of Perugia. The story of his har- mous relations with the emperors does not seem authentic.

The line of Odostrus the Great, to whom the Italians had sworn allegiance, having become extinct with Odostrus III., the emperors considered it as their right to take the crown of Italy, and to chose Hardouin, or Hardwig, marquis of Ivrea, who was crowned pope at Pavia, in February, 1002. Hardouin was violent and overbearing; he maltreated several nobles and bishops, who applied to Henry II., king of Germany, offering him the crown of Italy. Henry came in 1004, by way of Trent; but finding the 'Chiusi' or defile of the Adige well guarded by Hardouin's forces, he followed another route by the sources of the Brenna, and arriving at Verona, was received by the great feudatories of Italy, who had mostly forsaken Henry, and asked for peace. He was met at Mantua by a league of the princes of Italy. Unfortunately a quarrel broke out between the Italians and the German troops, much blood was spilt, and part of Pavia was burnt. Henry soon after returned to Germany, and Hardouin recovered Pavia and part of the territory of Verona. Crescentius remained faithful to Henry, and the two parties continued at war for several years. This was the origin of the great rivalry between the Lombard cities, and especially between Milan and Pavia. In the year 1012, pope Gregory VIII. was chosen for his successor; but another party elected a certain Gregory, who obliged Benedict to leave Rome and to take refuge at king Henry's court in Germany. In 1013 Henry came to Italy with his wife Conguneda and a large army, and all Italy submitted to him. He then proceeded to Rome, where pope Benedict anointed and crowned him.
in 1014. The chronicler Ditmar says that twelve senators, six of whom wore their beards and the other six were shaven, ascended the steps of the church, each with words in their hands. At the gate of the Vatican Basilica, Henry was asked whether he would be the defender of the Roman church, to which he replied in the affirmative. An fray however took place between the people which the emperor dispersed. The following pope, Nicholas, he said, by John, the son of Crescentius, in which many were killed. Henry returned to the North, Hardouin having withdrawn to a convent, where he died.

In Rome all civil affairs were decided by the senate, but the ecclesiastical were directed by the emperor, or the pope or his vicar, and to the emperor, or his vicar the prefect of the city (the office having been restored by Otto I), who acted also as supreme judge in criminal matters, having received the investiture of the sword from the emperor for the punishment of heretics.

Conrad II. of Germany, Henry's successor, was crowned king at Milan and emperor at Rome in 1027. On this occasion another fray took place between the Romans and the German soldiers, and many were killed on both sides. The churches were sequestred on the following day to send to the emperor to beg his pardon: the members of the deputation were barbanded, the friars with swords hanging at their necks, the serfs with halties. Conrad forgave them. In 1036 Conrad came again to Rome and the pope Benjamin IX was driven away by a faction.

Henry III. Conrad's successor in Germany, was acknowledged king of Italy, but did not come to be crowned in the latter country for some years. In the mean time pope Benedict IX was so odious to them that they made conscience of the robberies and cruelties committed by his adherents, that the people of Rome drove him away, and elected for his successor John, bishop of Sabina, who styled himself Sylvester III. After six months Benedict returned with a strong army, and John fled. After some time Benedict intruded in his course, and seeing the general indignation roused against him, he sold the papal chair to John, or Gratianus, who assumed the name of Gregory VI. A.D. 1044. [Benedict IX.]

Gregory, who is reckoned among the lawless popes, found Rome deserted and the inhabitants on the point of deserting. The sight of Rome had been plundered and alienated, so that he had hardly enough left for mere subsistence; the roads were infested by robbers, and no one could travel to Rome except with a large armed party, and the offerings made to the sacred offices by the factions. Gregory, after trying exhortations and excommunications without any effect, collected a force of both foot and horse, with which he hunted down the robbers. The people of Rome, accustomed to live in the streets, being in no case a nation or a people, celebrated the sacred offices. At last Henry III. came to Italy in 1047, was crowned at Milan, and then proceeding southwards, arrived at Sutri, where he convoked a council, to which Gregory VI. was invited. There were then no less than twenty cardinals present, besides Benedict IX., and Henry III. The council deposed them all, and Gregory VI., on rising from his chair, laid aside of his own accord the pontifical robes. Henry entered Rome, and the clergy and the fathers of the council chose Suniger, bishop of Bamberg, who assumed the name of Clement II., and was consecrated on Christmas day: at the same time Henry was proclaimed emperor, after which great feasts were given in the Lateran palace. During the remainder of Henry's reign Rome enjoyed considerable tranquillity. His son, Henry IV., yet an infant, succeeded him under the guardianship of his mother Agnes. His minority was a troubled period for Rome. After the death of pope Stephen IX., in 1058, John, bishop of Velletii, an illiterate man, was tumultuously elected by the name of Benedict X. Pietro Damiani, and other cardinals, protested against the election as illegal, but they were obliged to run away for their lives. The emperor Agnes sent to Rome the monk Hildebrand, whose reputation for learning and piety stood very high, charging him to act in the place of Benedict, if that were possible. In order to avoid the controversy, a council was held at Siena, in which Gherardus, bishop of Florence, was elected pope under the name of Nicholas II. The following year Pope Nicholas proceeded to Rome, and Benedict of his own accord resigned his claim. Shortly after began at Milan the solemn controversy concerning the marriage of the clergy; those of Milan followed the example of the Eastern church, which does not require celibacy of its presbyters. A decree of the name of Arulius formed a party against the married clergy, and excited the people against them. Guido, archbishop of Milan, favoured the married priests, and excommunicated Arulius. Nicholas immediately deposed Guido, and excommunicated him, and the marriage of the priests was forbidden. But the arrangement was only precarious, and the schism lasted much longer. Arulius and Landulfus Sennor have given an account of the matter at some length in the year 1058. [Scripores, vol. iv.] In 1059 pope Nicholas issued a decree limiting the right of election to the cardinals, leaving however to the rest of the clergy of Rome the right of approving the election. For the origin of and alterations effected in this statute, consult the acts of the papacy.

Nicholas died in 1061, and much contention arose about the election of a successor. One party, with Hildebrand at their head, contended for a free election, without waiting for the emperor's consent; another party went to Germany to ask Henry's approbation. At length the former prevailed, and Anselmus, bishop of Lucca, was elected and consecrated pope, under the name of Alexander II. Thus the Romans asserted the right of free election, and the imperial confirmation was no longer considered necessary for the constitution of a pope. The demand of Henry, irritated at the conduct of the Romans, refused to acknowledge Alexander, and at the same time the Lombard bishops, especially those who were favourable to the election of Adalward, bishop of Regensburg, an opponent of the imperial court, elected Cadalas, bishop of Pavia, a wealthy, but of loose principles, who assumed the name of Honorius II. Cadalas, having raised with his money an armed force, marched in the following year to Rome, where he was received with considerable fire and rage. His object was to remove from the see of Rome the boisterous and turbulent popes, and under the name of Leone, or Pierreon, he converted a Jew, very wealthy, but disliked by the people as a usurer. Cadalas defeated the partisans of Alexander, but Godfrey, duke of Luxembourg, having come to his assistance, Cadalas was obliged to retire. He returned the following year, entered the Lateran from the suburb, and took possession of the castle of S. Angelo, but the people rising in arms, he was unable to enter the Vatican Basilica, and he shut himself up in the castle, where he remained blockaded for nearly two years, and at last escaped with his retinue, setting fire to the castle range in which the acknowledged pope. He died in 1073, and was succeeded by Hildebrand, who assumed the name of Gregory VII., by which he is known in history. Soon after the famous quarrel of the investitures broke out between the church and the empire. The estates of Gregory's antecedents are related under Gregory VII. Rome was entered by force by the emperor Henry, in the year 1094, and Guibert, archbishop of Ravenna, was consecrated pope under the name of Urban I., who was crowned Henry emperor in the Vatican. On the approach of Robert Guescard, with his Normans, Henry withdrew and Robert entered the city, but it seems that his soldiers, and especially the Saracen bands in his service, committed all sorts of outrages and ravages. In 1096 the Lateran to the Colosseum was set on fire. When Robert retired from Rome to his dominions, Gregory, not thinking himself safe, withdrew to Salerno, where he died, A.D. 1095. His successor, Victor III., was opposed by the antipope Guibert, and the imperial party, who had possession of the Vatican and of the Capitol, until the counts Matilda came with her troops, when Victor entered Rome and took possession of the city, which however he was soon after obliged to leave again. He died at Monte Cassino, and his successor, Urban II., was elected. Urban II. did not leave Rome, but went away Germany to preach the crusade. He was succeeded by Paschal II. During his pontificate Henry V. visited Rome to be crowned, A.D. 1110, and a scene of outrage followed, which is related under Paschal II.

In 1116 we find Pietro de' Leone applying to Paschal to use influence to have on the question of residence of the popes. The people of Rome, who disliked Pierreon and his family, elected the son of the late prefect, a monks boy, and presented him to the pope for his confirmation. Paschal II. was a most zealous supporter of the law of the week between the populations, led by Tolomeo, bishop of S. Agata, the prefect, and the pope's armed men. The country round rose in arms, and Paschal withdrew to Sessa. The monks burned and destroyed the houses of Pierreon and his family. In the following year Henry V. came again to Rome, and was crowned by the archbishop of Braga. Paschal having fled to Benevento, which had become a favourite place of residence of the popes. Henry won the hearts of the chief Roman nobles by gifts and promises, and even gave one of his
daughters in marriage to one of the Tolomei, a noble family of Arce from Calabria. On his return, he came with his troops to Anagni, where he fell ill; he however advanced to the gates of the Vatican, which was occupied by the Imperial party, and while the military engines were being disposed for the attack, Paschal expired, a.d. 1118. He became pope, and, the people of the Lateran, and the three days after the cards were elected Giovanni Gaetano, cardinal chancellor of the Roman church, who took the name of Gelasius II. Cencio Frangipane, a partisan of the emperor, disapproving of the election, and thinking Gelasius however, would not be papa, to the pope, an old man, by the neck, and kicked him and dragged him to his own house, where he kept him in prison. But the prebend of Rome, many of the nobles, and the people of Transalpine rose against Frangipane and his adherents, and obliged him to release the pope, who was in triumph back to the Lateran. Henry however returned to Rome with armed men, and the pope, alarmed, fled by night to Ardea, from whence he went to Gaeta. Henry then caused an antipope to be elected, who assumed the name of Gregory VIII. After a time Gelasius returned to Rome, and a battle ensued between the partisans on one side, and the opposite faction, led by the Frangipani. Gelasius declared that he would remove his residence far from Rome, which Frangipani had forsworn, but his daughter, who was in the rule. He embarked for France, leaving the bishop of Porto as his vicar at Rome, a Norman, named Stephen, as gonfaloniere, and conferring the son of Pierleone as prefect of the city. He died in the sack of Rome on January 11, 1119. His successor, Calixtus II, was elected in France by the few cardinals who were there, and his election was approved by the cardinals and clergy of Rome as a matter of necessity, circumstances preventing the election being held. He was not able to give the antipope Gregory a name in Italy, and in the following year, with the assistance of the Normans, he entered Rome, and having taken the antipope prisoner, shut him up in a fortress. He died two days later, and a senate was held, and Henry V. Calixtus died in 1123, and the cardinals elected Lambert, bishop of Ostia, who assumed the name of Honorius II., but a body of cardinals assembled in the church of St. Pancratius elected Theobald, surnamed Bocca di coro, cardinal of Santa Anastasia. The powerful family of Frangipani supporting Honorius, Theobald was induced to resign his claim, and Honorius submitted to a second election by the clergy and people, who confirmed him. This set the clergy and people, of which the pope was a part, in Nicholas II., the cardinals had not yet monopolised the exclusive right of electing the pope. Honorius granted to Count Roger of Sicily the investiture as duke of Apulia and Calabria. On the occasion of the disputed succession to the throne of Sicily, who had been left to a child. Honorius was in Sicily, was excommunicated and proclaimed. He had attended the council of Pisa by himself. He was elected as pope, in the name of the senate and people of Rome against Tun. This insurrection of the Romans is partly attributed to the spread of the republican doctrines preached by Arnaldo da Brescia, who had been banished from Rome about five years before. Arnaldo da Brescia. Innocent, unable to put down the revolt, fell ill, and died in September, 1143. He was a remarkable pontiff for his abilities and disinterestedness. His successor Celestine II. died after a few months, and Lucius II., who succeeded Celestine, found himself controlled at Rome by the senate, which sat in the Capitoli and exercised over power. As for the nominal Imperial authority, it was utterly obliterated, the crown of Germany being then contested between Conrad of Swabia and Henry Guelph. In 1144 the Romans elected as princes sensius, and patrician of Rome, Giordano, another son or grandson of Pierleone; as Alberic had been elected two centuries before. In 1145 Lucius attempted to force the Capitoli at the head of some armed men, but the senators and the people threw showers of stones upon him, one of which mortally wounded the pope. The cardinals elected Bernard of Pisa, a disciple of St. Bernard, and in the name of the pope of Milan, and, as soon as possible, he made inquiry into his election and that of his predecessor Innocent. Innocent refused this apparently reasonable demand, but as he was not strong enough to drive out Anselmus, the Imperial party occupied the Vatican, it was resolved to crown Lotharius in the Lateran. On the 25th of January, 1145, Lotharius turned to the north, and Innocent soon after followed. Innocent had a powerful support in St. Bernard, the celebrated abbot of Clairvaux, who induced the kings of France and England and the pope of Milan to send him to Lombard towns, to acknowledge him as pope. [Bernard, St.] Lotharius, in 1137, after an expedition into Apulia against Roger of Sicily, returned northwards by way of Rome, when Innocent again took possession of the Lateran; but the nave was at that time turned to the north, and Innocent soon after followed. Lotharius however, was restored to his residence, and died at Trent the same year. St. Bernard advised both Innocent and Anselmus to take Roger of Sicily for their umpire, and each to send three cardinals to Salerno. Roger, after listening for four days to the two parties, could not come to a decision, and sent three cardinals on each side to accompany him to Sicily, where he would assemble a council of the bishops and abbots of that kingdom. Anselmus dying (a.d. 1138), his party elected in his place Cardinal Gregory, who assumed the name of Victor IV.; but St. Bernard by his eloquence persuaded him to renounce in favour of Innocent. The sons of Pierreone also made their submission, kneeling at the feet of Innocent, and acknowledging him as pope. Thus ended (St. Bernard, Epist., 328) this schism, which is one of the most intricate as a question of right in the whole history of the papacy. The cardinal of Rome in his 'Life of Innocent II.,' observes that, through the exertions of Innocent and of St. Bernard, 'a profound peace reigned at Rome, such as was not remembered for a long period.' Innocent led his troops against Roger of Sicily, but was defeated and taken prisoner near St. Germano. Roger treated him with great honour, and obtained of him the confirmation of his title of king, and of that of his son as duke of Apulia, a.d. 1139. Innocent returned to Rome, where the people bore impatiently the temporal power which was exercised by him with a vigour not unbecoming a sovereign prince. The union broke out in 1141, led to a total change of affairs. The people of Tiber, having surrendered in 1142 to Pope Innocent, gave up themselves and their county or territory, which embraced the valley of the Upper Anio, to Pope Innocent and his successors.' This excited the jealousy of the Romans, who requested the pope to raze Tiber to the ground, and to disperse the inhabitants. Innocent refused, and the people, in 1153, ran to the Capitol, restored the Roman liberty. This pope was of great importance to the papacy, as a sovereign council, and declared war again in the name of the senate and people of Rome against Tiber. This insurrection of the Romans is partly attributed to the spread of the republican doctrines preached by Arnaldo of Brescia, who had been banished from Rome about five years before. [Arnaldo da Brescia. Innocent, unable to put down the revolt, fell ill, and died in September, 1143. He was a remarkable pontiff for his abilities and disinterestedness. His successor Celestine II. died after a few months, and Lucius II., who succeeded Celestine, found himself controlled at Rome by the senate, which sat in the Capitoli and exercised over power. As for the nominal Imperial authority, it was utterly obliterated, the crown of Germany being then contested between Conrad of Swabia and Henry Guelph. In 1144 the Romans elected as princes senatus, and patrician of Rome, Giordano, another son or grandson of Pierleone; as Alberic had been elected two centuries before. In 1145 Lucius attempted to force the Capitoli at the head of some armed men, but the senators and the people threw showers of stones upon him, one of which mortally wounded the pope. 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stayed them. They abolished the office of prefect of Rome, and obliged all the nobles to swear allegiance to the patrician Giordano. Eugenius excommunicated Giordano, and in the following year, being supported by the people of Turin, he returned to Rome. The Romans, by virtue of the convention in which they had recognised the senate as a legislative body, and the Romans agreed to dismiss the patrician, restore the prefectship, and acknowledge the pope as their sovereign. But this concord was broken, and in 1146 Eugenius was obliged to leave Rome. He returned again in 1149, but was soon obliged to leave it, and take refuge in Campania. St. Bernardi, in his book "De Consideratione," which he addressed to Eugenius in his exile, observed that the perverseness of the latter was notorious for reasons, that they were a people unused to peace, fond of tumults, intractable and remorseless, not knowing how to obey unless they could no longer oppose resistance. In 1152 Eugenius returned to Rome at a convention, the terms of which were not known; and he applied himself to gain the affections of the lower orders by his liberality, and he declared that from the new king of the Germans, Frederic I., by which the latter bound himself not to enter into any agreement with the people or senate of Rome, nor with Roger of Sicily, without the participation of Eugenius or his successors, and to declare in St. Peter's that Pope Eugenius was the only legitimate pope, promised to crown him emperor. (Vivale, "Storia Diplomatica dei Senatori di Roma." Of Anastasius IV., who succeeded Eugenius, little or nothing is known. He died in 1153. He was succeeded by Nicholas Breakspeare, bishop of Albano, an Englishman, who was crowned by Adrian IV. The senate was then in the plenitude of its power; money was struck with the heads of St. Peter and St. Paul on one side, and the legend "Senat. P. Q. R.* on the other; all acts were done in its name after the restoration of the senate, "Anno ... Senator." It appears that the senators were fifty-six in number, annually renewed or confirmed, they were elected by a body composed of delegates, ten from each region of the city. The president of the senators was styled "Dei Gratia Summi Senator;" it appears also that there were consuls chosen from among the senators.

An affair which took place in Rome soon after Adrian's election, and in which a cardinal was mortally wounded, induced the new pope to leave Rome, which city he placed under an interdict, forbidding divine service to be celebrated within its walls. This novelty, which had never occurred at Rome, made a great impression on the minds of the people. Arnullo, and remove the interdict. In 1153 Frederic I. came to Rome to be crowned, accompanied by an army. Before he entered the city, he gave orders that Arnullo, who had taken the vow of a monk at Campania, should be put to death. The count of Campania gave him up to the prefect of Rome, by whose sentence he was hanged, his body burnt, and the ashes scattered to the wind. The circumstances attending Frederic's coronation are given under Adrian IV. Frederic spoke to the Romans as their master, but he could not subdue them; his soldiers took possession of the Vatican, but the people of Rome kept aloof from the ceremony of his coronation: they even assailed and killed a great number of the Roman nobles, and both Frederic and the German bishops were prevented from entering Turin.

The wars of Lombardy prevented Frederic from attending to the affairs of Rome, and Adrian, having quarrelled with him on some points of jurisdiction, had no support to expect from him. Adrian during the rest of his pontificate was generally absent from Rome, where probably his temporal authority was not great. He died at Anagni in 1153. His successor Alexander III., although duly elected by the majority, found a considerable opposition, which was supported by some votes in his favour, and being secretly encouraged by Frederic's missus at Rome, assumed the pontifical robes, and took the name of Victor IV. The Francipani and the people took the part of Alexander, who had agreed to return to Rome. The antipope was consecrated by some bishops of his party at Faria in Sabina. Alexander returned to Rome in 1161, but finding that the antipope, supported by the emperor and by many of the Roman nobles and senators, was master of the field, he went to France. He left however a cardinal as his vicar at Rome, who took session of the Vatican. The antipope died at Lecce in 1164, but a successor was appointed through the mire of Frederic, by the name of Pachial III. In 1167 Alexander returned to Rome, and was received at once by the united senate, clergy, and people with great applause. Alexander was then at open variance with Frederic. The Roman, who disliked that emperor ever since he had been at the battle of Cerbano, was excommunicated and excommunicated against him, and which made a long resistance. The Roman army attacked Tusculum and Alba, which towns were few of the Roman legionaries, commanded by Vincent of Lucca, and a squad of Gualtiero of Rignauldino, archbishop of Cologne, and Christian, a bishop of Mainz, who commanded the emperor's forces in central Italy, and a battle took place near Tusculum, in which the Roman army was completely routed by the Imperial troops and Tusculum, and their loss has been by the exaggeration of contemporary chronicles, compared with that of the emperor. Soon after, Frederic came in person, accompanied the antipope Paschal; he forced the walls of the town, but found the Basilica strongly defended by the mass of St. Peter's, that is to say, a body of militia raised in the domains of the Roman see. After a week's siege, the German soldiers set fire to a tower close to the Basilica. The little bridge leading to it was burnt, and a dispute arose between the leaders of the Romans, Alexander to prudent to quit the city. The Papal galleys also set fire to the Tiber as auxiliaries to Frederic, and the Romans came to terms with him. Frederic was accepted as the metropolitan by the city, and the Roman church, as to the exception of the Francipani, the Leonis, and some other nobles, acknowledged Frederic as emperor and king of the Romans. In the oath tendered on occasion of the treaty (1162), the king, as Victor III., Rome, seeing a good understanding restored between pope and emperor, thought it prudent to come to an amicable arrangement with the former, and sent a deputation to invite him to return to Rome. Alexander sent three envoys to convey the pope, but to the pope's surprise, they were not agreed, after long debate, that the senate should exact that on the renewal of that body, at the next Sepulchral council, they should take the oath of allegiance to the emperor, and that the emperor, if he tried, as a returned pope, would be do nothing contrary to the papal dignity. The Vatican was raised as a pope, with all the rights of St. Peter. Alexander maintained his residence in Rome, A.D. 1179, amidst popular acclamation. In the year 1181, Alexander died; a pontificate distinguished by his great qualities, and the events and length of his pontificate. He was succeeded by Lucius III., a weak man, whose accession the Romans proposed to repudiate, but where the claim of the admiral of the city, indepe of the pope. Lucius opposed this measure, and the emperor was not allowed to leave Rome, and the Patrimonato was appointed. Lucius died at Verona, in 1183. His successor, Urban III., was elected and consecrated at Verona, and he died in 1185. At Ferrara, without, it seems, having crowned Urban. His successor, Gregory VIII., died at Bologna in the following year, and the successor of Gregory was styled Clement III. came to an arrangement with the Romans; one of the Roman cardinals, Evaristus of Salerno, was consecrated, but that the senators elected were to receive the "papal mantum" from the hands of the pope. Vitali, text of this convention, which is styled "Concordia," in the year 44 of the senate, with the names of all who were present at the treaty, and was consecrated, and was much increased by the ambition of belonging to that . Celestine III., who succeeded Clement in 1199, died in 1203, and in the future they should not exceed fifty-six. At the same time solemnly determined the provisions of the Senate, which is found in the
During Celestine's pontificate however the Romans became tired, it is not very clear, that ecstasy and the pope only one senator, who made the head of their militia, and their first judicial magistrate; the senatorial palace in the Capitol was his residence. The first senator thus appointed was Benedetto Cistareggi, who, after two years, was succeeded by Giovanni Capocci. The Romans obliged the towns of Salerno and the Campania to receive in future their magistrates from Rome. Innocent III, who succeeded Celestine in 1198, was not a man to forego an opportunity of asserting and exalting his authority. He contrived by his influence to have the pope reinstated from the powerful barons and he died of the form of the oath which that magistrate was to take to him. The senator bound himself to maintain the pontiff in possession of the rights which belong to St. Peter's see; not to conspire against him, but to reveal to him all consipacies which might come to his knowledge and lastly, to provide for the safety of the cardinals and their household within the jurisdiction of the city of Rome. (Vitali, Sarsi Diplomastia.) At the same time, Innocent, under the pretence that the senators had, on the contrary, continued to the German crown dubious, obliged the prefect of the city, who had been till then appointed by the emperor, to receive a fresh investiture from himself, and pay allegiance to him; and he also removed the judges and public notaries from the powerful barons and he died of the form of the oath which that magistrate was to take to him.

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1304, however, finding that the factions were still active in Rome, and many crimes were committed with impunity, he repaired to Perugia, where he died, and, as it was reported, by poison. The interregnum lasted eleven months, the cardinals being divided between those who wished for an Italian pope and those in favor of Philip of France and Charles of Naples, wished for a French pope.

The people of Perugia, tired of delay, kept the cardinals in arrest in the Conclave Hall, and threatened to starve them if they did not come to a decision. The French party prevailed, and Bertrand de Got, archbishop of Bordeaux, was elected. It is said that he had promised to Philip le Bel to restore the Colonna cardinals to their dignities and possessions, to allow the king to dispose of the tithes for five years, and to give certain number of cardinals access to his pleasure, and, lastly, to remove the papal residence to France. Bertrand, who assumed the name of Clement V, did not go to Rome: he was consecrated at Lyon, and, having summoned the cardinals to France, fixed his residence at Avignon, a.d. 1305. For seventy years after this the popes resided at Avignon; and this period was styled by some Italian writers the Babylonian captivity.

Period VII. — The Papal See at Avignon, 1305-1376. — During this period Rome and its territory were administered, in part, by papal legates. The popes legates to the great families Colonna, Orsini, and others held the chief authority in their hands, and the city was often a prey to factions and civil war. Two senators were elected annually by the pope from among them, but in times of peace they were elected by the people. In 1311, Henry of Luxembourg, king of Germany, commissioned Stefano Colonna to uphold the Imperial or Gulibeline party at Rome, preparatory to his going there to be crowned emperor. The opposite party, or Guelfs, led by Orsini, and afterwards by Robert of Naples, had taken possession of S. Angelo, Borgo, the Vatican, and all Trastevere, and also of the Capitol, and of the tower of the market, which was then at the foot of the Capitol. [Orsini.] The Colonna party fortified the Pale, and held the gates of the city, and the people called Milizia, which was afterwards enclosed within the monastery of Santa Caterina da Siena.

The streets were barricaded, and the whole town was in arms. At last Henry came, with a considerable force of men at arms, and papal troops, and retook possession of his troops and those of king Robert, but Henry, being unable to take the Vatican, was crowned emperor in the Lateran, by the papal legate, soon after which he left Rome.

When Louis of Bavaria came to be crowned emperor, accompanied by Castruccio Castracani, in January, 1328, the ceremony passed off more quietly. Louis, supported by Sciarra Colonna, took possession of the Vatican. From that time on and for the next six years the people who elected the pope were called the senator, or captain of the city of one year. Louis was crowned in the Vatican by two bishops, who however had no papal commission for the purpose, and one of whom was even under an interdict. The emperor appointed Castruccio senator and imperial vicar, and afterwards created a 'parlamento,' or assembly of the people, in the square before St. Peter's, in which he summoned John XXII, who was at Avignon, by the name of Jean de Calais, or any one to answer for him; but no one appearing a synode of the clergy demanded that the accused should be tried en comum, as guilty of heresy and high treason, and the new pope or antipope was elected by the name of Nicholas V. [John XXIII.] It was also ordered that the emperor, with the papal approbation, that every future pope should reside at Rome; and if absent for more than three months, should be considered as deposed. Louis however left Rome, Castruccio died, Nicholas renounced his claim to the papacy, and pope John resigned his residence to the emperor, although he was determined to reside at Avignon. It was soon after this that the electors of Germany passed a resolution declaring that in future the king of Germany elect should be considered emperor at the king of Romans, without the sanction or consecration of the pope.

When Peter of Limoges was elected pope by the name of Clement VI, in 1342, the Romans sent him ambassadors, one of whom was Cola di Rienzo, or Niccolas, the son of Lo- reto, a tavern-keeper, to beg the restoration of the papal see to Rome. Petrarca, who was at that time reading at Rome, where he had received the poetical crown in the Capitol from the hands of one of the senators, also2 contemned to exert himself to induce the pope to return to that capital [Petrarch.]

In 1347 began the insurrection of Cola di Rienzo. Rome, in the protracted absence of the pope, was left a prey to factions, and the six months of the two senators, and it may be easily imagined that little harmony subsisted between those two head magistrates. Cola was a man of warm imagination, imbued with vague and confused ideas of the former glory of Rome, and endowed with natural gifts of eloquence, which he exerted in public against the orders of the nobles and the tyranny of factions. The province of them by acclamation their tribune. He went to the Capitol, drove away the senators, and assumed the title of Comune. The friars, to gain the sympathy of the people for the weal of Italy, friend of the world, tribune ascended. He appointed various magistrates, mostly deserving men, and put to death several faction leaders who were accused of heinous crimes, and obliged the rest to swear obedience to him, under pain of banishment. He also sent ambassadors to various towns and princes, for the purpose of forming a union of all Italy. Perugia, Arezzo, and other cities, submitted to him; and he threatened with war Venetia, which refused allegiance. He summoned Clement VI to Rome, and, with Cola's permission, he assured him that he was inspired by the Holy Ghost, and that he followed its dictates. He arrested the heads of the families Savelli, Orsini, Colonna, and others, and threatened them with death, but he only banished them. The exiled Orsini, one of the houses of Colonna, had in alliance against Rome; but the people, led by Cola, issued out of porta S. Lorenzo, defeated them, and killed several of the Colonna. In the following year however, Cola having sat with a check at the siege of the castle of Marma, was wounded by a stone, which killed him. Lorenzo de' Medici, by the name of Cola, by which he escaped, disguised as a monk, to the Abruzzi, and there by the name of Cola. The Colonna re-entered Rome; and Stefano, a Sienese, restored the city to the papal see for 30 years. The papal see was held by Cola, and annull ed all the acts of the tribune, and appointed two senators, one of the Orsini and one of the Colonna. Cola di Rienzo, being taken, was confined in a prison at Avignon. In 1348 Queen Joan I. of Naples sold Avignon, and the territory to the papal see for 30 years. In 1353 a tumult broke out at Rome, in consequence of scarcity; and one of the two senators, Bertoldo degli Orsini was killed by the mob. Stefano Colonna escaped, and after some time Pope Innocent VI. sent Cardinal Gil Albornoz, his legate, to Italy, to put down the rebellion. Albornoz took with him Cola di Rienzo, to assist him in quieting Rome. Cola repaired to Rome in 1354, being appointed senator by the pope. Cola took possession of Rome, but Baliano, full of remorse, and exhaved that he had been guilty of much violence and extortion. The Colonna however were still his invertebrate enemies, and Cola was rashness ruined himself. He had a foreign duty upon him, he caused Pandolfo da Guido, a man much beloved by the people, to be beheaded on slight grounds; he was suspicious and cruel; and the people, disgusted with a pope in September, 1354, burnt his house, attacked him at the Capitol, and having caught him as he was searing a house, stabbed him to death. The acts of Cola di Rienzo were considered very interesting by the humanitarians of the order of Rome. His life, written in the Romanoget, or dialect of the lower classes of Rome, is inserted in Muratori's great collection.

The papal authority was now re-established in Rome, and in 1358 it was decided that there should be only one senator yearly appointed by the pope, and that he was to be a stranger, and unconnected with any of the patriotic families of Rome. But for many years after, Rome being frequently disturbed by insurrections, the opportunity of appointing the senator, and the people have the appointment in their own hands. In 1377 Urban VI. came to Rome, where Albornoz had prepared everything for his reception. [Albonesi.] The pope found Rome in a state, full of ruin, and exhaved that the truce of a century of anarchy. In 1370 Urban
Rome was now, nominally at least, subject to Pope Alexander V, to whom the keys of the city were sent with a deputation from the people, urging him to come and fix his residence there. Alexander however died at Bologna in May of 1400, and the legitimate Count of Anjou succeeded to his place by the name of John XXIII. The new pope visited Rome in the following year, together with Louis of Anjou, who afterwards moved on towards Naples with a large force, under the command of Paolo Orsini, Sforza Attendolo, and the celebrated condottiere, Trotti, who defeated Ladislaus near Roccasecca; but Louis, through want of money and provisions, was unable to follow up his success, and was obliged to return to Provence.

In the following year, the great condottiere Sforza Attendolo, whom the pope had made Count of Cotignola, having had some differences with Paolo Orsini, abandoned the pope and the Anjou party, and entered into the service of Ladislaus. The pope now thought it prudent to make peace with Ladislaus, and in 1403 he made a treaty with the pope, whereby he promised to pay the pope 100,000 florins. But in 1413 Ladislaus broke the peace, and sent an army under Sforza to invade the March of Ancona, while another body under the condottiere Trotti, entered Rome by a breach in the wall: the pope ran away to Naples, pursued by the Neapolitans, who killed and plundered several of his retinue. The pope had displeased the people of Rome, by levying heavy taxes, especially upon wine. Ladislaus came to Rome, took the Castle of S. Angelo, occupied the whole Roman state, and afterwards advanced towards Florence, leaving behind him all the rest of Italy, when he was attacked in his camp near Narni by a contagious disease, of which he soon after died at Naples, A.D. 1414. Upon his death the papal authorities, supported by the nobles and people, recovered possession of Rome. [John XXIII.]

The general council, having assembled at Constance, deposed John XXIII, as well as his two competitors Benedict and Gregory, and named Cardinal Colonna, by the name of Martin V, A.D. 1417.

Rome was in the power of John's legate, when Braccio da Montone, a celebrated condottiere, attacked it, and being introduced by some partisans, assumed the title of defender of the city, saying that he would keep it for the future pope who should be elected. He appointed a new senator, and besieged the castle, in which the legate had shut himself up. The legate applied for assistance to Jean II., who had succeeded Ladislaus on the throne of Naples. Jean II. sent Sforza, who entered Rome, defeated Braccio (who retired to Perugia), changed the authorities, arrested Cardinal Stefanacci, who had taken the part of Braccio, and confined him in S. Angelo, where he was probably put to death, being heard of no more. In the next year, 1417, Sforza returned to it, and defeated Braccio for Queen Joan. In 1419, the new pope Martin V. came to Rome, Queen Joan having made an alliance with him. During his pontificate, he strove, and in some measure succeeded in restoring order to Rome. The council decided that Cardinal Colonna, by the name of Martin V., died in 1431, and was succeeded by Eugenius IV., who did not imitate the wise conduct of his predecessor. Eugenius had been supported in his election by the Orsini party, and he began his pontificate by the negotiation of the pope, at the head of which were the nephews of the late pope, and he put to death more than 200 of Martin's agents and adherents. Cardinal Colonna left Rome, and his rela-
tives, having collected their feudat retainer, assaulted the city; but they could not enter it, and all their houses and those of their friends in the town were plundered by the mob. In 1433, Fortebraccio, a captain of the pope, revolted, seized Tivoli, and threatened Rome; and in the following year Francesco Sforza, the son of Attendolo, pretending to act in the name of the council of Basile, which was at open variance with the pope, occupied the Castle of St. Angelo. The people of Umbria, led by Eugenius sent his secretary Biondo, the historian, to treat with Sforza, and agreed to make him vicar for life of the March of Ancona, and gonfaloniere of the Roman Church.

Another and however, Piccinino of Perugia, urged secretly by Filippo Maria Visconti, who aimed at enlarging his dominions at the expense of the pope, joined Fortebraccio with a body of horse, and advanced to the walls of Rome. The people, excited by the Colonna, and weary of the oppression of the papal officers, ran to arms, arrested Cardinal Condulmero, the pope's nephew, and invested the pontifical palace, from which Eugenius had just time to escape, disguised as a monk, to Ostia, where he embarked for Tuscany. Fortebraccio and his bands entered Rome, and gave themselves up to plunder and bloodshed, and all sorts of violence. The Romans, being weary of this disorder, sent two bishops to the pope, to beg his return; but the pope remained absent, delegating his authority to the Cardinal of Ferrara, a bold uncompromising man, who resorted to the sword and the balter, restored peace to Rome and its territory, A.D. 1437. He reconquered Foligno and other towns for the pope, but at last he became suspected of a secret correspondence with the duke of Milan and with the papal army, and the pope ordered him to be arrested. Piccinino was mortally wounded in defending himself, and being taken into the Castle S. Angelo, died there, A.D. 1440. In 1443, Eugenius returned to Rome, where he opened a council in the Lateran. He formed an alliance with King Alfonso of Naples against Sforza and the Florentines, and thus contributed to keep all Italy in a state of confusion for several years longer. Eugenius died in 1447. His long contention with the council of Basile, and with the antipope Felix, and his other transactions as head of the church, are noticed above. Eugenius IV. was the last pope who had been expelled by Rome from an insurrection of the people. He restored many churches and other buildings in that city.

His successor, Nicholas V., is one of the most illustrious in the long series of popes. He restored peace to Rome and to all Italy, ended the schism with the antipope Felix, embellished Rome with useful buildings, restored the wall and the Basilica, and began the Vatican library: he was also welcomed as having returned to Rome, in which the city recovered from the distractions and calamities of past ages, and became again a seat of learning, of arts, and of philosophy. [Nicholas V.] In 1452, Frederic III. of Germany came to Rome, with an army which had been occupied without assistance by the armies of the French executive, and though not actually pillaged by the soldiery, it was fully plundered in a more systematic manner; generals, émissaries, and other agents of the Dukes of Burgundy, who made it pay dear for what they called its deliverance to the French.

In 1800 the new pope, Pius VII., recovered possession of Rome, and the memorable events of his long troubled pontificate are noticed under Pius VII. The restoration of 1814 there has been no material change in the political condition of Rome. The popes who have done most for improving and embellishing Rome have been Nicholas V.; Paul II., who built the Palace of Vene- diction at the first; Benedict XII., who restored the Lateran's church; Gregory XIII., who founded the Roman College; Sixtus V., who raised most of the obelisks; Pasquale Borghese, who built the splendid church of Santa Maria Maggiore, the palace Borghese, and other structures; and Alexander VII., who embalmed the Piazza Navona; Alexander VII., raised the present building of the University; Innocent XII., who built the palace for the courts of justice, who; Benedict XIV., and though not least, Pius V., who succeeded him, contributed materially to the embellishment of modern Rome. The French administration during its second occupation restored and ornamented the city.
MODERN ROME (continued).

A sketch of the actual papal administration, its judicial system, its finances, the management and trade of the country, and other statistical details, are given under PAPAL STATE.

With regard to popular education, Rome has adopted no general and uniform system. The teachers of the primary and secondary schools, and the parish priests, who have established parish schools, in which both poor boys, from five to twelve, are instructed gratis. Other schools are kept by the Societies, the father of the Christian doctrine, the Ignorantians, and other denominations. These schools are in part gratis or, for a trifling fee, writing, arithmetic, grammar.

All the children of each parish are required to attend at the parish church every Sunday afternoon to hear the catechism explained, and to be questioned by the rector on the principles of religion and morality. Besides this, the curate (Soto Curato) of the parish generally keeps a private school, in which he teaches, for a trifling remuneration, writing and the rudiments of Latin. There are also six schools, called regioriae, kept by private teachers, in which about 2000 boys of the middle ranks, ranging from half a dollar to a dollar a month, are taught reading, writing, arithmetic, and the elements of Latin and French. These schools are subject to the inspection of a deputation of clergyman, who report to the Cardinal Vicar, who, in institutions of this kind, is titular of the Orphan's Asylum, that known by the name of Tabl Giovanni, the foundling hospital, that of S. Michele already mentioned, supply elementary instruction to their inmates. Females are instructed in some convents, and, which is often the case, a nun, lodged, boarded, and instructed, and partly defrayed, by the produce of their labour, the expenses of the institution, the remainder being made up by legacies and subscriptions.

Some evening schools for the children of the working classes, of late years been opened at Rome by benevolent individuals.

For scientific education there is the university called Archiginnasio della Sapienza, which is attended by nearly 1000 students, and has a library, a cabinet of natural history, and other appointments. Rome, among the universities of Italy, has a college, which is now again in the hands of the Jesuits; it has a collection of antiquities and an observatory; and the colleges Nazareno and Clementino, for boarders chiefly of the higher class. An account of the Gregorian college is given in the 'Saturday Journal of Education.'

Several public libraries are daily opened at Rome; the principal are those of the Dominican convent of La Miera, and that of the Augustine convent, called Angelica.

Our impression is that we are at Rome more at home than in any other Italian city. The principal hospitals are those of S. Spirito and S. Michele, already noticed is the first part of this article; the fever hospital of the Lazzari; the hospital of La Consolazione, at the foot of the Capuchins; a source of crime for the ignorant and weak, of those diseases that of the Incurabili, or S. Giacomo, near the Corso; the lying-in hospital of S. Rocco; the hospital of Santa Trinita dei Pellegrini, for poor convalescents; and that of the Ben Feretelli, in the island of the Tiber, already mentioned.

The Orphan Asylum, the Foundling Hospital of S. Spirito, and the house for the insane, must also be reckoned. The whole annual revenue of these establishments amounts to 840,000 dollars, of which about one-half is derived from endowments, and the remainder is supplied by the papal treasury. The pope distributes yearly out of his own private purse from 30,000 to 40,000 dollars among the poor. A commission of subsidies distributes about 172,000 dollars more among poor families. There is also a society for subsidizing poor girls on their marriage, which expends about 122,000 dollars yearly for that purpose. It is reckoned that about 1000 girls are yearly portioned in this way.

Ferrari, Statistica; Morichini, Su gli Stabilitimenti di Pubbliche Beneficenza in Roma. See also Tournon, b. iv. c. 7. The manners and customs of the people are various, their means of support being scanty and precarious. They depend much on charity, and when years of scarcity or political convulsions occur, the amount of suffering is very great, where the French, as was the case when the French papal government, in 1809. A great part of the population depend, either directly or indirectly, for their subsistence on the papal court, the cardinals and prelates, the nobility, the foreign ministers, and foreigners in general.

The clergy of the city of Rome consisted, in 1838, of 54 rectors of parishes, 1439 priests non-incumbent, 2012 monks or friars, besides 31 prelates, with the rank of bishops, belonging to the papal court. The number of nunns was 1456. The whole population consisted of 146,993 individuals, besides 4500 Jews.

The police in Rome is maintained by the Carabiniers, a well selected and well equipped military body, resembling the French gendarmerie, and under the orders of the governor of Rome, who is a prelate.

Rome has an insurance company, a bank, and a savings bank; these institutions have all been established within a few years. The Monte di Pieta is a much older foundation.

[MONT DE PIETA']

Rome had no municipal council when the French took possession of it in 1809, its financial administration being in the hands of the home department. Count Tournon established a municipal council, consisting of the principal nobles and citizens. Its revenues, derived from various taxes and rent of buildings, amounted to 2,800,000 francs, which was found sufficient for the expenditure. We are not acquainted with the alterations that have been made since the restoration of 1814, except that we find in the Magistriato of Leo XII., 1824, under the head of the 'Organizzazione of the Communities,' that 'with regard to the city of Rome, the rights of the senator and conservatori, and of the Roman people, are maintained in their present state, which seems to mark the state in which they were before the French occupation.'

The population of modern Rome consists of a very mixed race, and the admixture is yearly renewed. The death rate at Rome is 6 per cent. of the population. The degree to the number of people who live in a state of celibacy, only in consequence of their religious vows, but also from choice. The population is yearly recruited from the provinces; a number of young men come to the capital in the expectation of employment, or to pursue some studies of them settle there. Tournon justly observes that it is out of the question to look at Rome for any descendants of the antient Romans, even among the Transtermini, who by tradition claim that descent. It is in the elevated country round Rome, among the Albanians and the Latins, that we may expect to find the descendants of the antient inhabitants of those districts. The men in the city of Rome are not generally favoured by nature, with the exception of the Transtermini, who are usually well made; the women are of superior with regard to form, but after the first period of youth, they become lusty and large, owing probably to their sedentary habits; their boats however are generally handsome.

With regard to their moral qualities, the people of Rome may be said generally to be remarkably keen in their perceptions, disposed to criticism and satire, and yet guarded in the utterance of their sentiments, serious and rather pompous, but vitally warm-hearted. Revenge and jealousy are the characteristics of the Roman. The people are described by modern Romans,' says Tournon, 'are of full intelligence; they have a strong feeling of self-respect, and although prone to anger under provocation, they are, in the common relations of life, gentle, benevolent, and warm-hearted, and particularly expressive of their gratitude. In the manifold relations which I have had with all classes of the Roman people—in the meetings for the drawing of the conscription, so obnoxious to a country to which war and its stern necessities had been strange for ages; in the midst of the popular festivals; in the fairs and markets—nowhere have I seen traces of that turbulence and ferocity which travellers have been pleased to ascribe to the modern Romans. I have found, among the inhabitants of the most secluded districts of the Campagna, a natural and almost an inborn tendency to a degree of natural politeness; when often alone among them, or in the midst of the formidable Transtermini, my confidence in the good disposition of the people has never been betrayed for a moment, and my own experience, to which I add that of every other Roman I have visited, gives me the conviction that it depends entirely upon the government to make these people as orderly and peaceful as those of any country in Europe.'

(Ander's Rome, p. 193.)

The amusements of the people of Rome are chiefly connected with religious festivals. The principal are those of the Holy Week, when the evening service and Miserere at the Sixtine Chapel are celebrated, at which however only a privileged few can be admitted; but then there is the cross
The satirical humour for which the modern Romans have been long celebrated, has been noticed under Pasquin.

The upper class at Rome consists of two distinct orders: the hierarchy or clerical dignitaries, cardinals and prelates, who constitute the court and cabinet of the popes, and who have in their hands the government, and fill the principal offices in the administration; and the lay nobility, with the titles of princes, dukes, marquises, and counts, who live upon the revenue of their estates, and have little or no influence in political affairs. In the middle class, the lawyers form an important order; they are divided into—1. avvocati concistoriali. who alone can plead before the sovereign in concistoro, or papal privy council; 2. avvocati a diritto reali, who plead in cases of law before the king; 3. avvocati al senato, or patronimori, who are the same as the English solicitors; 4. notaries, who form a corporation under the prefect of the archives. In the early part of the present century, the advocates Barfìscati, Boffartissi, Angebotti, Lassagna, were distinguished among the members of their profession.

The artists form another important body at Rome. Many of them are foreigners, but they generally live on good terms, and there is a sort of international society among them all. The life which the artists lead at Rome, their studies, and their meetings, have been described by Stendhal and other travellers. The Academia di S. Luca, of which there are several in Italy, is one of the most fine in Rome. France and other countries have their separate academies, or 'pensions,' where a certain number of artists of their respective nation are boarded and paid by their government for a certain period. The antiquaries and the merchants of the city have also a corps of artists, such as the Vaconti, Fea, Nibby, Réa, and others are well known.

The mercanti di Campagna, or great farmers, who rent the vast estates into which the Campagna is divided, belonging to the nobility, or to various churches, continue to lead a life of refinement and luxury, and to keep up the traditions of the landed gentry. They live in a good style at Rome, have their country houses, and employ numerous agents, clerks, messengers, and servants. The smallest of these farms requires a capital of 200,000 francs, and the largest of some hundreds, and to whom the Roman landlord, from Corneto to Terracina, are in the hands of about 150 of these farmers, of whom one-third, and those the wealthiest, reside at Rome. Both Châteauneuf and Tournon give animated descriptions of the farm of Campomorfo, which is among the largest. Rome is well supplied with provisions; butchers, meat, fish, game, and vegetables are good and abundant; the common country wine is small and light, but the Romans are generally a sober people. Cheese, butter, ricotta, and other produce of the country accompany itself to various conditions; it can thrive and be content under very different institutions. It is neither possible nor perhaps desirable to make once a complete revolution in the habits and ideas of all classes in the earth at one time, of time, of education, and of spreading intercource; this has been the great mistake of the so-called republicans of our age; they have considered man as a plastic being, whom they could remodel at will, without any consideration for the moral tendencies, habits of the mind, and institutions, which will not easily bend themselves to the will of another.

The great mass of the population of the city of Rome has shown, of late years, that it is, generally speaking, tolerably happy in conjunction with the government. The government would but take care to accommodate itself gradually to the very slow change which must be taking place even in the minds of the people of Rome, that would be sufficient at present for the purposes of peace, and good government, without any violent and sudden change in the established form of society. Some remarks on this subject were elicited by the abortive insur-
the advantage of teeth so formed; but Leibnitz, in a letter to John Bernoulli, states that Römer had communicated the invention to him twenty years before the date of De la Hire's publication. Römer is said to have designed machines for representing the motions of the planets, and particularly one which exhibited the revolutions of Jupiter's satellites; by this machine it is said that the immersions and emersions might be determined with great precision.

Having remained ten years in France, Römer returned to Copenhagen, where the king, Christian V, made him professor of astronomy. He was at the same time employed in forming the conversion of the observations in the north, and to verify the position of Uraniborg, since the residence of Tycho Brahe. The French astronomer conceived to great an esteem for the talents of the young Dane, that he engaged him to visit Paris, and when there procured other honours in honour of being promoted to the king. In consequence of this introduction, Römer was appointed to instruct the Dauphine in mathematics, a pension was settled on him, and the next year the Royal Academy of Sciences made him a member of their body.

While the precede employer was employed, together with MM. Cassini and Picard, in performing geodetical observations for the survey of the kingdom; he also assisted at the Royal Observatory at Paris, and from the observations which he thus obtained to make on the immersions and emersions of Jupiter's first satellite, he was led to the discovery of certain inequalities in the times of the occurrence of these phenomena, which had not before been noticed. It was then first remarked, that between the times of the phenomena, which had already been observed, and the next following conjunction, the emersions of the satellite from the shadow of the planet took place always later than the times indicated by calculation, and that the difference between the observed and the calculated times when the planet was near the points of conjunction and opposition, amounted to about 14 minutes. A contrary circumstance was observed from the time of a conjunction of Jupiter with the sun to the next following opposition; for the immersions appeared to take place more early than the calculated times, the difference of the times being 1 minute; and the time of the conjunction and opposition, being also about fourteen minutes.

There appears however to be some uncertainty whether Römer or Cassini (J. D.) is the astronomer to whom the honour of being the first to receive the inequality belongs, and it is asserted both were employed in making the discovery, but that he gave an explanation of its cause. He states that Cassini published, in 1675, a paper in which it is shown that the phenomena result from the difference between the times during which the particles of light are propagated from the moon to the earth, when in opposition, nearer to the earth than when in conjunction, by the whole diameter of the earth's orbit) and in which it is inferred that the velocity of light must consequently be such as to allow it to pass from the sun to the earth in a certain time, and from the earth to the moon in another time, it is well known that Cassini at first objected to the transmission of light through a part of space in a certain time as a cause of the observed inequality, on the ground that similar inequalities were not observed in the immersions or emersions of the other satellites. Now it is more probable that the French astronomer should have made objections to the hypothesis of another man, than that he should have abandoned one which himself had formed; and even if such abandonment of Samual's discovery had been considered as the real discoverer of this important element in astronomical science, since it is admitted that he took up the subject and gave a precise explanation of the circumstances. The reason why the like retardation or acceleration of the movements of the heavenly bodies is observable in the remaining satellites is, that the theory of the motions of these bodies was in that age so imperfect, that the times of the phenomena could not be determined by computation with the number of minutes to which the optical inequality amounts. It is now well known that the latter takes place similarly in the phenomena of all the satellites. Römer was as good a mechanician as an astronomer. It is to him we owe the application of the epicycloid curve in the employment of the teeth of wheels, by which the movement is rendered uniform; and an account of the invention was sent to the Academy of Sciences in 1675. De la Hire afterwards claimed the honour of having first discovered

ROMFORD. [Essex]

ROMILLY, SIR SAMUEL, was born in London, on the 1st of March, 1577. His grandfather, a French Protestant, was entitled to a considerable landed estate at Montpellier, but he quitted France in consequence of the persecutions which succeeded the revocation of the Edict of Nantes, and established himself in the business of a wax-blescher, in the neighbourhood of London. His youngest son, Peter, the father of Sir Samuel Romilly, was brought up to the trade of a jeweller, in which he became successful and eminent. Of the numerous family of Peter Romilly, two sons and a daughter alone survived their infancy, of whom Samuel was the youngest. The early education of Samuel was extremely excellent, and being intended for his father's trade, it was attempted to lead him to the study of the law; but his being destined for a lawyer, caused the abandonment of this scheme. It was then proposed to place him in the commercial house of the Fludyers, who were near relations of his family, and one of whom, Sir Samuel Fludyer, was his godfather. With a view to this employment he received instruction in book-keeping and mercantile accounts, but the death of both the partners in the house of Fludyer put an end to this promising project, and his father, having failed in several
other schemes respecting him, eventually employed him in his own trade, at first simply for the purpose of furnishing him with occupation, and afterward, with the intention that he should succeed to the business in partnership upon his father's retirement.

During the intervals of leisure which were abundantly afforded him for several years after he left school, at the age of fifteen, Romilly applied himself assiduously to literary studies, which were more suited to his serious and somewhat melancholy disposition than the usual exercises and amusements of youth. Antient history, English poetry, and works of criticism were at this period his principal objects of pursuit; and when he was fifteen and sixteen years of age, he determined to become acquainted with the Latin language, and by means of hard study, and with the assistance of a master, he acquired so much proficiency as enabled him, in the course of four years, to read through almost all the classical writers of Rome. He also applied himself to Greek, but, discouraged by the difficulties of self-instruction, he abandoned the attempt, and continued himself with studying the Greek authors by means of Juxon. In addition to classical studies, he read travels, and acquired a competent knowledge of geography, and some acquaintance with natural history; and he also attended private lectures on natural philosophy, and the lectures on painting, architecture, and sculpture by Mr. More, delivered at the Academy of Lannoy. Although he had not the opportunity of becoming a scholar in the academical sense of the term, he contrived by his perseverance and unaided efforts to refine his taste, and to lay up in his mind a store of elegant and useful knowledge, which enabled him to understand the various branches of life to which his fortunes subsequently led him, without experiencing those impediments and mortifications which usually arise from an imperfect education.

It is not surprising that a disposition so much in pursuit as these should early develop for an occupation more congenial to them than the trade of a jeweller; and his indulgent father, whose pecuniary means had been about this time increased by considerable legacies to his family, and who, having long felt that one of the chief objects of his education would yield to his son's wishes in this respect, and satisfied him for five years to one of the sworn clerks in chancery. The mechanical duties of this office, though in some degree enlivened by his master's practice as a solicitor, were scarcely more attrative to him than his attendance upon his father's business; but he devoted his frequent leisure at this period to literary studies, and in particular to strenuous exercises in prose composition. The object of serving a clerkship of this kind was the purchase of a clerk's ticket, which would secure a place in the Six Clerks' Office entirely, and to qualify himself for the bar. Accordingly, in May, 1775, having served his clerkship, and completed his twenty-first year, he entered himself at Gray's Inn, placed himself in the chambers of an equity draughtsman, and commenced with great ardor the study of the law. He still, however, pursued his literary studies and exercises, employing much of his time in reading and translating the Latin historians and orators, occasionally writing political essays for the newspapers, and sometimes attending the houses of parliament for the purpose of exercising his own powers of abstraction, arguing, and in the application of his brother-in-law to the speeches which he had heard there.

Not long after he commenced his legal reading, he was attacked by serious illness, which, aggravated and protracted, to have been of a pecuniary position to despondency, compelled him to lay aside all severe studies, and threatened wholly to interrupt his professional prospects. Fortunately a family accident induced him to undertake a journey to Switzerland, where he remained for six months, and returned with the most intimate friend the Rev. John Roteg, and, returning by way of Paris, he became acquainted in that capital with D'Alembert and Diderot, and formed intimate friendships with several of the most eminent political philosophers of that day, whose conversation and correspondence produced a marked effect upon his character and opinions. He arrived in London after an absence of several months, with his health entirely restored.

In Easter term, 1783, Romilly was called to the bar, but his entrance upon the practice of the profession was postponed for several months in consequence of a voyage to Switzerland, which he undertook for the purpose of attending his sister to England, upon the death of her husband. In Michaelmas term, 1783, however, he began to attend the courts, and opened his practice on a very considerable amount of employment in chancery. He made himself master of the Midland circuit; but being unknown and without connections of any kind, no encouraging prospect of business was promised for several years. Success at sessions however, and employment in the courts of his province by no means rapid, we have his own authority for the statement, that when the extent of his practice in the Court of Chancery compelled him to restrain himself to London, he had attained to a larger amount of leading practice than was possessed by other counsel of the circuit. (Memoirs of Sir Samuel Romilly, vol. i., p. 14.)

In the year after in which he was called to the bar, Romilly, through his connections in Paris, became acquainted with Mirabeau. By his means he was introduced to the States, and thus became acquainted with the law and politics of France, and by the exertions of his autocratic gifts, and his acquaintance upon learning that he was the author of an anonymous tract, entitled 'A Fragment on the Constitutional Power and Duties of Judges,' and who, like the late Lord Lansdowne's estimate of his character, and his appreciation of his eventual success, are evinced by the fact, that in the first years of their acquaintance, and before the death of Lord Camden, to whom he was twice offered a seat in parliament by the archduke Charles, which he declined from a feeling of independence. In early introduction of Romilly to the confidence and friendship of many persons of the highest distinction of his country, Samuel Romilly must be considered an unquestionable proof of his eminent merit. A young man barely twenty-six years of age, the son of a jeweller, unknown at any public college or university, and a barrister of only a year's practice could have been inscribed in no other part of his character for his admission into such society, and for the esteem and respect with which he was regarded by his seniors in rank, age, and reputation, at the very commencement of his active life.

Soon after the appointment of Lord Lansdowne as Secretary of State, Romilly was admitted to the bar of the Supreme Court of Judicature, a position which he was soon enabled to fill with great distinction. He entered upon his profession with the most active spirit, and it is no wonder that the name of Samuel Romilly, one of the most eminent barristers of his day, is not lost even to modern times.

In the year 1800, when he was made king's counsel, it is not improbable that upon his marriage, which took place at the commencement of 1754, he may have formed the determination to confine his business to the court of law. After obtaining rank in the profession as king's counsel, he entered upon the practice of his profession with the greatest success, and in 1806, we learn from his own evidence, 'that of all barristers who attended the Court of Chancery, he was the only one who was able to conduct the business in that court, and the only one who was successful in that department.'
in the most practice." (Memoirs, vol. ii., p. 111.) About this time the Bishop of Durham gave him the office of Chancellor of the County Palatine of Durham, which he held for many years. In the autumn of the year 1806 he was offered a seat in parliament by the Prince of Wales (afterwards George IV.), at whose time adhered to the Whig party, and whose attention had been particularly drawn to Romilly from the circumstance of his being about that time tainted in a cause in which the prince was much interested. The prince observed that the case was peculiarly interesting and of great pre- senting, which had induced him to decline two offers of a similar kind previously made by Lord Lansdowne.

Romilly's early association with some of the most distinguished persons interested in the French revolution, and, since all this time, was Mirabeau, had given him in the outset of life a decided bias towards what are termed popular or liberal opinions in politics. In consonance with his general principles he became a decided adherent of the Whigs, and, long before he obtained a seat in the House of Commons, was in the habit of confidential communication with the leaders of that party. On the formation of the Grenville administration at the commencement of the year 1806, he received the appointment of solicitor-general, and was raised to the most part of a baronetcy, by an act of parliament, at the instance of the government. He was appointed one of the managers for the Commons, on the trial and imprisonment of Lord Melville, and summed up the evidence in support of the charge. He states in his diary that he was wholly unprepared for this task. He spoke in twenty minutes (Memoirs, vol. ii., p. 139); but from the report of his speech in the printed accounts of the trial, it does not appear to have been by any means the most successful of his forensic or parliamentary performances. In truth, the occasion may be understood: he took not as a matter of inclination, but of duty, conceiving that in his position with respect to the government and the party under which he had taken office, he could not with propriety decline it. In the early part of 1806, he introduced a bill for the amendment of the bankrupt laws (46 Geo. III., c. 135), which passed both houses with very little objection or observation, and constituted a material improvement of that which was then an ex- tremely dangerous and defective law. In the middle of this same year—nearly 300 days after he had been en- tered into the government—he introduced a bill for the dissolution of parliament, which took place at the close of the year 1806, he was re-elected for the government borough of Queenborough: and in the early part of 1807, and while in office as solicitor-general, he introduced a bill for the purpose of raising a fund for the purchase of the British consuls, on the dissolution of parliament, which was personally presented by Sir Samuel Romilly with a degree of sincerity scarcely justified by the occasion. A measure founded upon a more limited application of the same principle was introduced, and the second reading was modulated at the recommendation of the present Lord Ainger, then Mr. Scarlett, who suggested to Romilly, as a much more effectual improvement of the law, the total repeal of all statutes which punish with death mere thefts unaccompanied by any act of violence or other circumstances of aggravation. Though Romilly readily adopted this suggestion, he thought that a proposition for the simultaneous repeal of so large a number of statutes stood no chance of success in parliament, and for that reason he resolved, when the time should come, to apply the principle to the repeal of individual cases; and, in particular, the repeal of individual laws, by which punishments of disproportionate severity were enacted, and thus gradually to expunge the whole from the statute book. Accordingly immediately after he had taken his seat for Queenborough, he brought in a bill to repeal the statutes 6 Eliz., c. 4, which made it a capital offence to steal privately from the person of another; and this measure, after some objection and discussion in the House of Commons, was eventually passed (48 Geo. III., c. 129). His next object was the abolition of the death penalty. In the early part of the session of 1816, when he introduced three bills to repeal several statutes which punished with death the crimes of stealing privately in a shop goods of the value of five shillings, and stealing with the intent of trebling the value of five shillings in dwellings-houses or in vessels on navigable rivers; and in order that his views on the subject might be generally understood, he published the substance of the
speech delivered by him on his first proposal of the bills, together with some further arguments, in the form of a pamphlet, entitled ‘Observations on the Criminal Law as it relates to the apprehensions, and on the Means in which it is administered.’ One of the bills introduced by him on this occasion was thrown out in the House of Commons by a majority of two voices, in a very thin house; a second reached the House of Lords, and was there thrown out with so much importunity—the Lord Elton (Eldon) and Lord Ellenborough using reasons against it which at the present day cannot be perused without astonishment; and the third bill was withdrawn by Romilly, after having been in vain attempted to make a house in order to have it read a second time. Judging this failure, his confidence in the justice of his principles, added to his characteristic firmness and perseverance enabled him, in spite of all the discouragements arising from the apathy of friends, and the ignorance, prejudices, and party spirit of enemies, to renew his undertakings to pass these measures in each succeeding session during the remainder of his life; but although several severe laws of a local and special nature were repealed, and although a considerable effect was produced on public opinion by the repeated subjections of the subject, was until several years after his death that any substantial improvement of the criminal law was effected.

In the anticipation of a dissolution of parliament on occasion of the king’s illness, at the latter part of 1811, Sir Samuel Romilly was invited to be the Whig candidate to be returned to the House of Commons to represent the city of Bristol. Having accepted this invitation, he went down to Bristol upon the dissolution of parliament at the close of the year 1812, with the most encouraging prospect of success. But an opposition had been raised by a merchant of Bristol, whose personal influence and local connections gave him a much more efficient interest among the numerous constituency of that city than which Romilly had acquired by means of his public character. The contest was a hard one, that lasted for a few days’ struggle, he abandoned the contest, as hopeless. Upon this failure, he was returned by the duke of Northumberland for the borough of Arundel; and Sir Samuel considered that the objections which he had entertained in early life against accepting a seat in the House of Commons from the public services of a borough no longer applied, insomuch as his public character was now so well established, that he could never be suspected of intending to speak or vote merely at the dictates of his patron; and because, since the law had declared the former practice of sitting was to be illegal, there was no other means of entering the House of Commons than by the nomination of a patron or a popular election.

In the interval between the dissolution of the former parliament and the meeting of the new one in 1813, he published another pamphlet, entitled ‘Objections to a Project of Creating a Vice-Chancellor of England.’ This unsatisfactory plan of reforming the evils of the Court of Chancery he in all its stages strongly though unsuccessfully opposed.

It would exceed the proper limits of the present article to relate in detail the circumstances of the parliamentary career of Sir Samuel Romilly during the last five years of his life. In addition to his proposals for the improvement of the criminal law, he took an active part in all the political questions of the time, generally acting in zealous opposition to the ministers. He supported Mr. Windbeam’s resolution against declaring war with France upon the return of Napoleon from Elba in 1814; he opposed the bills for suppressing insurrection and for the continuation of the Act of Union with the Irish, the Corpus Act in 1817, and moved resolutions condemning Lord Sidmouth’s circulars to magistrate respecting the prosecution of seditionist books. He also spoke and voted against the Alien Act, acting in favour of an extension of the election franchise for the county of Cumberland, in 1815; and, in 1817, was returned to the House of Commons for the borough of Middlesex.

In the summer of 1818 a dissolution of parliament took place, and Romilly, being solicited to apply as a candidate for the representation of Westmorland, was returned at the hustings. However, although he declined though he declined throughout the canvass, and did not appear upon the hustings until the termination of the election. He died however before the meeting of parliament. Lady Romilly, to whom he was devotedly attached, and whose health had been for some time on the wane, died at Lowestoft on the 29th of October, 1818; and this event occurring to a mind already dangerously excited by recent exertions and anxiety, proved a delirium, under the influence of which he put an end to his existence on the 2nd of November, 1818.

In his profession Sir Samuel Romilly attained greater success than has been enjoyed by any advocate since the time of Sir Edward Coke. Nor did his professional reputation at all exceed his merits. He had a familiar knowledge of the principles of English law as administered not only in courts of equity, but in common-law trials, and with a faculty to bring to bear upon the weight of law the strong power of reason, great earnestness in enforcing his arguments, entire devotion to the interests of his client, and singular prudence in the management of a cause. To these qualities were added the most wonderful ascendency in the Court of King’s Bench of any man in his time. The style of reason in which he wrote was so felicitous, and his style of manner, on the other hand, is related to have been stern in his deportment to juniors, and unnecessarily severe in forensic altercation. This may have arisen from that contempt for the members of his own profession, which, it appears from his diary, was a prevailing sentiment in his mind, and which he expresses in some instances without sufficient reason. Being himself far in advance of the opinions of his profession, and feeling in his own mind with the certainty of demonstration the truth of those principles upon which he held his public infallibility of the code of the law, he was too much inclined to treat the ignorance and bigotry which often opposed them with an undue proportion of personal solemnity. Although in his early letters Romilly occasionally expressed in strong terms his abhorrence of this effectual means of winning friends, and that power of argument and of financial business with which the practice of a chancery barrister commences. At a later period, when the nature of his practice was different, we do not meet with similar expressions of discontent; and it is hardly possible to suppose that he would have easily been removed from the world of business which is the practice of a chancery barrister commences. At all events, the tradition of the profession ascribes to him a much greater energy, both in acquiring and retaining his practice.

As a public man, Romilly was unfailingly consistent in all his general views, and uniformly acted up to his principles. He displayed however more of the moral spirit of party than might have been expected from his enlarged mind and otherwise independent character. In some instances, especially in the case of Mr. Peel, he suffered the influence of party to interfere with the friendships of private life; and with a species of bigotry hardly credible, seemed to consider it morally wrong that he should associate cordially with one who differed from him in political opinion. Nor was he unmindful of the duty of intolerance in uniformly ascribing to corrupt or interested motives the occasional desertion of individuals from the Whig standard: and, sometimes, in the case of his personal attack upon one whose opinions he despised, he allowed the debate on him to express him into expressions of rudeness which his own example taste afterwards strongly condemned.

His public speaking was perhaps more deeply impressive than that of any speaker of modern times. He expressed himself with great readiness and fluency. Without aid from artificial means, and without the use of figurative language or ornament of any kind, his simple, correct, and natural style, supported by his serious and dignified deportment and fluent voice, often produced an effect equally surprising to the hearers as the subject of discourses. It was an instance of this kind, which occurred in his farewell speech to the electors of Bristol, in 1818: ‘There was nothing,' says he, 'in this speech at all calculated to excite the passions, and I know not what can be as well to soothe them. I think, the subject, the language, and the language, and the tone, that led me to the conclusion, I saw the tears streaming down the cheeks of many of my hearers.’

Romilly’s style in writing displays the same features in his manner of speaking,—clear, easy, forcible, and socially unadorned. In very early life, he acquired the habits of retirement and the solitude of the Isle of Wight, which he had not entirely renounced; and this may have been the cause of his powers in composition being less marked than in other respects, and of a distinct and powerful expression, for which he was singularly remarkable.
ROMNEY and ROMNEY MARSH. [Kent.]

ROMNEY, GEORGE, born at Dalton in Lancashire, December 15, 1734, was the son of John Romney, a wealthy cabinet-maker of that town. As he showed a mechanical turn at a very early age, he was taken away by school in his eleventh year, and placed in his father's workshop. A watchmaker of the name of Williamson, an eccentric man, who was devoted to alchemy, exercised an influence over the mind of young Romney which seems to have left a lasting impression. He ranked with them in the mysteries of his favourite pursuits, and our young painter was not an unwilling disciple. How Romney first manifested a talent for the art in which he subsequently attained such distinction, is not satisfactorily shown by his several biographers. Accordingly set out on his travels in 1756, he was met with Leonardo da Vinci's treatise on painting, embellished with various illustrations, at a very early age.

According to Hazlitt, he appears to have had a passion for sketching people and taking likenesses, which he exercised by drawing his fellow-workmen in various attitudes upon the deals and boards in his father's workshop. His first effort that attracted any notice was a drawing of Mrs. Gardiner, which induced his father, encouraged by the persuasion of several friends, to send him in 1759 to London. He was of the name of Steele, who painted heads at Kendal, to whom he was bound for four years, at the age of nineteen.

At Kendal, in 1756, Romney contracted an early marriage, with Mary Abbot of Kirkland, by which he dispensed his early serious, charging himself with the fact, denies the fact, he himself shortly afterwards repented of his precipitate step. The result however proved that his choice was eminently worthy of his affections. Having cancelled the indenture, he began his career, at the age of twenty-three, commenced in the market-place; and his first successful character was a hand holding a letter for the post-office window at Kendal, which continued there for many years. His first portraits were two half-lengths of Walter Strickland of Sissingthorpe, and his wife, and Sir Walter Strickland, by Lely, and two portraits, by Rigaud, the only pictures by other masters that he had any opportunity of studying previous to his arrival in London. His industry was indefatigable, and nature alone being his guide, he worked at it very steadily, himself. Simple and natural manners, unembellished by those artificial or adventitious qualities which are so easily acquired from the schools. Through the influence of his friend Mr. Strickland, he obtained considerable employment from the gentlemen of Westmorland, in consequence of which, not only the satisfaction of his talents for about five years in the north, his ambition directed his views towards the capital; and in the spring of 1762, he set out alone for London, leaving his wife and two young children in Kendal, who, according to the painter's son, were to join him when he had established himself in the metropolis; but the sequel casts a shade over the moral character of Romney. He rose rapidly to fame and fortune, and, with Reynolds and Gainsborough, divided the patronage of the great and the wealthy; but his young wife was never called to share the honours of her husband; he concealed his marriage from his friends, and only returned to the neglected mother of his children when he had won, and reliable, and required a nurse to administer to his health.

Romney commenced his metropolitan career by painting heads for four guineas in the city. In 1763 he obtained the second prize of fifty guineas from the Society of Arts for a picture of the Death of Wolfe, but through the influence of Reynolds the decision was reversed and reversed in favour of Mortimer, for his picture of Edward the Confessor seizing the Treasures of his Mother. Romney received a present of twenty-five guineas. This circumstance is supposed by some to have been the principal cause of the enmity which has ever since existed between them. Romney seems to have met with considerable and early encouragement. He soon moved from the city to the west, and raised his price for a head to five guineas. At this time he paid a short visit to Paris, where he was much struck with the great Mary de Medicis series of pictures by Rubens, in the Luxembourg. Upon his return he painted the portrait of Sir Joseph Yates, one of the judges of the court of king's bench, a picture which procured him a valuable connection amongst lawyers. Shortly afterwards he obtained a fifty guineas premium from the Society of Arts for a picture of the Death of King Edmund.

In 1767, in consequence of his rapidly increasing practice, he removed to Great Newport Street, within a few doors of the former residence of Reynolds. Here he added greatly to his reputation by a portrait of Sir George Warren and his Lady, with a little girl caressing a bullfinch. He now took more pains of everyday subjects, but he continued to paint the more splendid figures, and he bid fair to rival the President in portrait.

Romney's intercourse with men of taste and learning was now such as to make him feel the necessity of an acquaintance with the great works of art upon the Continent. He accordingly set out for Italy in 1763, and according to the induction to the pope from that great patron of the arts the duke of Richmond. In Rome he paid particular attention to the works of Michel Angelo and Raphael; and during his stay there produced one of his most beautiful pictures, the Wood Nymph, representing a naked female reposing upon the ground with her back towards the spectator. From Rome he went to Venice, where he painted the portrait of Wortley Montagu in a Turkish dress. He returned to London at the end of the summer of 1763, greatly improved in every respect by his continental tour.

Shortly after his return to London, he took a house in Cavendish Square, and, under the auspices of the duke of Richmond, recommenced his career as a portrait painter for a half-length; length, and 60 for a whole-length; the president's price being at that time 35 guineas for a head. But Romney soon found it necessary to raise his prices, for sitters of all ranks crowded to his studio; and, notwithstanding they were still comparatively few, he made an income of nearly four thousand a year by portraits alone.

He subsequently raised his prices considerably: in 1787, to 25 guineas; in 1789, to 30; and in 1793, to 35 guineas, which enabled him to be his charge during the remainder of his life, the other sizes being charged in proportion.

Romney was now the acknowledged rival of the President in portrait. Reynolds's admirer and biographer, Northcote, says, 'Certainly it is, that Sir Joshua was not much employed in portraits after Romney grew into fashion.' Lord Thurlow is also reported to have said, 'Reynolds and Romney divide the town; I am of the Romney faction.' To characterise these two factions technically, we should speak of them as the naturalists and the romantics. Romney's great success seems to have excited an active jealousy upon the part of Sir Joshua, who, when he spoke of him, used to term him 'the man in a desert,' from a passage in Swift's 'Life of Reynolds;' we may infer that the President occasionally spoke disparagingly of the works of Romney. Northcote represents Garrick as saying of Cumberland the dramatist, 'He hates you, Sir Joshua, because you do not admire the painter whom he considers as a second Correggio.' 'Who is that?' said Reynolds. 'Why, his Correggio,' answered Garrick, 'is Romney the painter.'

Notwithstanding Romney's great employment in portrait, he found abundant leisure to lay in fancy pieces, many of which however were left unfinished. The most remarkable of those of the earlier part of his career were, The Tempest; Tragedy and Comedy nursing Shakspeare; the Infant Shakspeare attended by the Passions; the Alpoe; the Children in a Boat; Shakspeare at Stratford, watched by his Dog, at the approach of a Thunder-storm; Nature unveiling herself to Shakspeare, &c. Romney is said to have been the originator of Boydell's Shakspeare Gallery. The Tempest and the Infant Shakspeare attended by the Passions were painted for that collection. He made sketches also for five other subjects, but they were never executed; the Banquet and the Cavern Scene in 'Macbeth,' Mrs. Ford and Mrs. Page; Bolingbroke and Marjory Jurden, conjuring up the Fend; and the Maid of Orleans.

Romney's admirers included the celebrated Lady Hamilton, then the beautiful Emma Lyon. According to his son, he made no less than twenty-three pictures from her, some of which however were never finished. She was painted in various characters, as Iphigenia, St. Cecilia, Sensibility, a Bacchante, Alpoe, the Spintrius, Cassandra, Calypso, Magdalene, Joan of Arc, and Pythian Priestess.

Romney's ambition appears to have increased with his
years, and in his later days he devoted himself more ardently to fancy subjects than ever. Milton and his Daughters, and Newton making Experiments with the Prism, as a companion to it, was the most popular of those later productions. He sent it in 1662. to Flaxman, then studying in Rome, to purchase casts from the antique for him, who sent him 'the cream of the finest things in Rome.' The group of the Laocoön, the Niobe, the Apollo Belvidere, the Apollo Sauroctonus, group of Socrates and Pollux, and of Apollo and Psyche, the relief on the Borghese vase, several busts, and the best fragments of legs and arms that could be found. These splendid monuments of ancient genius tended only still further to excite the emulation and ambition of Rome; he concentrated all designs of painting, bookbinding, the arts, 'the visions of Adam with the angel, the flood, and the opening of the ark,' and many from Milton, some of Adam and Eve, and others having Satan as their hero.

This constant excitement seems to have been too much for the painter's nerves, and his mind was gradually giving way under it. His observations called forth by the melancholy fate of his friend Cowper seem to have been the foreboding of the same, and he wittily observed himself: 'If there is a power more deplorable than any other in nature, it is the horrible decline of reason, and the derangement of that power we have been blest with.' The health of his faculties was now rapidly declining, but the return of his old friend Flaxman to Rome, of which he had a very high opinion, cheered him for a season. He shortly however became possessed with an idea that his house in Cavendish Square was not sufficiently spacious to admit of the execution of the magnificent design he had in contemplation; and accordingly he had a house and gallery constructed at Hampstead, upon his own plans and under his own direction. He left Cavendish Square in 1797, after a residence there of twenty-one years, and repaired to his new studio at Hampstead, but not without having in the dreams of his wild genius, for he was soon oppressed with a degree of nervous depression that deprived him of all energy. After one or two efforts upon the canvas, he complained of a swelling in the head, and a paralytic state of his right hand, and he denounced the pencil for ever.

In the summer of 1799 he was seized with a sudden impulse, and started abruptly for the north, where, in Kendal, his amiable wife still resided, surviving the cold neglect and long estrangement of her husband, and in whom he found an attentive and affectionate nurse, 'who had never been irritated to an act of unkindness or an expression of reproach' by thirty-seven years of absence and neglect, during which long interval he had paid but two visits to the north. The kind attentions of this exemplary wife awakened in the heart of intense gratitude in the heart of Romney, and he once again enjoyed real happiness, to which in the long years of his prosperity he had been a total stranger. He gave orders for the sale of his property, and purchased a house at Kendal where he had resolved to remain. But this brief period was of short duration, for upon the return of his brother, Colonel Romney, from India, which was little more than a year after his arrival at Kendal, he suddenly fell into a state of utter imbecility, and lingered on for nearly two years, unconscious of existence, until the 15th of November, 1802, when he died, in the sixty-eighth year of his age. He was buried at Dalton, the place of his birth.

In person Romney was tall and strong, 'tall and manly, his hair dark, his eyes large, quick, and discerning.'

Romney attained to greater eminence in two branches of art, history and portrait, than it is the lot of most men to attain in one. According to Reynolds, he surpassed all British painters in poetic dignity of conception; and in portrait he was the acknowledged rival of Sir Joshua Reynolds. His productions in poetic and historic art, finished and unfinished, are extraordinarily numerous, not only in the collection of the Duke of Bedford, from which two etchings made by Flaxman, were by the same gentleman presented, in 1823, to the Royal Institution of Liverpool. They consist of eight from the story of Cupid and Psyche, two from that of Orpheus and Eurydice, and one from each of the following subjects:—

1. The chained, Descent of Odin, Medea, Birth of Shakespeare, Death of Cordelia, Ghost of Duncan, Atossa's Dream.

The following examples will serve to show how extensively Romney was patronised in portrait and genre. One on the Duke of Richmond, the Duke of Buckingham, the Duke of Gordon, Hyde Parker, Lord Melville, Lord Ellenborough, bishops of Canterbury, York, and Norwich, and Sir Peter Lely, John Hoole, Mrs. Fitzherbert, John and Flaxman modelling the bust of Hayley, Romney was not a member of the Royal Academicians, he never sent any of his works to its exhibitions. He had several biographers: Cunningham having written a short account of him; his friend Hayley, the poet, published an elaborate life, for which Flaxman wrote the portraits of his works; another was afterwards written by the Rev. John Romney; and there is an engravemor of him in Allan Cunningham's Lives of British Painters, &c.

The following are extracts from Flaxman's character. He described the works and genius of Romney:—When Romney began to paint, he had seen no gallery of pictures, seen no fine productions of ancient art: there were no children of the age, and all objects under the sky were heaven formed his school of painting. His genius bore a strong resemblance to the scenes he was born in: he knew all the partik of the grand and beautiful; and he knew how to give the bright sunshine and encroachment of the boughs, and properly understand and communicate with mast and gloom. These painters had left so many examples in their works of tender and delicate affections; and several of his portraits breathe a kindred spirit with the Sigismund and Casimir, some of which are sublime and terrible; others perfectly new in English art. His compositions, his figure of the ancient pictures and baso-relievo, told them by single groups of figures, and a single ground, made the simplest possible, rejecting all unnecessary episode and ornament, of ordinary or architectural subdivision. In his compositions the figure was forcibly struck by the sentiment at the glance; the gradations and varieties of which he was so well understood. Few since the fifteenth century have been able to do so many different branches.

ROMORANTIN. (LOR ET CHER.)

ROMULUS. (Fl. Hamilt.)

ROMULUS. The numerous legends about Rome, the founder of Rome, may be distributed into two principal classes. One of these represents him as closely connected with the royal family of Alba, and may be considered as the native legend which probably originated among the Romans themselves, and was almost universally believed by Romans. The second, which connects Romulus with the Trojans, is manifestly of Greek origin, and became current at a comparatively late period.

According to the latter story, Romulus was sometimes described as the son of Aeneas, and his times as his grandson; and while some writers say Romulus alone, others represent him as having a twin brother (Remus), or several brothers. The first editions of this legend, or rather Greek fabrication, in P. and A. "'Roma,' Plut. Romul. 2, and Dionys. Hal. 1. 73; Niebuhr, i. p. 210, &c.) This story leaves a vacuum in the history of Rome, which amounted to about 180 years from the return of the heroes from Greece, till the middle of the eighth century before Christ. Various means were devised by ancient writers, such as building a second, and even of a third Rome, for filling up this gap. But this story has sometimes been adopted even by Romans, such as Sallust, who states that Rome was founded by Romulus, under the guidance of Aeneas. The genuine Roman legend made Romulus and Remus the twin sons of one daughter of the Alban king Procas. The royal house of
and Sabines to attend them with their daughters. In the midst of the solemnities the females were forcibly carried off: the number thus taken was said to have been thirty. The three nearest Latin towns, Antemnae, Cenina, and Crustumerium, now took up arms against Rome, but Romulus defeated them. Daily, and having slain Acron, king of Cenina, he dedicated the first spoils opima to Jupiter Feretrius. The Sabines, under their king Titus Tatius, likewise made war upon Rome, and the treachery of Tarpeia, a Roman woman, opened to them the gates of the city. But Romulus continued his work, having removed the storm the city, and Romulus in this emergency vowed a temple to Jupiter Stator, in order to inspire his men with courage and to prevent them from flying before the enemy. But the struggle was long and doubtful, and finally terminated by the Sabine women throwing themselves between the combatants, and thus restoring peace between their fathers and husbands. Romulus rewarded the women of Rome for their services by the grant of various privileges, and the thirty curiae were called after the names of the thirty Sabine women. The two nations, the Romans on the Palatine, and the Sabines on the Capitoline and the Quirinal, were united as one nation, though each continued to have its own king.

Two kings and the citizens of the two states met in the valley between the Capitoline and Palatine (comitium) whenever it was necessary to transact business which was of importance to both nations. This union however did not last long, for Tatius was killed during a national sacrifice at Lavinium, and Romulus henceforth ruled alone over the two nations.

During the period that Romulus was sole king, he is said to have carried on two wars, one against Fidenae, and another against Veii. The war with Veii was one of the growing strength of its neighbour; but Romulus got a victory over them by stratagem, and took possession of their town. The war against Veii rose out of that against Fidenae, for both were Etruscan towns. Veii was likewise defeated, but it only surrendered after an interval of ten years, after surrendering part of its territory to Rome.

Such are the fortunes and achievements which the old Roman legend ascribed to the founder of the city. Respecting his political institutions, see the article Roma. He is said to have died at a ripe age of thirty-seven years (l. c.). His death is represented as marvellous a light as his birth. On the scenes of Quintilinus, or on the Quirinal, the king, while reviewing his people near the marsh of Capripula, was taken to heaven by his grandfather Numitor was restored to the government of Alba.

The love of their humble home however drew the youths back to the banks of the Tiber, to found a new city. The district assigned to them for this purpose by Numitor exceeded the Etruscan, and was the marshy tract near the Tiber, which was the frontier of the original Ager Romanus, and where, down to a very late period, the Ambalarina were solemnized. A dispute arising between the brothers as to the site and name of the new city, it was agreed that it should be decided by augury. Romulus took his station on the Palatine, and Remus on the Aventine. Remus had the first augury, and saw six vultures, but Romulus saw twelve. Considering that his double number was a signal proof of the favour of the gods, Romulus and his party claimed the victory. In observance of the rites customary among the Etruscans in the building of towns, Romulus yoked a bullock and a heifer to a plough and drew a furrow round the foot of the Palatine hill to mark the course of the wall to be raised. Now, gave the name of the forum. Con- tending to build the gates (portum), he carried (portare) the plough. The new city thus built on the Palatine was called Roma. Remus, who felt indignant at the wrong which he had suffered, in order to show his contempt of the new city, built a wall round his own town. Romu- lus punished his brother's insolence by putting him to death.

The population of the new city being very small, the goods which he introduced, the horse, the slave, the away slaves, and criminals flockcd to the city as an asylum, and found a welcome reception. The only thing they now wanted was women; but none of the neighbouring people were willing to form matrimonial connections with the new settlers. Romulus therefore had recourse to a stratagem: he proclaimed that festive solemnities and games should be held in the city, and he invited his neighbours the Latins

RONDA, a city in the south of Spain, formerly belonging...
is the province of Malaga, is now the capital of a province so called since the late division of the Spanish territory. It is generally supposed, though erroneously, to occupy the site of the ancient Arunda (Phin., iii), which stood some miles to the south-west. It is an ascertained fact that it was built by the Moors, with the remains of Aci-
nippo, or Ronda la Vieja (old Ronda), which is two leagues to the north, and where the ruins of an amphitheatre, a temple, aqueduct, and extensive walls are still standing. Ronda is situated in the midst of the lofty mountains of the Sierra de Grazalema, or Puebla de Guzman, at the height of forty-two feet from Cadiz, and about the same distance from Seville. It is considerably elevated above the sea, being built on a hill, which terminates abruptly just below it to the west. The city is very ancient, and was at one time of great depth, called El Tajín (the cut), through which flows the river Guadaro. Though divided by nature, the city has been united by means of a bridge of most stupendous dimensions, springing from the banks of the river on massive stone piers, and at the height of nearly 400 feet above the bed of the river.

The city of Ronda has a population of about 20,000 inhabitants. The streets are narrow, but clean. There is a public walk, called Alameda, well shaded with trees and shrubs, and the streets of the town are built entirely of stone, and capable of holding eight or nine thousand persons.

The Alcazar, or Moorish castle, one of the most extensive and best built in all Andalusia is, now a mass of ruins, having been blown up by the French on their evacua-
tion of the town. The walls are still considered impregnable as long as the Moors held it, and resisted several sieges, until it was finally reduced by Ferdi-

nand in 1485, towards the close of the Moorish war. [Moors.]

The ascent from the city to the pass of five km. is one of the most picturesque and very prosperous condition. Ronda has no trade whatever; the inhabitants occupy themselves chiefly in farming and raising fruits and vegetables for the consumption of Gibraltar. An annual fair, originally instituted for the sale of handkerchiefs, is now the most important one of the country, and is celebrated by the people of Ronda and its vicinity.

Rondeletia, a genus of plants in the natural family of Rubiaceae, named after Rondelet, a French botanist of the sixteenth century. It is characterised by having a calyx with a subglobular tube. Corol superior, funnel-shaped, ventricose at the throat. Segments four to five, ovate, oblong, spreading. Anthers four to five, sessile within the calyx. Stigma four to five, filiform. Capsule round, crowned with the limb of the calyx. Seeds minute, numerous, or few when abortive. The genus, as formerly constituted, included many shrubby trees which occur in India (R. P. in India), but these have been re-

formed and divided into two parts: one, comprising the species of Wendlandia, and the other, of Wendlandia. The present genus Rondeletia occurs chiefly in America and the West Indies.

Rongebirge. [GERMANY.]

Ronsard, Pierre de, born in 1524, in the district of Old France called Vendome, was the son of a master-d'Hôtel of Francis I, who made him a knight. Pierre studied for a short time in the college of Navarre at Paris, but soon after he entered the service of the Duke of Orleans, son of Francis I, in the quality of page. He after-

wars became a favorite of the Duke, and was assigned to the service of Scotland, who had come to Paris to marry Marie de Lorraine, and he accompanied James on his return to Scotland, where he remained three years. On his return to France he returned with the Duke of Orleans, who sent him on several missions to Scotland, Ireland, and other countries. He was afterwards sent by Francis I on a mission to Pied-

mont. In these several journeys he suffered much, in con-
sequence of which he became deaf. On withdrawing from active life he retired to the college of Couperet, where he studied the classics under Turbene, became a good Greek scholar, and took orders as a priest. He also began writing French poems, and was crowned in the floral games at Toulouse. [Clemence, Isaac.]

He was considered as the successor of Marot, and the chief of the French poets of the time. [Marot.]

Montaigne, De Thou, Scaliger, Muret, Pasquier, and others commended him highly; but modern critics have judged him more severely. Boileau says that Ronsard's language was a heterogeneous compound of various languages and dialects, and that his muse spoke Greek and Latin in French verses. Malherbe and Le Bruyère both spoke of him in the same strain. Chardin de Glavy stowed on Ronsard an abbacy and other benefices. His moral conduct however is said not to have been strictly clerical. He died in 1335, in one of his lives near Tours, and a solemn funeral service was held in his honor by the Chapter of the college of Bourbon. Ronsard had certainly poetical genius, but he was deficient in taste. He was in this respect in France what the secret-
sitist of the following century were in Italy and Spain. He has collected and compiled very numerous bits of eclogues, &c., 'Mascarades, Combats, et Cartels faits à Paris et au Carnaval de Fontainebleau.' He also began a poem, 'La Franciade,' which he left unfinished. His works are now nearly forgotten. The most complete edition of them is that by Francq, 2 vols. fol., Paris, 1632.

ROOD, the quarter of an acre. [Acres.]

ROOF, the covering of a house or other building. The name, in its most extended sense, embraces the external covering itself, and the framework by which it is supported; but it is a term in carpentry, it is limited to the eaves roof or framing.

The importance of parts of a building can hardly be overestimated, since on its right construction depends not only the comfort of those for whose shelter it is designed, but also the durability of the whole building. For the former of these purposes it is desirable that a roof should exclude extremes of heat and cold, and be impervious to rain or snow. For the latter, the exclusion of water is a necessary requirement, which are important, for a roof is the only device as to throw the least possible strain on the walls. A judicious arrangement in this particular, a roof may not only be prevented from pressing on the walls in an inju-

rious manner, but may be made to contribute greatly to the strength of the building. The most usual materials for the purpose of framing a roof at present are timber, iron, and brick, and in the combination of the requisite qualities, an intimate acquaint-
ance with the principles of mechanical philosophy is indispens-
able; and a correct knowledge of the strength of different materials, when exposed to various kinds of strain, is necessary to the economical adjustment of the dimensions of the several parts of a roof. A roof of large span forms, indeed, one of the most interesting applications of the science of carpentry, theoretical or con-
structive.

In order to cover a building in which the space to be spanned is greater than can be covered by single blocks of stone extending from one point of support to another, it is

necessary either to have recourse to the principle of the

arch or to use the principle of curvature, or a combination of the two. The first, that is, the arch, can be applied to spans of quite considerable length; the second, that is, the use of curved timbers, is often necessary to span a considerable length. The form of the arch is objectionable in the case of ordinary buildings, from its expense and weight, and from the great solidity required in the walls, where they have to be used as the abutments of the arch. Fig. 1 presents a plan, which is supposed to

sonry are formed are explained under Arch and Dog. In this article the more usual kind of roof, that supported by a wooden framing, will be described. Such structures

rarely partake of the character of an arch or dome, but more usually consist of flat planes variously disposed. Roofs formed of one level plane, which are extensively used in eastern countries, are not adapted for buildings where a large space has to be spanned over, nor to resist the pre-

tration of water; and are therefore unsuitable for climate

like that of this country. The use of curved timbers is a simple and well adapted to resist injury from weather, but, as it is scarcely more favorable to an economical disposition of the timbers than a flat roof, it is only suited for small

buildings of this description. A flat roof is one that can be accepted as a lean-to. Another objection to its use on a large scale is the height it requires on one side of the building. The best figure for a simple roof is that of two inclined planes, rising from the two opposite walls that approach nearest to each other, and meeting at a point above, so as to form a ridge. By this form, supposing the same slope to be maintained, one half of the height of the single inclined plane is avoided; and, the length of the timbers being diminished one half, their scantling may be considerably

reduced. The ridges of such a roof, which is called a common or gable-ended roof.
Frequently four inclined planes are used, disposed as shown in fig. 2, representing a hipped roof, which takes its name from the hips, or inclined ridges formed by the meeting of the sides and ends. Where a hipped roof covers a perfectly square building, the faces all meet in a point, and form a pyramid; but when, as in the diagram, the plan of the roof is oblong, the planes rising from the nearest opposite walls meet in a ridge. Sometimes the inclined faces are not continued upwards till they meet, but the roof is completed by a horizontal plane. Such a roof is termed a terrace, or cut roof, and may have two, three, or four inclined faces. Fig. 3 represents a truncated roof hipped at one end, and terminating at the other in a vertical wall, like the gable-ended roof.

This arrangement is useful in diminishing the height of a roof, the level platform being covered with lead to compensate for the want of slope. It should be observed, however, that even this part is not perfectly level, the centre being slightly elevated to throw off water. A similar saving of height is frequently obtained by means of a roof in which each sloping face consists of two planes of different degrees of inclination. This form, which is denominated a curb roof, or, from its inventor, a Mansarde roof, is very common in London, because it affords more space for the formation of bedrooms in the roof than the simpler forms. A curb roof may be hipped or not, according to circumstances; it represents a hipped at one end only, as the last figure, showing, with the same diagrams, the plan, and side and end elevations.

Such are the principal forms of roof used in covering simple rectangular buildings, but they require many modifications to suit irregularities of shape, or combinations of rectangular forms. Thus in Figs. 5 and 6, which represent the juncture of different roofs or portions of roofing at right angles with each other, the lines a a a indicate valleys, or the juncture of two planes in such a manner as to form bowers the reverse of hips. When two faces of a roof join so as to form an angle similar to a valley, but in an horizontal instead of an inclined position, the term gutter is applied instead of valley.

A further distinction, which it may be well to mention before entering upon the details of construction, is that between roofs with dripping eaves, and those in which the water is collected in gutters. In the former case the roof projects several inches, or even feet, beyond the walls, and the water running from the roof either on the ground, or is collected in troughs fixed under the margin of the eaves, and conducted by them to descending pipes. This arrangement has a clumsy appearance, and is perhaps unnecessary where a sufficient projection is given to the eave. Though it is essential to the dryness of the house, they are of the diminutive size often adopted by modern builders. In gutter roofs the timbers do not extend to the outside of the walls, which are carried up as parapets, of a reduced thickness, to such a height as to conceal the roof eaves, wholly or partially. The gutters, which are troughs of wood covered with lead or other metal, are laid at the bottom of the slopes, just within the parapets, and have a gentle inclination (usually about an inch in ten feet), to cause water to run freely towards a drain. In low roofs it is well to use two or more falls instead of one, that the elevated end of the gutter may cover as little of the roof as need be. Similar troughs are often used in the valleys.

Gutters are generally made wide enough for a man to walk along them, and should be sufficiently capacious to avoid all risk of overflowing during a sudden heavy fall of rain.

The degree of slope given to the inclined faces of a roof varies according to the covering material employed, as well as to the climate. The ancient Grecian temples had very steep pediment roofs, varying from 55° to about 16°, the height being from one-ninth to one-seventh of the span.

In Roman buildings the inclination is somewhat greater, being usually 25° or 24°, or from one-fifth to two-ninths of the span. The general introduction of the pointed style of architecture led to the use of very high-pitched roofs, a very common proportion being that in which the length of the rafters is the same as the span, so that they formed an equilateral triangle. In comparatively modern domestic architecture in this country, it has been considered desirable for the length of the rafters to be three-fourths that of the span, and an angle of 45° is still considered by some to be the best pitch when plain tiles are used. As builders can, in the present day, obtain excellent covering materials, the pitch may be made of a considerably less degree down to the Grecian pediment, and it therefore depends on the style of architecture and the taste of the builder; the most common height being from one-fourth to one-third of the span. High roofs discharge rain the most rapidly, and do not remain snowed so much as those of low pitch, but where they have gutters they are liable to become choked by snow sliding into them, and to overflow from water running into them faster than the pipes can convey it away. Steep roofs are more covered with small plates, and are less liable to be stripped by violent winds. Low roofs, in consequence of their superior lightness, are less expensive, the timbers not only being shorter, but of proportionately smaller scantling, and they press less injuriously on the walls. The following table is extracted from Trelgold's "Elementary Principles of Carpentry," shows the proper angle for roofs covered with the materials specified in the first column, the last column indicating the comparative weight of each kind of covering:

<table>
<thead>
<tr>
<th>Covering</th>
<th>Inclination to the horizon</th>
<th>Height of roof in parts of the span</th>
<th>Weight open a square of the span</th>
<th>Copper or lead...</th>
<th>3° 56'</th>
<th>Copper...</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slates...</td>
<td>25°</td>
<td>50°</td>
<td>Lead...</td>
<td>750</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto...</td>
<td>26° 33'</td>
<td>50°</td>
<td>Iron...</td>
<td>1200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stone slate...</td>
<td>26° 41'</td>
<td>50°</td>
<td>Iron...</td>
<td>2300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plain tiles...</td>
<td>26° 41'</td>
<td>50°</td>
<td>Iron...</td>
<td>1700</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pan-tiles...</td>
<td>24°</td>
<td>50°</td>
<td>Iron...</td>
<td>650</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thatch of straw, reeds, or heath... 45°

In describing the timber-work of an ordinary roof, each of the planes of which is composed may be considered to be bounded by a frame, the parts of which have the general name of bordering timbers. Those which lie on the walls are the wall-plates; that at the meeting of two faces, parallel to the wall-plates, is the ridge-piece; and the inclined bars extending from the wall-plates to the ridge piece are rafters, those which form the salient angles in hipped roofs being distinguished as hip-rafter bars. The support of the internal covering is given by a series of rafters or inclined bars, extending from the wall-plates to the ridge-piece, and placed...
parallel with each other at equal distances. In a hipped roof, the rafters near the ends, being parallel with the others, are necessarily diminished in length, extending from the wall-plate to the hip-rafter instead of the ridge-piece. All such pieces, being shorter than the length between the wall-plate and the ridge-piece, are called jack rafters.

It is not usual to vary the scantling, or transverse dimensions of rafters, in any considerable degree, on account of their various lengths; nearly the same scantling being used in all buildings, and the required strength being obtained by introducing intermediate supports between the wall-plates and ridge-piece where the size of the roof renders such necessary. This additional support is supplied by horizontal rectangular bars called purlings, placed under the rafters in such a manner as to divide their length into two or more equal parts, the ends of the purlings being fixed to the sides of the bordering frame. Like the rafters, the purlings are not much varied in thickness according to the strain upon them, but they are in turn supported by a series of bars placed equidistant from each other, and parallel with the rafters, but with their upper face in the same plane as the lower face of the purlings. These are called principal rafters, or, for brevity, principals, to distinguish them from the first described, or common rafters. Where it is desirable to save room by reducing the thickness of a roof, the purlings may, as shown in fig. 15, be notched into the principals and common rafters; but this practice is not to be recommended, as it weakens the timbers. Where principals are used, their lower ends are mortised into the ends of a tie-beam, which stretches across the building, and rests upon the wall-plates. This beam keeps the lower extremities of the principals from separating, and discharges the weight of the roof on the walls in a vertical direction, relieving them entirely from the lateral thrust of the rafters. The triangular frame formed by the principals and a tie-beam, with any bars it may comprise for additional strength, is called a truss, and such frames being placed at regular intervals, the timber-work between any two of them is called a bay of roofing. The lower extremities of the common rafters, being elevated by this arrangement above the wall-plates, are supported by pole plates, or pieces of timber parallel to the wall-plates, resting on the ends of the tie-beams. The supporting frame-work altogether is called a carcass-roof.

Fig. 7, which represents a small carcass-roof supported by four trusses, and having one purlin only between the wall-plate and ridge piece, may assist the reader in comprehending the arrangement of the parts enumerated; and their names will be found more distinctly by referring to the representation of a more complicated truss at fig. 11.

In this figure the common rafters are represented on one half of the roof only, that the trusses may be more distinctly seen; and the end walls are omitted for the same reason.

The proper construction of the trusses of a roof, with reference to the size of the building and the weight of the covering, is a matter requiring much scientific knowledge. For the want of this it is not unusual to encumber trusses with much more timber than is necessary or useful; and the disadvantage of this is not confined to the increased weight and cost of the roof, as superabundant timbers frequently occasion injurious strains, and the increased number of joints adds to the risk of derangement by the shrink- ing and warping common to all timber constructions. The general principles to be acted upon may be illustrated by a few diagrams; but in the limited space devoted to this article no attempt can be made to describe all the modifications required by the ever-varying forms of buildings; in the design of which it is too common, instead of assigning its due importance to the roof, to treat it as an unsightly feature, to be concealed as much as possible from view.

In a roof frame shown in fig. 8, consisting simply of two inclined planes abutting on the walls, it is evident that the weight of the rafters ab and bc, as well as that of the covering sustained by them, will have a tendency to thrust out the walls. This tendency ordinary walls have not the strength to resist, and therefore it becomes necessary to add the beam ac (fig. 9), which, by receiving the outward thrust of the rafters, relieves the walls of lateral strain. If the tension of the tie-beam ac be sufficient to resist the extending force of the rafters without sensible elongation, the only effect that such a roof can have upon the walls is a vertical pressure on each, equal to half its weight; and it cannot fall without the tie-beam, which acts the part of a cord or chain, being pulled asunder, or the rafters being crushed. If the materials were perfectly rigid, no additional parts would be required; but as they are not so in practice, it becomes necessary, when the timbers are of considerable length, to provide means for counteracting their tendency to sinking, or sagging. By adding a bar shaped like bd (fig. 10), the centre of the tie-beam may be suspended from the crown of the roof. This piece is called a king-post, but the name is perhaps not a good one, as, though it appears like a post to support the ridge or crown of the roof, it is a reality a tie, supported by it, and sustaining, instead of resting upon, the centre of the tie-beam. By cutting the king-post out of a piece of wood of larger scantling than the shank of the post itself, projections of the shape indicated in the cut may be formed at its ends. These are called joggles, and those at the upper end form a wedge between the heads of the rafters, like the key-stone of an arch. It is evident that a weight pressing on the projecting joggles at the base of the king-post will be transmitted to the
formed of slender rods of wrought-iron; but the others, needing stiffness as well as cohesion, require bars of considerable substance, and are therefore mostly formed of wood or cast-iron. Sometimes the king-post is dispensed with, and its office performed by two similar posts, called queen-posts, at equal distances from the centre of the trusses.

In order to keep these in their right position, a short horizontal beam, called a collar-beam, is inserted between their upper extremities, and another, termed a straining-still, between their lower ends. This arrangement is explained by fig. 11, which also shows the position of other parts of a truss. One side is represented as a gutter-roof, and the other with eaves.

Fig. 11.

The auxiliary or cushion rafters, are, m.m., are pieces occasionally added, in large roofs, to strengthen the principals; and they, with the collar-beam, &c., form a complete truss within them. The trusses of truncated roofs are formed in this manner, the collar-beam forming, as it were, the keystone of the arch, and being surmounted by a comb-beam, the upper edge of which is formed into two slightly inclined planes, to give the necessary slope to the lead covering. In such a roof, pieces of wood resembling ridge-pieces are inserted at the angles formed by the meeting of the rafters with the horizontal bars that support the slats.

The following representation of a very simple truss, from Nicholson's 'Carpenter and Joiner's Companion,' illustrates the use of slender king-posts and queen-posts of wrought-iron, and shows how the stress of every part of the roof may be brought to bear upon the ridge. The lower ends of the struts rest in stirrups attached to the vertical rods, and the weight on the strut a is imparted, through b and c, to the king-post. The tie-beam is suspended by bolts from each of the vertical rods, and the ends of the rafters are secured to the tie-beam by iron straps passing round them, and bolted to the beam at d, d. Trusses on the same principle may be made of timber only.

In curv roofs the upper rows of rafters are called curb-rafters, and the horizontal bars that receive the upper ends of the lower rafters, and the feet of the curb-rafters, are known as curb-plates. The proper position of equilibrium for the rafters of a curb-roof may be ascertained by very simple means, within the reach of persons not possessed of sufficient mathematical knowledge for determining it by calculation. If the rafters are to be equally loaded, as in a roof entirely covered with one material, this position will be exactly the reverse of that which they would take by gravity, were they suspended in a chain or fasten, the joints being flexible. If they are framed together in this position of equilibrium, they will balance each other like the stones of an arch; and the tie-beams, posts, and braces will have no other office to perform than that of resisting such irregular strains as might tend to alter their arrangement. The rafters thus suspended would fall into the position a b c d e.

Fig. 13a line drawn through the angles being a catenary.

Fig. 14.

bear a greater weight than a b' and d' e', they will, if proportionately loaded when suspended in a curve, fall in such a way as to increase the angles a b c and d e f, and diminish b' c d e, thereby indicating their proper position in the roof. When the roof is to be loaded unequally, and more on one side of the ridge than the other, as it would be if b' c' were to be covered with lead, and the other planes with slates, the corresponding weights added to the curves a b c d e and a b' c' d' e' will cause the bars to arrange themselves as a b c d e, as fig. 14, the angles of which, being transferred to the roof, give the position of equilibrium a b' c' d' e'. This practical method of finding the proper angles of a curb-roof may be applied under all circumstances, the dimensions of the experimental bars being proportionate to those of the rafters, and their centres of gravity being loaded according to the pressure to be sustained by each plane of the roof. The great advantage of curb-roofs consists in the space they afford for chambers in the roof, such chambers being lighted by dormer windows in the lower inclined faces. When the trusses of the roof form partitions between the bed-rooms, their posts and braces are so arranged as to leave one or more doorways for communication between them.

In roofs of very large span it is often desirable, in order to avoid running up to a great height, to form two or more ridges. When intermediate support can be obtained from partition walls, such constructions may be regarded as combinations of two or more distinct roofs placed side by side.

Fig. 15 is an example of a roof of large span without any intermediate support, and having a large available space between the tie and collar beams. It represents the form of the trusses, which were placed fifteen feet apart, of a roof of eighty feet span, erected over Drury-Lane Theatre in 1793.

It is sometimes necessary, in order to obtain additional height inside a building, to raise the tie-beam above the
level of the top of the walls. In small spans this may be done by the simple arrangement called the carpenter's bows (A, Fig. 15), in which a tenon joint is effected between the beam and the rafters without the use of nails or pins. Such a roof can only press injuriously upon the walls by the rafters sinking into a concave form, which however their lower ends are very liable to do. In such a case additional side supports are generally inserted, as shown in B, Fig. 16, where c represents the end of the truss, which should be firmly built into the gables. d and e are side views of two longitudinal trusses suitable for such a situation, the first being stiffened by an arch of iron notched into the short vertical pieces, and the second formed of timber only. Similar trusses are occasionally introduced under the purlins. Roofs without ties may be greatly strengthened by the use of parabolic curves of iron, notched into the rafters of each inclined face, and abutting on the wall-plates, which in such a case are firmly bolted together. The timbers of such a roof may be framed together in planes, each having a distinct ridge-piece, and the rafter heads screwed or otherwise firmly connected together. The curves may be cast in short segments, as they are compressed when in use, it being merely necessary to provide that the joints should always abut on a rafter. Tredgold, in his 'Elementary Principles of Carpentry,' recommends the use of similar curves of either wood or iron, in the trusses of an ordinary roof, by which the arrangement often arising from the shrinking of the king-posts and queen-posts may be avoided. In this case the curves take the place of the principal rafters, and, if made of wood, may be constructed of short straight pieces, arranged as shown in Fig. 17, and held together by bolts or wooden keys. When curved tim-

![Fig. 15.](image)

![Fig. 16.](image)

![Fig. 17.](image)

![Fig. 18.](image)

![Fig. 19.](image)

![Fig. 20.](image)

![Fig. 21.](image)

ber can be obtained it is to be preferred, as it reduces the number of joints. For small roofs timbers may be bent into the required form, as it is found that a piece of wood the thickness of which does not exceed 1/8th part of its length, may be bent into a curve rising one-eighth of its span without impairing its elasticity. Two such pieces may be laid together, and bent by twisting a rope attached to their ends, as it is done in tightening the frame of a bow or pit saw; and, being bolted together while curved, they will spring back but little when the rope is relaxed. Another mode of forming such a rib is to take a piece of wood whose thickness is about one-sixth of its length, and cutting along the middle with a thin saw from each end, leaving about eight feet in the centre solid. The beam may then be bent, and bolted or pinned together as before described. In either case the rib should be bent about one-fourth more than it is intended to remain, to allow for springing back. A parabolic curve is the form most recommended; but a circular arc, rising half the height of the roof, will answer the purpose. Fig. 18 represents the truss of a truncated roof strengthened by a curved rib, the supporting nailing as being, when the rib is forgot in the manner first described, placed at each joint, and each consist-

![Fig. 22.](image)

![Fig. 23.](image)

![Fig. 24.](image)

![Fig. 25.](image)

![Fig. 26.](image)

ing of two pieces, one on each side of the rib, notched to it and the beam, and fastened by bolts and straps.

One of the advantages of this mode of construction is that the tie-beams may be suspended from any number of points, which is important in large spans, where the beams have to be formed of several pieces secured together. (SCARPING.) Diagonal braces, though unnecessary with parabolic curves, may be added to meet accidental strains, as shown by the dotted lines in the cut. This principle of construction, with an arc composed of several pieces of timber, the interior of the roof, which was erected in 1791 over a riding-house at Moscow. The span of this roof, which has been said to be the most extensive in the world, is stated by Tredgold at 323 feet, the slope being about 19°, and the external dimensions of the building 1920 by 310 feet. It states that it had sunk so much that it was proposed to add a second curve for additional strength.

A simple and economical roof, invented by Mr. A. H. Holdsworth, and rewarded by the Society of Arts in 1859, is supported by curved ribs of timber applied in a different manner. A detailed description is given in the 28th volume of the Society's 'Transactions,' but Fig. 19 will sufficiently explain the principle of its construction: a is a beam serving as a tie-beam, and also to support the upper floor of the building; b b are curved ribs, formed in a similar manner to those just described, the lower ends of which are firmly secured to the tie-beam a. The principal rafters rest on these ribs, and their lower ends bear upon short timbers resting on the walls, these pieces being fastened by strong iron straps to the curved ribs, to counteract the outward thrust of the rafters. By this arrangement the whole of the interior of the roof is of a form usually encountered with king-posts, queen-posts, braces, &c., is rendered available for useful purposes, in addition to which it effects a considerable saving of timber.

Wrought-iron straps of various forms are very useful, when judiciously applied in strengthening the joints of a roof. They should be fixed with regard to the unavoidable tendency of the timbers to shrink, so that while they may, in some cases, counteract or lessen its effect, they may so far yield to it as to prevent a strain which should come upon a timber, being entirely thrown, by its alteration of form, upon the strap. Tie-beams are often suspended to the trussing-posts by means of straps, so arranged as to allow the beam to be keyed up to its true position in case of the roof shrinking. When this is not the case, the ties are sometimes drawn up into a slightly convex or cambered form, to meet the same contingency. Height may be gained inside a building by disposing the timbers as in Fig. 20, the want of a continuous tie-beam being compensated for by an iron strap to unite the ties to the bottom of the king-post at a; but it is evident that the safety of the plan must depend wholly on the strength of the truss, which alone counteracts the outward thrust of the rafters.
In roofing a church with a nave and side aisles, the continuity of the tie-beams may be dispensed with, intermediate support being obtained from columns. It is however necessary to guard carefully against any lateral strain to the columns.

Many of the high-pitched roofs of old Gothic churches and halls are very ingeniously contrived, but they often throw great pressure on the walls, owing to the absence or elevated position of the ties; whereby rendering very solid walls and buttresses necessary. The Norman roof is an ingenious contrivance for the construction of roofs of large span with small pieces of wood. Fig. 21 shows this arrangement, in which all the rafters are on jogged king-posts of which there are several, their relative position being maintained by diagonal braces. The timbers of this kind of roof are often left visible, being so carved as to have an ornamental effect. Such a roof may be made to exert very little lateral pressure on the walls.

When the space covered in is of an irregular shape, it is best to arrange the inclined planes of the roof in a similar manner to those of a rectangular building, leaving a level platform in the centre, corresponding to the plan of the internal space. Where the space covered is circular, elliptical, or polygonal, although the construction of the roof may appear more complicated to the eye, it is, in fact, simpler and easier than that of a quadrangular building, the strain of the roof being more equally distributed. The nearer a roof approaches to a circle in plan, the stronger it will be, the parts deriving that mutual support from each other which forms the distinguishing character of the dome. Domes of wood, of great size, have been made without trussing, simply by forming the timbers into curved ribs abutting on the wall-plates, which then form a circle, and kept in their proper positions by horizontal circles framed with them at intervals. As the ribs approach the upper part of the dome, the intervals between them diminish in width, to allow for the which every second or third rib is discontinued at intervals, the ends of the ribs thus discontinued being received by the horizontal circles, which may be compared to purlings, the ribs taking the place of rafters. The wooden dome formerly existing at the Balle aux Billes, at Paris, was a remarkable instance of this kind, being 200 feet in diameter, and having a large opening in the centre. It was built at the suggestion of M. Moulineau, and, having been destroyed by fire, has been replaced by a similar structure of iron, but of smaller dimensions.

When the roof approaches the circular form, but not sufficiently to have the character of a dome, it may be considered as consisting of several trusses resembling those of an ordinary roof, but so contrived as to intersect each other in the centre; the king-post being common to all the trusses. Fig. 22, representing a design for a polygonal roof, from Nicholson, may illustrate this, and exemplify also some of the applications of iron straps: a shows the form of the strap by which the ties are secured to the king-post; the part containing the straps, and the strap as many arms, as there are trusses in the roof.

For the strength of different materials, under various circumstances, the reader may consult Materials, Strength or, vol. xiv, p. 8. As a general remark, it may be observed that oak, when exposed to tension, is weaker than fir, and is therefore less adapted for ties. Being less compressible, it is usually preferred for rafters, straining pieces, and struts; but Tredgold observes that its greater tendency to warping in summer renders it less fit for rafters and purlings than foreign fir. Cast-iron is not much used, except in fire-proof roofs, and each piece requires to be well tested. wrought-iron is very useful for straps and fastenings, and also for ties and trussing-posts; but care is always necessary to guard against imperfections, which are more likely to pass unobserved than in wood. Wherever iron is applied, the iron should be made for the purpose, and not pressed into it, and it is desirable to protect it from oxidation by painting. Though iron is far stronger for its size than any kind of timber, it is neither so strong nor so cheap as yellow fir, weight for weight.

The joints in the frame-work of a timber roof are of various kinds, according to the nature of the strain they have to resist. They should be formed with great care, and with due regard to such probable changes of form as all constructions of timbers are liable to from shrinking and warping. Cocking or cogging is the name given to that kind of joining in which one piece of timber, in a state of tension, is so attached to another that it cannot be drawn away without one piece breaking. Figs. 24 and 25 represent two methods of cocking the ends of tie-beams on the wall-plate, giving a plan and elevation of each. In both figures a represents the beam, and b the wall-plate. In the first plan, which was formerly much practised, the contraction of the dove-tailed end of the beam would allow it to be
Fig. 24.   Fig. 25.

drawn considerably out of its place, and would therefore permit the walls to spread; but in the second the amount of contraction is diminished, owing to the small width of the rectangular tongue that projects from the tie-beam, which is pointed so as to prevent the beam being drawn out of its place beyond the actual extent of the contraction of the tongue. The shrinking of the joggles of king-posts and queen-posts is quite productive of serious derangement, a circumstance greatly in favor of the substitution ofácil wood for such parts, especially in large roofs. This inconvenience is sometimes avoided by making the upper ends of the principal rafters abut immediately upon each other, as represented in fig. 12. A similar arrangement is made, in some cases, where wooden king-posts are used, the king-post and rafters being strapped together with iron. The tipping of a roof, particularly if it be of low pitch, is very injurious to the mortise-and-tenon joints of the struts and rafters, by throwing the strain on the shoulders of the tenons in such a manner as to break off the tenons or splinter the wood. To guard against such injuries, it has been proposed by M. Perronet, a French engineer, instead of making the tenons and joggles square, to form them into circular arcs, the struts being at the opposite end of the strut or rafter. This plan appears worthy of general adoption, as it allows the joints to accommodate themselves to changes of form without injury. All the timbers of a roof are usually fitted and framed together on the ground, and taken to pieces again being raised to the elevation to which they belong.

Allusion has been made in a previous column to the various materials used for the covering of roofs, with reference to the different degrees of inclination suitable for them. Thatched roofs have been considered by some to maintain the most equal temperature in the building covered by them, keeping out alike the extreme heat of summer and cold of winter. They are objectionable on account of their harbouring vermin, being easily damaged by wind, and dangerously combustible. The frequent repairs required, like thatch also an expensive material. Besides straw, reeds and heath are sometimes used for thatching, and possess the advantage of greater durability. Tiles admit heat and moisture more than good slates. Pantiles, the ridges of tiles for raftering, are fairly curved, but by ledges, upon laths nailed to the rafters. Plain tiles, laid in mortar, and over-lapping, so as to be double thickness everywhere, make a very good though heavy covering. Tiles of a peculiar form, called hip-tiles, are used for covering high gables and gabled roofs. They are hinged to them, but placed with the concave side upwards, in the valleys or receding angles. Slates are laid in various ways. They are sometimes nailed down on a close boarding; or, if large, on battens, or pieces of wood from two and a half to three inches wide, and three inches thick, which are nailed to the rafters at intervals regulated by the length of the slates. Lozenge-shaped slating is occasionally used, and has an ornamental appearance, but is easily injured, as there is but one nail through each slate. It is laid on brick boarding. For what is called sawn slating the best large slates are selected, and fixed without either boarding or battening, the common rafters being placed at such a width as to come under the joints. The slates are screwed down, the courses overlapping about two inches. The meeting joints are covered by fillets of slate about three inches wide, set in putty, and screwed down; and the hips and ridges are sometimes covered in the same manner, though it is best in all such cases to use lead. Pantiles have, when well executed, is water-tight with as low a slope as one in six. In some districts lathing of stone is used in lieu of slates or tiles. Shingles, which are like slates, but made of wood, were formerly much used in covering pyramidal steeples, and in roofs of steep pitch. They are still used in the United States, and in some parts of England.

Sheets of metal are very convenient for covering domes, and curved or angular surfaces generally; and also for roofs, or such as have too little slope for thatching. In the most common material for such purposes, zinc, copper, iron, tinned iron, and recently zinc or galvanised sheets, sand, ashes, &c., have been recommended; and asphalt has been applied to this purpose, apparently with great success. Compositions of tar, resin, and similar substances, as well as sheets of copper, have also been used. (Nicholson’s Architectural Dictionary and Practical Essay, &c., &c.; &c.; Tredgold’s Principles of Carpenterly; &c.)

ROOK (Corvus frugilegus, Linnaeus). This well-known and familiar bird (for it seems to affect the roof of man, and even not to be scared by the atmosphere of great towns) is the Cornucopia nerae nacchione of the Italians; Gray, Große, Freur, and one of the French: Cornelle Meisonneuse of Brasseur de Bourbourg. It was the Spermothogus or Spermatocystis, and the Spermatocystis, from the Spermothyes of Aristotle and Linnaeus. It is, no doubt, as Pennant observes, the Corvus of Vergil, which has happily described a flock of them.

*E postis decrescit aegre magno.* (Theocritus, Lib. vi., 212.)

**Geographical Distribution.**—The Rook is spread over a greater part of Europe; but nowhere does it seem to have become so abundant as in Great Britain and Ireland, where the uncultivated and cultivated districts are its favourite haunts. The latter, however, the observer goes in Scotland, the fewer rooks can see. In Orkney and Shetland there are none, nor are any in Guernsey and Jersey. They do not appear to be numerous in Denmark, nor in the southern districts of Sweden in Russia and northern Asia, though they may be there. In Italy the rook is common and permanent, and appears to be migratory over a part of the continent; in France it is also common, and the mountain appears under the cut of it (cementos):

Geographic Distribution.

It occurs between the Black and Caspian seas:—

*Jamaile le Freux se bente le rivier*.

On Siebold and M. Burger note it among the Exactly birds seen in Japan. These last are the Rook-worms in many places, and the birds may be seeing the plough tail to gather them up as the share opposes them. In the end of May and beginning of J, when the young are able to fly and go abroad with their parents, they eat the young shoots of chestnuts, beech, and chestnut. These last are the leaves of the horse-chestnut and other trees bearing branches with their weight as they assemble to pick of cock-chaffers in the winged state. Where these birds have been inconsiderably destroyed, they will satiate themselves with the supple damage which they had done, a total failure of the crop, made the farmer glad to try to get them back again. A stick-built nest contains four or five pale greenish blotched with dark greenish brown; these are sometimes coiled about the nest in a circular form, which are easily distinguished from them. Not that a rook's egg or any means bad; though far inferior in every respect to the other. The male is most attentive to the female while it is setting, and feeds her assiduously; both are very mortar. But the female usually layed on boarding, in a similar manner to common slates.

Food, Habits, &c.—Grain, and insects especially, form food of the Rook, and there can be no doubt that it repays the farmer for the seed which it takes, by its activity in clearing his land of wire worms and the larvae of cock-chaffers (Melolontha). These last are in Rook-worms in many places, and the birds may be seeing the plough tail to gather them up as the share opposes them. In the end of May and beginning of J, when the young are able to fly and go abroad with their parents, they eat the young shoots of chestnuts, beech, and chestnut. These last are the leaves of the horse-chestnut and other trees bearing branches with their weight as they assemble to pick of cock-chaffers in the winged state. Where these birds have been inconsiderably destroyed, they will satiate themselves with the supple damage which they had done, a total failure of the crop, made the farmer glad to try to get them back again. A stick-built nest contains four or five pale greenish blotched with dark greenish brown; these are sometimes coiled about the nest in a circular form, which are easily distinguished from them. Not that a rook's egg or any means bad; though far inferior in every respect to the other. The male is most attentive to the female while it is setting, and feeds her assiduously; both are very mortar. But the female usually layed on boarding, in a similar manner to common slates.

Sheets of metal are very convenient for covering domes,
they have great squabbles among themselves about their nests. An account of one of their battles with the Herons for the possession of a disputed territory is alluded to in the article Herons [vol. xii. p. 167]. They frequently visit their nest trees in the autumn on their way to roost in some distant wood, and come to them for the purpose of repairing their nest and setting about the business of incubation early in March.

The Rook is not without the power of mimicry granted so largely to the greater part of the true crows, is docile, capable of learning amusing tricks, and becomes much attached to the kind hand that feeds it. It has been heard to imitate the note of a jackdaw (Hawson) and the barking of dogs so perfectly that if the mimic had been out of sight, no ear could have discovered the deception. (Magill.)

Varieties.—White, pied, and cream-coloured. A gentleman, says the charming author of the History of Selborne, had two milk-white rooks in one nest. A booby of a carter, finding them before they were able to fly, threw them down and destroyed them, to the regret of the owner, who would have been glad to have preserved such a curiosity in the rookery. I saw the birds myself nailed against the end of a barn, and was surprised to find that their bills, legs, feet, and claws were milk-white. These perhaps were perfect albinos, and might so have continued; but instances are not wanting where the normal light colour deepens into the usual in the age. Mr. Yarrell quotes Mr. H. Hunt of Norwich, who states that a gentleman of his acquaintance had in 1816 a young rook of a light ash-colour, most beautifully mottled all over with black, and the quill and tail feathers elegantly barred: but when the bird moulted it became a jet-black rook, and in this state was suffered to join its sable brethren in the fields. Mr. Yarrell remarks that this agrees with his own observations, and he adds that accidental varieties will generally be found to be comparatively small and weak birds, as these young birds increase in age and gain constitutinal power, the secretions, he observes, become perfect, and the plumage assumes its natural colours, whilst the assumption of white feathers, by old birds, is probably the effect of the converse operation of the physiological law.

(\textit{British Birds.})

Head and Feet of Rook.

It has been, and indeed still is with some, a question whether the loss of the feathers at the base of the beak in the young rook upon the first moult, is or is not a specific distinction, or merely the result of denudation from plunging the bill into the ground in search of prey. It must be borne in mind that some foreign birds resemble the rook in this particular. Mr. John Blackwall's observations (\textit{Researches in Zoology}) touching this matter are full of interest. He refers to a rook preserved in the Manchester Museum, which has its mandibles crossed near their extremities, but so slightly that the malformation could not have interfered materially with the mode of procuring food usually resorted to by rooks, as is clearly shown by the denuded state of the nostrils and anterior part of the head, both of which are entirely destitute of feathers. But he notices another specimen, in the possession of Mr. R. Wood of Manchester, which has the mandibles greatly elongated and much curved. 'Now,' says Mr. Blackwall, 'it is evident that the bird possessing a bill thus formed could not thrust it into the ground in search of worms and larvae of insects, as the rook is known to do habitually; and accordingly the plumage at the base of the bill of this individual, and the bristly feathers which cover its nostrils, are very conspicuous, not having sustained the slightest injury. The opinion entertained by many persons that the naked condition of the nostrils and anterior part of the head indicates a peculiarity in the rook, is thus satisfactorily proved to be incorrect; indeed, the fact that young rooks exhibit no deficiency in these particulars, is sufficiently conclusive on this point; but the possibility of an entire species being endowed with an instinct destructive of a usual portion of its organization was probably never contemplated by these observers; it is not surprising therefore that the inference deduced from a partial view of the subject should be erroneous.

ROOKE, SIR GEORGE, ADMIRAL, the eldest son of Sir William Rooke, was born at his father's seat, the priory of St. Lawrence near Canterbury, in the year 1630. He entered the navy as a volunteer, and at the age of thirty had attained the rank of post-captain. In 1669 he was sent out with the French squadron to the assistance of the Dutch, where his services were such as to induce William III. to promote him to the rank of rear-admiral of the red. He soon afterwards bore a part in the indecisive action between the earl of Torrington's fleet and that of the French admiral Treville, off Beachy Head. In 1692 Rooke was advanced to the rank of vice-admiral of the blue, and greatly distinguished himself in the battle off Cape La Hogue (properly La Hogue) between the French fleet and the combined English and Dutch fleets on May 19, 1692; and a part of the French fleet having escaped into La Hogue, and being hailed up as high that the English ships of the line could not reach them, Rooke volunteered on the following day to attack them with the boats of his squadron. This service he performed at night under cover of a fire from his smaller vessels; and so well was his plan contrived, and so unexpectedly and suddenly executed, that though six French three-deckers were burnt that night and seven other ships of the line on the following morning, the loss of the English only amounted to two. For this exploit Rooke was rewarded with the rank of vice-admiral of the red, a pension of 1000L a year, and the honour of knighthood.

After the peace of Ryswick in 1697, Sir George Rooke was elected member for Portsmouth; and though he was attached to the Tory party, then in opposition to the government, Queen Anne, on her accession in 1702, appointed him 'vice-admiral and lieutenant of the admiralty, and also lieutenant of the fleets and seas of this kingdom,' having previously distinguished himself, as a privateer, in the service of George of Denmark generalissimo of her forces by land and sea.

The war of the succession had now commenced, and an attack upon Cadiz was resolved upon, the land-forces being under the command of the duke of Ormond, and the combined English and Dutch fleets under Rooke. The attack was begun, but, in consequence of the opposition of the prince of Hesse, was not persevered in. Having received intelligence however that the Plate fleet, under convoy of a Dutch squadron, had taken shelter in the port of Vigo, the duke and Sir George resolved to proceed there. The duke stormed the town with 3000 men, while the fleet took and destroyed seventeen ships; six galleons being taken by the English and five by the Dutch, who burnt five only. The value of the specie and goods taken was estimated at five millions of dollars.

Sir George Rooke having been joined by Sir Cloudesley Shovel, with a large reinforcement from England, they resolved to make an attack upon Gibraltar. On the 16th of July, 1704, the prince of Hesse, with 1800 marines, was landed on the isthmus, while the ships commenced a cannonade upon the fortress, which, having been kept up for about six hours, the Spaniards began to fly from the batteries. The boats were then manœuvred and armed, and the seamen succeeded in making themselves masters of the great platform, which they retained till the following day, when a reinforcement of seamen enabled them to carry un-
other strong battery, which put them in possession of most of the enemy’s cannon. The governor then accepted the offered terms of capitulation, and the fortress surrendered.

On the 9th of August 1794, Rochef in with the French fleet under the Comte de Toulouse, who had recently put to sea from Toulon, with fifty-two ships of the line and twenty-four galleys. The French admiral endeavoured to get ashore, but, according to Lorek, the resistance, besides the superiority of 600 guns, but on the 13th of August Rochef brought him to action off Malaga. The battle began in the foreground, and ended with the day, when the French went off to leeward, and, the weather being bazy, escaped. This was the battle. The French lost upwards of 3000 men, and the English upwards of 2000.

Sir George Rochef on his return to England was received by queen Anne at Windsor with great distinction, but finding that the government was hostile to him, he resigned his employments, gave up his seat in parliament, and passed the rest of his life at his seat of St. Lawrence, where he died on the 24th of January, 1789, aged fifty-eight, and was buried in the cathedral of Canterbury. He was thrice married. (Campbell’s Lives of the Admirals; Locker’s Gallery of Greenwich ship.)

ROOKER, MICHAEL ANGELO, an artist of considerable merit as a landscape-painter and engraver, was born in London about the year 1743. His father, Edward Rooker, and grandfather, Daniel Rooker, who excelled in landscapes and architectural views, appears to have been a singular character, having for some time acted as a harlequin at Drury-Lane Theatre. Michael Angelo was taught engraving by his father, and executed the head-pieces to the * Operistico di Pietro da Cortona, for several of the volumes of his own writings. In landscape-drawing, which is said to have been his favourite occupation, he was instructed by Paul Sandby, whose style he imitated. His manner is not powerful, but his drawings display much taste and feeling. For several years he painted the scenes for several of Drury Lane’s dramas as he required for his them. He was one of the earliest associates of the Royal Academy, and died on the last day of February, 1801, at the age of fifty-seven or fifty-eight.

ROOOS, PHILIP PETER, a painter commonly called * Roto the Elder. From his long residence at that place, was born at Frankfort in 1655. He was instructed in art by his father, who was in the service of the landgrave of Hesse, by which prince Philip was sent to Italy, and allowed a pension during the period of his study. On arriving at Rome, he applied himself assiduously to painting, and acquired a most astonishing facility of hand; indeed, such was his rapidity of execution, that C. le Blond, who was at the same time at Rome, declares that Rood copied in chalk the arch of Titus within half an hour, with a composition and degree of finish. He devoted his talents chiefly to painting animals, which he designed mostly from nature. To facilitate his studies he established himself at Tivoli, where he kept a kind of menagerie for the purpose of drawing from it. He contented himself with such animals as he required for his pictures. His other subjects generally represent pastoral scenes, with herdsmen and cattle, and works of a similar nature, some of which are executed as large as life. His groups are composed with great judgment; and the landscapes in his backgrounds, his skies and distances, are treated with surpassing truth, and executed in a masterly style. Yet, although he painted with great facility, his productions betray no appearance of negligence or inattention; for they are free, without being deficient in finish. His principal pictures are in the National Gallery in London, the Palace of Vienna, Dresden, and other capital cities of Germany, besides an immense number in Italy and many in England, though we have no specimen by his hand in the National Gallery in this country. He is the principal member of the French academies of Europe. He is said by Huber to have had a few plates of pastoral subjects, which are very scarce. M. Pére, in the * Biographie Universelle,” mentions three pictures from this master which were in the Musée Napoleon, but sold and removed to Vienna, whence they had been taken, in 1815. These are a view of the Cascade of Tivoli, a picture of animals, and a wolf devouring a sheep, the landscape in which latter work was painted by Tempesta. (Pilkington’s Dictionary, by Fuseli; Lanz, Storia Pittorica, ii. 199, Biographie Universelle.)

ROOT. The mathematical use of this term has gradually been extended, until it may be defined as follows: every value of an unknown quantity which satisfies a given equation is called a root of that equation. Thus, 2.1 + \sqrt(-3) and 1 - \sqrt(-3) are the roots, and all the roots of the equation

\[ x^2 + 5x^2 + 12x^2 + 16x - 8, \]

are the only algebraic formulae and arithmetic numbers which satisfy it. On this general use of the term root, see THEORY OF EQUATIONS and INVOLUTION.

Since the seventh of May, 1834, the French mathematical and scientific journals have passed from the care of the Universal Institute to the care of the National Institute. The seventh root of 5 is the incommensurable fraction whose seventh power is 8, or the solution of the equation \[ x^7 = 8. \]

There are altogether seven such solutions, one only arithmetical, the others of the form \( a + b/\sqrt(-1) \); the method of obtaining them has been discussed in the article INVOLUTION; the importance of the SQUARE Root will justify its consideration in an article apart. We reserve for the present article the method of finding and using any root (in the common sense of any algebraic quantity, a necessary completion of the article NEGATIVE and IMPOSSIBLE Quantities).

Every algebraical result is of the form \( a + b/\sqrt(-1) \) as widest, or may be reduced to that form. Here \( a \) and \( b \) are meant to be real algebraical quantities, that is, reducible to positive or negative whole numbers or fractions, commensurable or incommensurable. Thus, if \( b = 0 \), we have the simple real quantity \( a \); if \( a = 0 \), we have the simple impossible quantity \( b/\sqrt(-1) \). It is indifferent, as to the present article, in which we are now merely considering all algebraic formulae as results, subject to certain laws by which their use is to be regulated, and without any reference to interpretation.

When we desire to consider only the arithmetical root of an arithmetical quantity, we shall use the symbols \( \sqrt(), \sqrt(), \sqrt(), \sqrt(), \ldots \) but the exponential fractions \( a \) \( b/\sqrt(-1) \) \( \sqrt(), \sqrt(), \ldots \) will denote one of the algebraical roots of a formula. Thus \( \sqrt() \) means simply \( a \); but \( \sqrt() \) is an ambiguous symbol standing for either \( +a \) or \( -a \). And when we have an equation \( \sqrt() = \sqrt() \) presents an ambiguous formula equal to an unambiguous one, we mean that the unambiguous side of the equation is one of the values of the ambiguous one: in this sense \( \sqrt() = \sqrt() \)

When we use the simple arithmetical symbol \( \sqrt() \) before an algebraical quantity, as in \( \sqrt() = \sqrt() \), we merely mean to signify that the two values of \( \sqrt() \) are distinguished into \( +a \) and \( -a \).

Let us take a quantity of the form \( a + b/\sqrt(-1) \)

\[ A \cos \theta \cos \epsilon, \sin \theta \sin \epsilon, \] which gives

\[ r = \sqrt(b^2 + c^2) \tan \theta = \epsilon. \]

Let us choose for \( r \), which is called the modulus of the expression, the positive value \( \sqrt(b^2 + c^2) \). We can then always make the angle \( \theta \) give the equation

\[ a + b\sqrt(-1) = \cos \theta + \sin \theta \sqrt(-1) \]

Identically true. If \( a \) and \( b \) be both positive, \( \theta \) must be between \( 0 \) and a right angle, or between \( 0 \) and \( \pi \). [ANGLES] if \( a \) be positive and \( b \) negative, \( \theta \) must lie between \( 0 \) and \( \frac{\pi}{2} \); if \( a \) be positive and a negative, \( \theta \) must lie between \( 0 \) and \( \pi \); and if both be negative, \( \theta \) must lie between \( \pi \) and \( \frac{3\pi}{2} \).

Thus reducing angles to degrees and minutes,

\[ 283\frac{3}{4} = 283\frac{3}{4} \] (cos. 56° 56′ 30″ sin. 56° 56′ 30″)

Add.

\[ 283\frac{3}{4} = 283\frac{3}{4} \] (cos. 36° 34′ 10″ sin. 36° 34′ 10″)

Sub.

\[ 283\frac{3}{4} = 283\frac{3}{4} \] (cos. 236° 19′ 30″ sin. 236° 19′ 30″)

Generally, if \( a \) and \( b \) be positive, and if, returning to the theoretical mode of measuring angles, \( \theta \) be that angle which lies between \( 0 \) and \( \pi \), and \( a \) and \( b \) are the sides of a right-angled triangle: we must use \( \cos \theta \) for \( a + b\sqrt(-1) \), \( \cos \theta \) for \( a + b\sqrt(-1) \), and \( \cos(\theta + 2\pi) \) for \( a + b\sqrt(-1) \).

Again, since \( \theta + 2\pi \) has the same sine and cosine as \( \theta \) when \( k \) is any whole number, positive or negative, if we wish to make \( \theta \) so as to satisfy (1), we do that which the following is also satisfied:

\[ a + b\sqrt(-1) = \cos(\theta + 2\pi) \]

\( \theta = \theta \)

For all integer values of \( k \) positive or negative, but not for any fractional value of \( k \) whatsoever. This and various other results of common trigonometry should be familiar to students who attempt the present subject.
Common multiplication makes it obvious that
\[ \cos (x + \sin x) \sqrt{-1} = \cos (x) + \sin x \sqrt{-1} \]
for all real values of \( x \) and \( y \); so that if we represent \( x + \sin x \sqrt{-1} \) by \( x \), \( \cos (x + y) \sqrt{-1} \)
\[ = \cos (x) + \sin y \sqrt{-1} \]
for all real values of \( x \) and \( y \); so that if we represent \( x + \sin x \sqrt{-1} \) by \( x \), \( \cos (x + y) \sqrt{-1} \)

**New in Binomial Theorem:** It is proved that this equation cannot be multiplied further without giving as a consequence
\[ x^2 = n \sin x \sqrt{-1} \] for all values of \( n \), whole or fractional, positive or negative. We have then
\[ \cos (x + \sin x) \sqrt{-1} = \cos n \sin x \sqrt{-1} \]
\[ \cos (x + y) \sqrt{-1} = \cos (x + z) \sqrt{-1} \]
\[ \cos (x + y) \sqrt{-1} = \cos (x + z) \sqrt{-1} \]

Let \( x \) now be rendered the square power of \( a + b \sqrt{-1} \), \( n \) being integer or fractional, positive or negative; this includes every case of raising a power, extracting a root, performing both operations, and taking the reciprocal of any result.

Reducing \( a + b \sqrt{-1} \) to its equivalent form \( r \cos (\theta + \lambda) \sqrt{-1} \), or
\[ r \cos (\theta + \lambda) \sqrt{-1} \]

where \( a + b \sqrt{-1} \) is \( r \cos (\theta + \lambda) \sqrt{-1} \), and
\[ a + b \sqrt{-1} \]

\[ r \cos (\theta + \lambda) \sqrt{-1} \]

in which \( r \) is found by purely arithmetical operation, and \( \sin (\theta + \lambda) \sqrt{-1} \) by aid of trigonometrical tables. So many distinct values as the variation of \( n \) enables us to give to \( \cos (\theta + \lambda) \sqrt{-1} \), so many values do we find of \( a + b \sqrt{-1} \). Two angles are distinct when they are unequal, and do not differ by \( 2\pi \) or a multiple of \( 2\pi \).

Firstly, let \( n \) be a whole number, positive or negative, then \( 2\pi \) is always an integer even number, and there is only one value, namely,
\[ \{a + b \sqrt{-1}\} = r \cos (n \theta + \pi \sin \theta \sqrt{-1}) \]

Next, let \( n \) be a fraction in its lowest terms, and, choosing an example, say \( n = 2 \). Let us examine all the values of \( k \), from \( k = -5 \) to \( k = +5 \), making \( \cos (n \theta + \pi \sin \theta 

so that we only get, from the powers of $\alpha$, the distinct roots $\alpha^3, \alpha, -1, \alpha^2, \alpha^4$, which are also the fifth roots of $-1$. But if $2k+1$ be prime to $q$, all the $q$th roots of $-1$ may be obtained from $\alpha$. As before, if $m$ be any factor of $q$, all the $m$th roots of $-1$ are among the $q$th roots. Also these $q$th roots occur in pairs of the form $\cos \phi \pm \sin \phi \sqrt{-1}$, the pairs being $\alpha$ and $\alpha^{-1}$, $\alpha^2$ and $\alpha^{-2}$, etc., or $\alpha$ and $\alpha^q$, $\alpha^q$ and $\alpha^{q-1}$, etc. Thus, if $q$ is not of the form $2k+1$, there is only one of the $(2q)$th roots of $-1$, and the $(2q)$th roots of $-1$ consist of all the $q$th roots of $-1$.

The following equations will also be easily proved:—

$$1 \pm \left( \frac{(2k+1)x}{q} \right) = \cos \left( \frac{(2k+1)x}{q} \right) \pm \sin \left( \frac{(2k+1)x}{q} \right) \sqrt{-1};$$

$$1 = \cos \left( \frac{(2k+1)x}{q} \right) \pm \sin \left( \frac{(2k+1)x}{q} \right) \sqrt{-1}.$$

As it is not our object here to write on the applications of these formulas, but only to supply an article of reference for those who may have forgotten or imperfectly learned the theory of this important branch of analysis, we conclude here, referring to Series for such applications as fall within the plan of this work.

ROOT is that part of a plant which is sent downward into the earth, at the same time that the stem is sent upward into the air. Every plant which has a stem under the earth is subject to it; and large buds, called roots, also exist underground. These parts have been often confounded with the stem. The creeping root, and the deep-seated root, and the rootstock and bulbous root, and the tuberose root, are all forms of roots, and the botanical writers, are only so many other forms of the root or stem. (Fromm.)

The root is distinguished by certain structural peculiarities, by which it can be easily known from other stems. First, its ramifications are irregular, not having the symmetrical form of branches, nor are they developed like branches from buds. Secondly, roots generally produce no leaf-buds. When they appear, which occasionally occurs, they are called adventitious buds. Thirdly, roots never have leaves, scales, or other appendages developed upon their surface; and fourthly, the cuticle of roots is never found to possess stomates, which are frequently very numerous on various parts of the stem.

The cuticle of thevrieres or roots are called fibres, which consist of a little bundle of ducts or spiral vessels, surrounded by woody fibres, lying in a mass of cellular tissue. At the apex of the $\alpha$ cell the cellular tissue is loose and composed of protoplasm, from each of which the fluid in which it is surrounded is the other parts of the root. Although the terminations of the roots cannot be considered as special organs, they have been named by De Candolle sponges or spongines, in reference to their absorbing power.

The relation between the size and extent of the roots and that of the branches varies very much. In some tribes, as in the Coniferous and Pterocarpus, the roots are very insignificant compared with the size of the branches. In other plants the roots are much the longest, as in the lucerne, etc. In the greater proportion of trees the roots extend wider than the branches, but do not penetrate so deep as the stem is high.

The internal structure of the root resembles that of the stem, but in Eucalyptus the roots do not possess a central pith. The cellular tissue of many roots is exceedingly abundant, and on this account they are used as articles of diet. Their nutritive property depends on the saccharous and other secretions which are deposited in the cells of the cellular tissue. Many of these roots, by attention to their culture, may be increased in size; and the growth of sculent roots is an object of importance in the kitchen garden. The principal sculent roots are: Jerusalem artichoke (Helianthus tuberosus); turnip (Brassica Rapa); carrot (Daucus carota); parsnip (Pastinaca sativa); red-beet (Beta vulgaris); skirret (Sium Sibirum); scorzonera, or upper's grass (Sorogonera hispanica); salsify, or purple goat's-beard (Tragopogon porrifolius); radish (Raphanus sativus).

Besides these, which are commonly cultivated, there are many of our native plants which possess roots yielding a nutritious matter, and are occasionally used as articles of diet. The arrow-head, common arum, bitter vetch or mus: earth-nut, meadow-sweet, pilewort, sago, silver-wax, Solomon's seal, and common confrey, are recorded as yielding edible roots. (Cyclopedia of Gardening, p. 842.)

During dry seasons, and in dry situations the roots of many plants swell and become tuberosous, which seems to be a provision for supplying nutriment to the stem and its appendages.

Roots are called annual, biennial, or perennial, according to the time of their existence. When a root perishes after its first year's herbage and flowering, it is annual; if after the second year's herbage and first year of flowering, it is biennial. If a root endures for many years, although its herbage may perish every year, it is perennial.

The fibrous root possesses a multitude of small divisions of the fibrillos, as is seen in the Poa annua and many other grasses. The nodulose root presents occasional dilatations in the Pileum nodosum. A pneumose root is said, which the extremity of the primary axis has perished, or its development has been prevented by the extension of fibrillos from its sides, as in the Devil's-bit Scabiosa (S- tachya success). The funiform root is seen in the carrot and parsnip; such plants are also called tap-rooted. The term tubercules is applied by some to the roots of the orchid and dahlias; the former are palmed or lobed, the latter are fasciculated.

Although most if not all the higher plants possess roots, the first of the lowest forms are not to be distinguished. The lower plants which float about in water, as the Oscillatoria, Diatoma, &c., and which consist of little more than simple cells, possess no appendages which can be called roots. In many of the Conifers a downward development of the cellular tissue takes place, and the objects on which they grow, has been observed. Some of the Lichens, as the L. excelsius of Pallas, and the lower forms of Fungi, as the Tremella, &c., possess no roots. Among the lower plants, in the lower plants they are performed by particular parts of the plant. In the Charam and the Marchantia, the roots become more evidently developed, and the downward growth of the cells is more observable than in the Conifers. On the lower surface of the Marchantia, a prolongation of the cellular tissue is observed, which Meyen calls root-hairs or capillary fibrillos. In the Equisetum and Ferns the roots become more perfectly developed, and their surface is almost entirely covered with the absorbing surface which are developed on almost all roots, and perform the function of absorption. They are only seen on recently-formed roots, as with the increasing age of the root they drop off; and in old roots none at all are found. They are not so numerous in the roots of the reservoir as in those of the plant, but the number varies exceedingly according to the circumstances in which a plant is placed. The number of these root-hairs is greatest in those plants which derive their nutriment from the earth, and accordingly they may be looked upon as a provision for extending the absorbing surface and retaining sometimes the length of a quarter and the third an inch.

In many plants the roots, instead of being covered with the capillary fibrillos, present a condensed membrane, which at first resembles the roots as in the Althorandia, the point of the root where the fibrillos commence their growth. This structure occurs in most water-plants, and in the root of those plants which are accidentally projected into water and of the floating plants. It drops off with increasing age in the same manner as the fibrillos. This is a modification of the root-hairs, and hence is called: that it performs the same function. (Meyen, Natural History of Plants, p. 35.)

The absorption of water from the animal, the roots are to the plant, and a difference between plants and animals has been pointed out as dependent on the relative action of their organs of absorption. The animal derives its nutriment, by means of its absorptions, from an internal reservoir, the stomach; while the plant, but not the roots, from an external reservoir, the earth. The absorption of in
roots, as we have already stated, are the active agents in the absorption of nutritious matter from the soil. By some botanists it is supposed that no other part of the root absorbs, but that these depend on the observations of Meyen and others it appears that the capillary fibrils and the epidermis of the root have also the power of absorbing fluid, though not in so high a degree as the delicate point of newly developed tissue situated at the extremity of the fibrous root. This view was confirmed by De Candolle to be due to the capillarity and hygroscopicity of the cellular tissue of which they are composed. Dutrochet explains the absorption of fluids by plants in his theory of endosmosis. But whatever theory is urged in regard to it, the root cannot be considered as merely mechanical, as the process occurs immediately on the death of the plant, and is undoubtedly connected with those more complicated relations of the vital processes of plants.

Roots do not absorb everything that is presented to them. It was long ago ascertained by Davy that plants did not absorb particles of charcoal and other substances that he diffused through water. Experiments also by Meyen, Link, and others have shown that the plants do not take up the pores of the vegetable tissue by the thick matter. But the theory of endosmosis and exosmosis gives a far better explanation of these facts. [Endosmosis]

When plants are submitted to solutions of various poisons, grown in water gave out a blackish secretion, and looked upon it as a secretion from the fluids of the plant. Brugmans followed up this point, and, in conjunction with Coulon, came to the conclusion, from the experiments they made, that the active principles of the grasses was a process of a similar nature to the rejection of the excrements in animals, and that these secretions acted beneficially in the nutrition of some plants, and injuriously in others. At the suggestion of De Candolle, M. Macaire prepared plants, and, in conjunction with Leguminous, gave it a gum and carbonate of lime; Gramineae deposited a matter containing hydrochlorates and carbonates of alkalies and earths, and containing but little gum; Cichoraceae, an abundant brown matter analogous to opium; Euphorbiaceae, a gum-resinous matter. It was inferred that these excretions were matters injurious to the plant, which were thus thrown off from the system. This inference seemed to be confirmed by an experiment of Macaire's, in which, having divided the roots of a plant of Mercurialis annua into two parcels, he plunged the one into a glass with solution of acetate of lead, and the other into a glass of pure water; in a short time it was found that the acetate of lead had not been taken up by the roots from the one glass, but that it had been excreted by them to the other.

These researches have been considered to offer a satisfaction to any explanation of the occurrence of crops in agriculture; the rotation being required on account of the excretions of a plant being injurious to itself, and beneficial, as the excretion of one plant is the food of another (Rotation).

The experiments and conclusions of Macaire and De Candolle have however been called in question by some German botanists. Meyen and Unger object to the employment of a plant like the Mercurialis for determining the absorption and excretion of poison in water, as in the first place its root must be injured by removal from the soil, and in the second place water is not its natural medium of growth. They employed water plans, and, having placed them in various solutions, could not detect, by the delicate agents, the rejection of any of the absorbed agents. Meyen and Unger maintain that Macaire to be merely secretions resembling those which are found on various other parts of the plant. He gives numerous instances of plants secreting various matters on the surface of their leaves, &c., and points out that plants have been grown in soils which are overcharged with the same substance as that which the plant has secreted. The chalk incrustations of Chara, and those of various Saxifraga, with the crystals of salt that occur on the plants on salt-plains, are given as examples. The durability of these secretions.

This is a subject of practical importance, and worthy further investigation. In the late Report on Organic Chemistry, by Professor Liebig, the views of De Candolle and Macaire are adopted. (Liebig’s Organic Chemistry, p. 165.)

Besides the function of absorption, the roots serve other purposes in the economy of the plant. It is by means of the roots that a plant maintains its position in the earth; and for the increasing nourishment of the plant an increase of the absorbing surface is required. It is no less necessary that the roots shall be strong and firm, and that the stems shall be of an extension of its holfsheads should take place. In many instances the root appears to serve merely the purpose of holding the plant in the ground, as in the mosses, and many of the plants belonging to the orders Crassulaceae and Cactaceae. By means of the roots the temperature of plants is kept below that of the atmosphere in summer, and above it in winter. This arises from the roots absorbing fluids from some depth below the surface of the earth, where its temperature is not subject to the changes in the atmosphere. It is thus that the inhabitants of tropical climates are supplied with fruits whose delicious juices, pumped up from the earth, are much cooler than the atmosphere, and thus afford the most refreshing articles of food.

ROOTSTOCK. [Stem.]

ROPE, a combination of fibres of hemp, or other material, so arranged as to form a flexible and tenacious cord or band; retaining, as far as possible, their collective strength. The name Rope is generally applied to the larger descriptions of cordage, such as exceed an inch in circumference, though the principles of formation are much the same for cordage of every size.

The fibres used by the rope-maker were of sufficient length, the most effectual way of obtaining their united strength would be to lay them side by side, fastened together at each end, so as to form a bundle or skien; but, as the fibres of hemp do not, on an average, exceed the length of a foot, the process must first be to obtain a rope of greater length, so to twine them together that the strength of any single fibre shall be insufficient to overcome the resistance caused by the friction of those surrounding and compressing it; so that it will sooner break than when drawn out from the mass. This production is made by twisting, which causes the fibres to compress each other; and it not only enables the rope-maker to produce cordage of any required length, but also, by making the rope, in some degree, compact, it enables it to resist the penetration of water, which would rapidly impair its strength. While however some degree of twist is absolutely essential to the cohesion of a rope, any twist...
beyond that which simply prevents the fibres being drawn out without breaking, is injurious. A skein of fibres, or a rope, may be the worse hard that any further attempt at twisting would break it, and such a skein or rope will evidently have no power to sustain a weight, each fibre being already strained to the utmost extent that it will bear. In fact, whatever force is exerted by any system of compression or twist may be considered the same as a weight hanging on that fibre and must be subtracted from its absolute strength before its useful effect can be ascertained; the available strength of a rope being the remainder of the absolute strength of the constituent fibres, after deducting the force exerted in twisting them.

Were a rope to be formed by simply twisting together, in one direction, the whole of the fibres of which it is composed, there would be nothing to prevent its untwisting as soon as it is made. It is therefore necessary to twist fibres in comparatively small portions, and so to combine these into a rope that the tendency to untwist in one part may counteract the like tendency in another. Thus the same force which would cause the component parts, if separate, to move in a contrary direction, is applied to combine them into a rope, to keep the whole firm and compact.

The first process in rope-making consists in twisting the hemp into thick threads, called rope-yarns. This process, which is done by ordinary spinning machines, is performed on various kinds of machinery. The common mode of spinning rope-yarns by hand is performed in the rope-ground, or rope-walk, an enclosed slip of level ground six hundred feet or more in length. As many as one hundred rope-walks may be put in operation, and by the unchecked heat of the sun, it is not unusual to cover the walk with a slight roof. At one end of this ground a spinning-wheel is set up, which gives motion by a hand to several small rollers or whirs. Each whir has a small hook formed on the end of its axis next the walk. Each of the spinners is provided with a bundle of dressed hemp, laid round his waist, with the right or double in front, and the ends passing over each other at his back, from which he draws out a sufficient number of fibres to form a rope-yard of nearly the required size, and, after slightly twisting them together with his fingers, he attaches them to the hook of a whirr. The whirr being now set in motion by turning the wheel, the skien is twisted into a rope-yarn, the spinner walking backward, supporting the yarn with one hand, which is protected by a wetted piece of coarse cloth or flannel, while with the other he regulates the quantity of fibres drawn from the bundle of hemp by the revolution of the yarn. The degree of twist depends on the velocity with which the whirr is turned, combined with the resistance of the skien of rope-yarn.

Great care is necessary in this operation to make the yard of uniform thickness, and to supply the hemp equally from both sides of the bundle; because, if a considerable body of hemp is supplied to a yarn that is being twisted, it will not continue to form a lously connected wrapper; and any irregularity in the last-mentioned particular will cause the fibres to bear the strain unequally. The best mode of supplying the hemp is in the form of a thin flat skien. When the spinner has traversed the whole length of the rope-yarn (or skein, as the yarns are not required to be so long), he calls out, and another spinner detaches the yarn from the wheel, and gives it to a person who carries it to a reel, while the second spinner attaches his own hemp, or the skien-hook, the hemp having been previously laid on the reel. The hemp will instantly untwist if the skien was now set at liberty. The first spinner therefore keeps fast hold of it all the while that the reeler winds it up, walking slowly up the walk, so as to keep the yarn equal in thickness. When the spinner holds it until another is ready to follow it on the reel. Sometimes, instead of being wound on a reel as they are made, the yarns are laid together in large bags attached to posts at the side of the walk until about four hundred and eighty yards of rope are formed, when they are rolled up in a hout or skein, in which state they are ready for tarring.

Attempts have been made to introduce machine-spin yarns, in order to avoid the irregularities and defects of those formed by hand, and the recent improvements effected by this mode of spinning, in the rope-manufactory, are said to succeed very completely. By his process the hemp is more completelybecked, or divided into fibres, than in the common mode of proceeding; and the advantage of each fibre being laid at full length, the yarn, instead of being doubled, as in hand-spin, is ensured. By a modification of the usual process, fibres of hand-spun yarns may be laid in at full length, instead of being doubled, as when they enter the yarn their bight; but experiment has not shown any great improvement in this respect. The adoption of this system has been adopted by some of the principal rope-manufacturers of Great Britain.

The common size of rope-yarn is from one-twelfth rather than one-ninth of an inch diameter; 156 yards of white or unlarred yarn weighing from two and a half to four pounds.

The next process is warping the yarns, or stretching them at a given length, in order that they may, when formed into a strand, bear the strain equally. When the rope is formed on the warping-kite, the yarn is immediately after their being warped; as the application to the yarns previous to their combination is necessary to the complete penetration of the whole substance of a rope. The most common method of tarring the yarns is to lay them out in a basket for about a capstan; but sometimes the yarns are passed singly on the tar, being wound off on a reel to another, and superfluous tar being taken off by passing the yarn through a small hole bored in the reel. The other is not required in this process that the tar may boil neither too fast nor too slow, the common heat being from 212° to 215° Fahrenheit. In Huddart’s patent of 1800, the cover, or the tar-kite, is recommended, to prevent the escape of evaporated matter, which would make the tar too thick. The degree of impregnation necessary depends on the size of ordnance; cables and water-ropes needing a consider quantity of tar, while for standing and running rigging a sufficient that the yarns be well covered.

In many cases the yarns are to twist together at as one, as many yarns as would suffice to form a rope required thickness; a suitable number of yarns varying from fifteen to twenty-five, are formed into a strand, and three or more such strands are afterwards combined into a single rope. As the rope is formed in the opposite direction to that of the yarns of which it is composed, in order that, as before mentioned, the tenderness of untwist in the individual yarns may be counteracted by a taken advantage of to prevent the untwisting of the separate yarns, they are first laid in, in a spiral, in a four, in which case a small central strand, or heart, added, are stretched at length along the walk, and are at one end to separate but contiguous hooks, and to another to a single hook; and they are twisted together into a rope by turning the wheel, and then they are twisted to resist the twist of the other three, a piece of wood called a top, in the form of a truncated cone, being placed between the strands, kept during the whole operation gently forced as angle formed by the strands, where they are united by a closing, one end only of the apparatus is fixed, the rope being on a moveable sledge, whose motion up the rope is capable of regulation by suitable tackle attached to it. In loading it with weights. The top also is mounted upon a slight frame, and closing when the rope is not or may be raised, in order to give greater firmness to the two ends of the rope-maker, in this operation, consists in so regulating the various movements that, when the rope is all wound up at one end just as a twist is taken out of them at the opposite end, by twisting the contrary way in the process of combination, such is the method, more or less modified by the kind machinery employed, of forming a shroud-laid or horizontal rope, as it is termed, that the hemp of round the
common axis, just as shroud-laid ropes are composed of strands twisted round their common axis. As cable-laid ropes are stouter, thinner, and longer, and ropes of the same kind and material vary according to the manner of formation adopted for ropes to be exposed to the action of water, even though their thickness may not be very great.

Ropes formed by plaiting instead of twisting are made use of for some purposes in which pliability is especially needed, being more supple and less liable to entanglement than those of the ordinary make. Such ropes are preferred for sash-lines, clock-lines, &c., and generally where the rope has to pass over pulleys of small diameter.

In the latter part of the last century great attention was directed to the improvement of the rope manufacture, between twenty and thirty patents having been taken out on this subject from 1783 to 1807. The application of machinery, instead of manual labour, to its various departments, has been of great advantage, and occasioned a more rapid progress of the art. A detailed account of many of the ingenious and complicated contrivances for the purpose, in Chapman's Treatise on the Progressive Endeavours to Improve the Manufacture and Durability of Cordage, 1803.

6. The yarns composing a strand were of the same length, an arrangement extremely defective, as it is evident that when a number of yarns are stretched at length in a cylindrical mass, they will lie at different distances from the centre of the cylinder; so that, when a strain is applied, the yarns are likely to break at different places, and occasion a greater number of breaks often than when the same number of turns, which are near the outside, forming spirals of large diameter, will be stretched to their full extent; while those near the centre, forming spirals of smaller diameter, will be less shortened by the pressure or by the closing process by which they are packed up, according to their proximity to the centre of the mass. The first successful attempt to remedy this defect by varying the length of the yarns according to their position in the strand, was that of Captain Huddart's patent of 1793, since which time many further improvements have been effected in this essential point.

Flat ropes, which are much used for mining purposes, are either formed of two or more small ropes placed side by side, and then twisted together, following smaller ropes; or of a number of strands of shroud-laid rope similarly united. In either case it is necessary that the component ropes or strands be alternately of a right-hand and left-hand twist, that the rope may remain in a quiescent state. The first patent for making flat ropes was patented by Mr. Chapman, in 1807; and he considered it to afford the strongest possible combination of rope-yarns, its belts or flat ropes appearing to be even stronger than salvages (which are skeins of rope-yarns without any twist) of the same material. The advantage gained by the perfection of hand-spun yarns, because if each yarn bears its own strain unaided, it will break at its weakest part, while, if combined, the mean strength of each will be rendered available.

For the demand to maintain Rémur, recorded in the Memoirs of the French Academy of Science for 1711, it appears that a well-made small hempen cord broke in different places with 4, 63, 67, and 72 lbs., its mean breaking weight being 55 lbs.; while the three strands of which it was composed bore 92, 97 and 93 lbs., respectively, so that the united absolute strength of the strands was 278 lbs., although the average real strength of the rope was only 65 lbs., showing a loss of strength from twisting equal to 33 lbs. It appears that the cord used by Rémur was of very unequal quality, as two-thirds of it had been subjected to the action of water, and strands bore separately 26, 28, and 30 lb.; which shows the diminution of strength from twisting to have been from 84 to 72 lbs., the loss being in this instance only 12 lbs.

The more recent experiments of Sir Charles Kames indicate the amount of weight, by means of them to be the first-mentioned of Rémur. He found a white or uncoloured rope of 33 inches in circumference break, on an average of several trials, with 4502 lbs.; while the aggregate strength of its yarns, which were 72 in number, and bore separately 26, 28, and 30 lbs., each, was 6400 lbs.; the loss being equal to 2928 lbs., or about 30 per cent.

Duhamel, who tried many important experiments in the dockyards of France, about the middle of the last century, reduced the test of what extent twisting would prove the most useful effect. He caused some ropes to be made so that only one-fourth of the length of the yarns was absorbed in twisting, instead of the usual proportion of one-third. These ropes were tried in shipping, and found to be lighter, and the proportion of the weight less than those of the ordinary make. The following statement shows the comparative strength of ropes formed of the same hemp, and the same weight per fathom, but twisted respectively to two-thirds, three-fourths, and four-fifths of the length of their component yarns:--

<table>
<thead>
<tr>
<th>Degree of twist</th>
<th>Weight borne in two experiments</th>
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<tbody>
<tr>
<td></td>
<td>4098 lbs.</td>
</tr>
<tr>
<td></td>
<td>4250 lbs.</td>
</tr>
<tr>
<td></td>
<td>4380 lbs.</td>
</tr>
<tr>
<td></td>
<td>5673 lbs.</td>
</tr>
<tr>
<td></td>
<td>6280 lbs.</td>
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</table>

The result of these experiments led Duhamel to try the practicability of making ropes without any twist, the yarns being wrapped round to keep them together. These had great strength, but very little durability, the outer covering soon wearing off, or opening at bendings, so as to admit sea-water, and occasion great loss, and occasioned a demand for a new system of material, the twisted skeins of rope-yarns, or salvages, are unfit for most of the purposes to which cordage is applied, they are used with advantage for the tackle of great guns and some other purposes for which the greatest strength and pliancy are required.

It has already been intimated that the usual reduction of length by twisting is one-third. This applies to shroud or hawser-laid ropes, those which are cable-laid being further shortened, so that 300 fathoms of yarn are required to make 180 fathoms of cable.

Ropes formed in the most common manner, with three strands, do not require a heart, or central strand, because the angles formed by the union of the three cylindrical strands are so obtuse that the pressure of the operation of greater weight, by breaking the ropes, is not sufficient to make them up completely; but when the number of strands exceeds three, a heart is essential to keep them equidistant from the axis of the rope, and to fill up the vacuity that would otherwise be left by their not meeting in the centre. The heart can however add very little to the strength of the rope, as its fibres lie much stronger than those of the outer strands, and, not being able to extend with them when the rope is stretched, are soon pulled asunder.

The following rule for calculating the strength of ropes is given by Robinson:--Multiply the circumference of the rope in inches by itself, and the fifth part of the product will express the number of tons the rope will carry. For example, if the rope be six inches in circumference, 6 x 6 = 36, and the fifth part of which is 7.2, the number of tons which such a rope will sustain.

The following rules for calculating the weight of cordage may also prove useful:

To find the weight of shroud or hawser-laid rope, multiply the circumference in inches by itself, and divide by 420, the product will be the weight in cwt. Example: to find the weight of a six-inch hawser-laid rope, 120 fathoms long, 6 x 6 = 36, 36 x 120 = 4320, which, divided by 420 gives the weight of the rope, which is 10 cwt.

To find the weight of cable-laid cordage, multiply its circumference in inches by itself, and divide by 4. The product will be the weight, in cwt., of a cable 120 fathoms long, from which the weight of any other length may be readily deduced. Example: required the weight of a twelve-inch cable, 120 fathoms long; 12 x 12 = 144, divide by 4, and the product, 36, is the weight in cwt.

Much attention has been devoted to the discovery of the best method of preserving ropes from decay, especially when exposed to the action of water. Being often subjected to the opening of tare, which has been almost universally practised for this purpose, affects it very imperfectly, and materially diminishes the strength of the cordage. Taking the mean of several experiments by Duhamel, it seems that universally exposed to the alternate action of water and air, tarring is a valuable preservative, though cordage that is only superficially tared is not always stronger than such as is tarred throughout, and better able to bear the alternations of wet and dry.
The removal of the defects and bad qualities of common tar was the object of a patent taken out in 1862 by Mr. Chapman. Unsuccessful attempts had been made to substitute oils and various fat substances, which would be insoluble in water, for tar; but they had been found to impede the operation of twisting. Chapman improved the ordinary tar, first, by boiling the tar in water one or more times, each of which extracts a portion of its superabundant oil, and its mucilage, which contains a disengaged acid; and, secondly, by continuing these processes until the tar has thrown off a larger portion of its essential oil, and becomes more pitchy than usual; and, finally, by restoring the requisite pliability of the addition of substances less impure and less volatile, and therefore more continuous, viz. by the addition of suet, tallow, animal oils, or susceptible expressed oils. Of the advantages attending this process, an idea may be formed from the subjoined statement of the relative strengths of the cordage without any tar, with common tar, and with Chapman’s purified tar.

The rope was made on the 10th of August, 1862, and contained twelve yarns in each strand; part was tried immediately, and the rest steeped in water for about three months, then removed to a foundry store for three months, and finally kept at the ropery till November 3, 1863, the date of the second experiment:

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>33.4</td>
<td>19</td>
<td>37</td>
<td>1.45</td>
<td>1.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common tarsed</td>
<td>22.2</td>
<td>7.35</td>
<td>33.0</td>
<td>0.90</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total purified tars</td>
<td>29.3</td>
<td>12.35</td>
<td>42.0</td>
<td>1.25</td>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Satisfactory as these experiments appear, Mr. Chapman’s process has not been brought into general use.

Sir Joseph Banks had some ropes tared with leech tar, by way of experiment, and found them to be one-third stronger than those done with common tar. Tanning has been tried for the preservation of ropes, but apparently without realizing any decided advantage. The same may, if the writer be not misinformed, be stated of Kyan’s process for the prevention of dry rot. A solution of chouchoe, in cordage, has been used with success.

Some of the operations of lashing, or upsetting, of rope have been made use of in the manufacture of cordage, and some appear greatly to exceed hemp in strength. In a comparative trial made at Paris between ropes made of hemp and of the aloe from Algiers, the latter was found to bear 2000 kilogrammes, while the former, of equal size, bore only 400.

Ropes have been formed also of long wool, but they are only about one-third as strong as the best hemp cordage of the same size. Ropes composed of fibres of hemp intermixed with threads of cotton or worsted are very valuable for some purposes, owing to their superior strength and elasticity. Their power of bearing sudden jerks without injury is a highly important property. It may be mentioned that such a rope has been used with the grappling iron or anchor of a great ship. It has been employed for the manila and for the anchor, and found to arrest the falling, without any unpleasant check when the grappling catches. Ropes made of thong of ox-hide twisted together, are used in the rope-bridges of Peru, and for some other purposes.

Ropes formed of iron wire have been, within the last few years, introduced to a considerable extent, and have been found to effect a great saving of expense from durability and superior lightness. From a paper communicated by Count Brunner to the British Association for the Advancement of Science, 1836, it appears that such ropes had been introduced about twenty years before the silver mines of the Haar Mountains, and had been found so advantageous as almost entirely to supersede flat and round ropes of hemp in the mines of Hungary, and most of those in the Austrian dominions. But it is observed that these iron ropes are nearly equal in strength to solid bars of the same diameter, and equal to hemp ropes of four times their weight. One of them had been in use for upwards of two years without any perceptible wear, though a common flat rope performed on this work would not have lasted much more in one year. The diameter of the largest rope in ordinary use is stated to be one inch and a half, and it is composed of three strands, each containing five wires of two lines in diameter. Great care is observed in the manufacture of ropes that the wires used be set down in parallel, as far as possible, in the interior of the rope, and that two ends may not occur near the same part. In use, it is necessary that the ropes be wound on a cylinder of not less than eight feet diameter, and be kept well coated with tar, to prevent oxidation. In case mentioned by Count Brunner, so great a superiority was effected, that four ropes were doing as much work with six wires, as would one hemp rope.

Prior to the date of this memoir, patents had been obtained in this country for the manufacture of wire and hemp and they have since been improved and partially adopted. The ropes of Mr. Andrew Smith, who appears to have been the most successful in this direction, had been used in mines and shipping for some years; as being adopted for other purposes, having undergone a factory trial for several months on the London and Blackwall cables. Mr. Neill, in an extensive trial of the wire ropes may likewise be made of straight wires, interwoven or wrapped with hemp yarn, or sewed together with r.c.e.; but the patentee prefers using them with the twist. Other ropes are formed much in the same manner. Those of hemp, the wires taking the place of rope, being twisted into strands, and combined into hemp-winder and cable-laid. The twisting should be hard as in hemp cordage, and all the wires are protected by an anti-corrosive composition, or aspersion, of r.c.e. In the patent of Mr. Neill-Dundee, for improvements in wire ropes, the following mixture is recommended:—Tar, six parts; oil, two parts; and tallow, one part; the whole being mixed and applied while hot. In this way, the twisted wires round a single strand of wire, hemp spun yarn, or other material, to form a strand; and such strands round a similar core when there are three strands in a rope. For joining the wires, Mr. Smith and Newall both recommended twisting them together for a few inches; and the latter also zero possibility, in some cases, of welding them. Wire may be very conveniently and firmly secured at their passing through the small end of a conical, and for double or triple strands, it may then be welded into a solid mass, or secured by melting brass or solder among them. The others are attached in various ways, to anything with which is desired to connect the rope; or they may, as already described, be screwed together, so as to make lengths of rope.

Iron is the material usually employed for rope copper and other metals may also be used. The annexed table, showing the comparative weight per fathom for equal sizes of hemp and wire experiments with the wire ropes of Mr. Andrew Smith, may serve to show their great superiority to those of which they surpass even in flexibility:

<table>
<thead>
<tr>
<th>Hemp Rope</th>
<th>Patent Wire Rope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>Weight per fathom</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
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<td>12</td>
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<tr>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

ROASS. [From the Latin, Rosa, the rose, from the French Rosé; the Latin 'Rosa' and the Greek are evidently the same, the name of the most sally admired and cultivated genus of plants of type of the natural order Rosieae. The rose was known in Roman times, and was a favourite among the nations of antiquity as it is in modern times. The rose is found generally in almost every part of the northern hemisphere, both in the Old and New Worlds. It was used in Sweden to the north of Africa, in Russia, in Bengal, and from the coast of the Atlantic to the Pacific. It is not found in South America, or in Australia. All the species are included between
It has linear diverging stipules, dilated at the apex, glossy leaflets, and a hemispherical tube. This plant requires some care in culture; it only flowers in open airy situations, and requires to be freely watered whilst in flower. It is grown in greater perfection in Italy than in this country. As its flowers are double, it never produces seeds. Rosa damascena, the Damascene rose, is a native of the Alpi Apuane, the South of France, Silesia, and Bohemia. It is distinguished by prickles or setae, has pendulous elongated fruit, bipedal peduncles, and solitary, erect, bluish-coloured flowers. It attains a height of seven or eight feet, and is well adapted for the larger rose beds.

5. **Centifolia**, clothed with bristles and prickles; flowers bracteate; leaflets oblong or oval, rugous, dark thickening, closing the throat; sepalis compound. This division comprises those species which have been most interesting to the florist, as also probably those that were earliest known. Although the garden varieties of this division would probably amount to several hundred, there are only three species.

Of these, the **centifolia**, the hundred-leaved cabbage or Provence rose, is known by its large unequal prickles, glabrous leaflets, pendulous flowers, and oblong fruit. This rose has been said to be a native of France, but this is doubtful. It has been found wild in thickets on the eastern side of the Rhine, and plant as the **fruticosa**, under which name, each of the various species in our gardens have been propagated. Seventy or eighty varieties of this rose have been named. They are all characterised by their large pendulous fragrant flowers, seated on slender branchlets, which, with their green or yellowish fruit, have a most interesting appearance. A botanical variety of this species, the **R. centifolia muscosa**, is the parent of the beautiful family of moss-roses. When this variety was produced or discovered is not known, but that it is something more than a variety of **R. centifolia** is proved by the fact that it has been often seen on the same bush. When moss-roses are removed from our northern climate to Italy, the mossiness disappears. They are universal favourites, and between twenty and thirty varieties of them are annually created. They have stiff erect stems, with brilliant-colored flowers seated on short curved branchlets. Their colours, from white to a dark rich crimson. They flower best in a light soil. The white varieties ought to be grown on a stock of the common dog rose. They are all adapted for standards. If a succession of blossoms be required throughout the summer, they should be pruned in October and May.

**Rosa Gallica**, the French rose, has equal small prickles, erect flowers, ovate sepalis, and glabrous fruit. It is found wild about Montalbanum, Walenbogen, and Genera, also on the Caucasia, and in the Caucasus. This is the chief species to be the species to which Pliny refers (Hist. Nat. xxi, 18, 25, 72, 73). The **R. pumila** of Jacquin is a variety of this species. Upwards of one hundred varieties of this rose are found cultivated in gardens. They have stiff erect stems, with brilliant-colored flowers seated on short curved branchlets. The spotted, striped, and marbled roses belong to this species. The York and Lancaster rose is a variety possessing white and red coloured flowers. In the garden they will flourish as bushes on their own roots, or they may be grafted or budded on short stems, or grown as standards. In winter pruning, the stratified shoots should be shortened to within six or eight buds of the bottom, those that are weak to within two or three buds.

6. **Villosa**. Rose-shoots erect; prickles nearly straight; leaflets ovate or oblong, with diverging serratures, sepalis

...
persistent, conic; disk thickened, closing the faces. The best known species of this division is the R. alba, white rose; it has rugose glaucous leaves, with simple serratures and acicular unequal prickles, by which it may be distinguished from both R. tomentosum and R. canina, with which it is liable to be confounded. It is a native of Piedmont, Cochín China, Denmark, France, and Saxony. Its flowers are very large, exalting a delicious fragrance. A number of handsome ornamental roses are found in this species, such as double, semi-double, single blush, white, &c. In the garden the varieties of this species, varying in the colour of their flowers from pure white to vivid rose, contrast well with beds of darker varieties. They are good for growing near close partitions. R. hibernica, the Irish rose, belongs to this division, and is interesting to the botanist as being entirely confined to Ireland.

7. RUBIGINOSA, unequal and sometimes bristly prickles, ovate or obovate leaves, with glands and diverging serratures, persistent sepals, thickened disk, and arched root-shoots. To this division belongs the eleganti, or sweet briar (Rosa rubiginosa). It is common in Britain in bushy and climbing forms, the latter of which has been made to flower in pots by the introduction of varieties. Rosa rubiginosa is a good subject for the greenhouse, and should be grown in a warm frame when it is not more than six inches high. In the garden they will not bear moisture, requiring in most cases very dry warm raised border. They form elegant and graceful arches for the drawing-room. R. canina, the dog-rose, is the oldest common species of the division, and from its varied character and structure has given origin to a number of names supposed to represent species. It is used for making conserves of roses.

8. CANINA, with equal hooked prickles; oval eglandulose leaves, with conic serratures, deciduous sepals, and thickened disk closing the throat. To this division belong many of the varieties called autumnal or perpetual roses, on account of their blooming late in the season. Most of these varieties are highly fragrant, and more so in the latter than the earlier months of the year. The soil in which they are grown cannot be too rich. In order to secure full blossoms in the autumn, all the flower-buds should be cut off in June, the shoots shortened, and the plants well watered and manured. They should never be planted on dry lawns, and wherever placed they should be mulched every year. By retarding and thinning them, they may be made to flower eight months in the year. Of the roses in this group that have afforded varieties for the garden, the R. Indica. Chinese rose, stands first. It is known by its whitish green or purple stem, stout falcate distant prickles, stamens bent inwards, and the usual red flowers. It is found wild in China about Canton. It blossoms six or eight months in the year. The varieties of this plant are quite hardy; their colour varies from a delicate blush to a most brilliant red. It is said to be a hybrid between this species and the R. odorata, and is generally cultivated on account of the beautiful musky odour of its flowers. It is a tender plant, and with us generally too severe for it. Its blossoms are of a pure pink, and are up to this time considered the finest musky odour is most powerful at night. It is supposed to be the famous rose of Persia, in the branches of whose poet of that country delight to describe the beautiful nightingale) pouring forth her music.

9. VIVIPAROUS, styles cohering in an elongated stipule, the seed being produced in this stipule. It is nearly the same as that of the last. R. arvensis, the white dog-rose, belongs to this group. It is a common plant in many parts of England, adornning the hedges with its elegant snowy blossoms. It has cord-like unequal prickles, with linear diverging stipules, and ovate crimson fruit. The name Viviparous is given to this and allied species, as R. multiflora and R. sempervirens, from the circumstance of the seed being produced in the stipule. Many of these species are of great use in making conserves of roses. It has slender recurved prickles, the surfaces of its leaves of different colours; acute narrow stipules; and white fragrant flowers. It is an autumnal rose, and is generally cultivated on account of the beautiful musky odour of its flowers. It is a tender plant, and with us generally too severe for it. Its flowers are of a pure pink, and are up to this time considered the finest musky odour is most powerful at night. It is supposed to be the famous rose of Persia, in the branches of whose poet of that country delight to describe the beautiful nightingale) pouring forth her music.

10. TERRAQUEA, with numerous small stipules and deciduous; long shining leaves and tender shoots. This is the last division of the species of roses. The remarkable species in this group is the R. Banksianum, named after Lady Banks. It is a native of China, and has very numerous double, sweetly-scented flowers, which are arranged in umbel-like clusters. It is one of the most elegant plants of the genus; it is well in the open air, but is tender, and requires to be protected against a wall or in a sheltered situation. Its blossoms should be cut off before they are fully developed, and the branches should never be shortened, as it prevents the production of flowers. The seeds are not perfectly hardy, and are in Spain and Italy.

The R. Bourboniana is a natural hybrid between R. Indica and a variety called red four-seasons. This hybrid was found amongst a number of the latter plants in a hedge in the Isle of Bourbon. It was brought to France, and has since produced many beautiful varieties. The flowers of this rose are very handsome, pendulous, with fine colours, and a most delicious fragrance. The varieties are not yet much known to English cultivators. They form a pretty addition to clumps of roses, or may be grown in beds as standards and pillars. Mr. Rivers, in his 'Rose-Amateur's Guide,' says, 'I consider the culture of these roses only in its infancy; we shall ultimately have the richest hedges combined with perfection of form and complete plentitude of their flower.'
 consumed in large quantities, as rose-water, vinegar of roses, spirit of roses, honey of roses, &c.

For those who would wish to know more of this favourite genus of plants, we append the names of some of the best works that have been exclusively devoted to its history and illustration—Rumphius, 'Microcosmographia' (1697); 'A Collection of Roses from Nature,' by Miss Lawrance, 1779; 'Les Roses,' by Redouté and Thoré; 'L'Histoire Naturelle de la Rose,' by Guillemin, 1800; 'Prolium de la Monographie du Genre Rosier,' by Thoré, 1809; 'Roses Amoureuses' by Th. Rivers of Sawbridgeworth, 1836 (a very excellent account of the garden varieties and their cultivation); the article 'Rosa,' in Rees's 'Cyclopaedia,' by Sir J. B. Smith; 'Genus Rosea,' in Miller's 'Gardener's Dictionary,' by Pattern.

ROSA, MEDICAL PROPERTIES OF. Of the numerous species or varieties of this genus, three only are indicated in the 'Pharmacopoeia' as the sources of the official articles; but very considerable number of them contribute the different medicinal qualities. These indicated in the 'Pharmacopoeia' are: the Rosa canina, or common dog-rose; Rosa gallica, the French or red rose; and Rosa centifolia, the hundred-leaved or cabbage rose. Of the first, the so-called fruit (berries) are used, with which, in the common preparations, it can be applied. The petals are the official article. They are astringent and diaphoretic, and yield, when the flower is fully blown; and to be plucked off, not allowed to fall off. It is better to collect them before the flower is fully expanded, as the colour rapidly diminishes as the petal dries in the process. Only, they are to be dried in the open air, and not in an oven; and the astringent properties are impaired, while the petals become more translucent and fragrant. The colouring matter extracted by alcohol furnishes a very good grade of rose-scent for the presence of alkalis.

A syrup is also made of this sort, but the chief use of it in England and France is to yield by distillation rose-water, the medical properties of which are too slight to merit further notice here. In hot countries a large quantity of volatile oil is elaborated by the flowers of this and other species of Rosa. It is used in the healing of wounds, and scalds, and is sold in Italy, by the name of Modena, which constitutes the atkar, ather, attar, ulcer, or otto of roses. A 'a rose is said by Donald Monro to be procured by merely distilling the petals; but it is stated that the expense of this perpetual feast is so small as not to be felt by the poorest occupier of a room. The colouring matter extracted by alcohol furnishes a very good grade of rose-scent for the presence of alkalis.
several distinct layers, the upper one of which is sold as rose-oil. The Chinese adopt a similar expedient. Genuine attar of roses contains no fixed oils, but all temperatures, in the proportion of one part of the first to two of the latter. The first is a steapent, the last an oleopent. The entire oil, according to Gobel, consists of carbon 69.66, hydrogren 16.00, and oxygen 14.32; but the analyses of Sausse and Blanchemat do not correspond with this: Sausse and Blanchemat, in their nitros capture, prove the nature of the oil as that of the alant, which is almost constantly adulterated. When mixed with any essential oil, such as that of an Indian grass (Andropogon, Accors Calam.), or of sandal-wood, or of rhodium (from Cinnaburum Sceppurcs), the sophistication is not easy of detection, but if with fixed oils, blotting-paper will reveal their presence. Alcohol is no criterion of the purity; for when castor-oil has been used to adulterate the attar, it is as soluble as the rose-oil in alcohol of sp. gr. 0.915. Attar of roses is chiefly brought from Constantinople. It is sold at a duty of 1s. 4d. per lb. In 1838, 973 lbs. and in 1839, 751 lbs. paid the duty.

(Pereira's Materia Medica.)

ROSA SALVATOR was born at Renella or Arencello, a village near the confines of Naples, on the 20th of June, 1615, and he was originally intended for the church. Whilst yet a boy he manifested a strong propensity for drawing, and in order to cure him his parents procured his admission at the age of eleven years to the college of S. Ignatio in Naples: but before the expiration of the usual period of residence, he was either expelled or voluntarily quitted the college. On his return to Renella he devoted his time to the study of music, and cultivated his talent for poetry, and when at the age of thirty-six he married with Francesca Fragiamantzi, a disciple of the Spagnuoloto school, he attended the studio of that artist. He also studied from nature in oil-colour, and in 1633 went from Naples on a tour through the wild scenery of La Basilica, La Puglia, and all the rest of the south of Italy. During his stay in the south, he was introduced to the great Cardinal d'Albani, and indulged in his bountiful effects and favours; nor are his sea-pieces less forcible; in these presents the desolate shores of Calabria, and subsequently adds interest to his works by the temper of the water upon which he draws the peculiar cast of nature, which, though void of elegance, and simplicity, though it has nothing of invention and dignity which belong to the grand style, yet that sort of dignity which belongs to savage and remote parts. The Dionysian spirit of the Greeks was without choice of form in design or much perception, and though his talent was better in smaller dimensions, he could fill a large canvas with effects, of which the Conspiracy of Catiline, the Capture of La Caserta, and each of this series, of which the description is scarce possible. The subject of the Witch of Endor has been by some persons extravagantly praised, but named acute critic has observed that the tale, hallucinations, and other accessories are scarcely accounted for, the various disposition and paths in small, and of which the appearance. He however admits that Rosasalvator was a genius.

There are a great number of his pictures in the Louvre, in the gallery of the Palazzo Farnese, and in the Gallery of the山庄 of Westminster, Lord Francis Egerton, the Duke of Chandos, the Earl of Darnley, the Duke of Buckingham, others. The Founding of Muses, at Stowe, was painted from the Orleans collection for 2,000. His picture of about ninety in number, executed in a spicier masterly style. The chiaro-creto is admirably well, and the heads of the figures are full of expression. The monogram is composed of an S and an R. The former letter drawn over the straight line of the latter. Among his other musical manuscripts, purchased by Dr. Botome, and amongst many airs and cantatas by masters there were eight entire cantatas, written and transcribed by the painter himself. From these manuscripts, for music there seems to be, he had a truer genius for this science, in point of melody, than any of his predecessors or contemporaries. There is a strength of expression in his verses that always places him above the middle ranks. The accomplishment in the architecture, according to Pascoli, he understood perfectly, and was as a comic actor, an improvisatore, and a performer of musical instruments. (Biographie Universelle, Life of Rossa, by Lady Morgan; Bystrat's Dictionary, &c.)

ROSA DA TIVOLI, [Rossata]'s, ROSE'CEA, (Malacology.) [Diphyllus Rose'CEA, a natural order of Grasses.]
with 4 or 5-lobed calyx; 4 or 5 regular petals; indefinite perigynous stamens; exalbunous seeds; and alternate stipulate leaves. The plants of this order are allied to Chrysobalanus, from which they may be distinguished by their styles proceeding from the side of the ovary near the apex, and not from the base, and by their regular petals and stamens. They are distinguished from Fabaceae (Leguminosae) by their regular petals and stamens, and especially by the odd segment of the calyx being posterior, and not anterior, as in that order. The genera of this order may be arranged under four groups or suborders, the principal distinctions of which will be seen in the following analysis:

Carpelis numeros.
Ovaries superior. Rosaceae (proper).
Ovaries inferior. Pomeae.
Carpels solitary.
Flower a drupe. Amygdalae.
Fruit a bulb. Sanguisorbeae.

Rosaceae proper include the true Roses (Rosae), the Cynquefoils (Potentilleae), the Spirains (Spiraeeae), and the Neuradas (Nourades). They are herbaceous plants or shrubs. This family includes about 370 species and 22 genera, principally inhabitants of the temperate and cold zones of the northern hemisphere of the New and Old World; a very few are found on high land within the tropics, and a smal part in the southern hemisphere. None of the plants of this section of the order are un wholesome; they are characterised by the presence of an astringent principle, which has led to the use of many of them in medicine.

Pomeae are known by the union of their ovaries to the side of the sepals, the petals being always in pairs. The tendency of the flowers of this family to revert to their normal state frequently affords instructive examples of morphological changes. The fruit of many of the species contains a considerable quantity of staline acid, which gives to the fruit its peculiar flavour. The apple, pear, medlar, quince, service-tree, and mountain ash belong to this family. They are inhabitants of Europe, Northern Asia, the mountains of India, and North America.

Amygdalae have but a single carpel, which, when ripe, is a drupe; but they are also distinguished amongst Rosaceae by their leaves containing hydrocyanic acid, and their bark yielding gum. They are natives exclusively of the northern hemisphere, where they are found in cold or temperate regions. Many of the species are poisonous, on account of the hydrocyanic acid they contain. They yield however some of our most valued fruits, as the peach, nectarine, plum, apricot, cherry, and almond, which last is the seed of the Amygdalus communis.

Sanguisorbeae are not only known by their solitary carpels, but they are destitute of petals, and have a hard thickened calyx. They are found wild in heaths, hedges, and exposed places in Europe, North and South America beyond the tropics, and the Cape of Good Hope. Their principal property is astringency, and some of the species may be used as fodder.

Rosacic acid, a name given by Prout to a peculiar acid which he imagined to exist in the laterinates sentiment, is composed in urines during fever. Dr. Prout is of opinion that it contains some purpura of ammonia, and consequently, if this opinion be correct, no such substance as the roasice acid exists.

Rosalinia. [Foraminifera, vol. x. p. 348.]
Rosamon. Fair. [Henry IL]
Rosario. [Mexican States.]
Rosary. [Brady.]
Rosas, a small seaport town in Spain, in the province of Gerona in Catalonia, not far from Cape Creus, on the north side of a gulf in the Mediterranean, as you pass the Gulf of Rossas; in 42° 13' N. lat. and 3° 11' E. long. Rossas was founded by a colony of Rhodianists, who called it Rhodore. (Strebo, p. 160.) But the reading in this passage of Strabo is evidently correct, and should be Rhode. The town is mentioned under the name of Rhodes by Stephanus of Byzantium (c. 'Po17), by Livy (34, c. 8), and by Melia (2, c. 6). It has a good and capacious harbour, which was formerly defended by a strong fort and batteries. The town itself is surrounded by a very thick wall and towers.

The fort however was blown up by the French on their evacuation of the Peninsula. During the sixteenth and seventeenth centuries the port of Rossas carried on a brisk trade with the Spanish colonies. It is now reduced to a mere fishing-town, the population of which, according to Muñano (vol. vii. p. 566), did not exceed 2200 inhabitants in 1830.

Roscius, Quintus, a celebrated Roman actor, was born near Lanuvium (Cic., De Dieis, i. 36), but at what period of his life is uncertain. He is first mentioned in the writings of Cicero, who was his friend and warm admirer. His talents also obtained for him the friendship of Sulla, who, during his dictatorship, presented him with a gold ring, the mark of equestrian rank (Macrob., Sat., ii. 10). He died in triumph with his name inscribed on the Roman wall. The actors in the Roman writers prove that the histrionies were generally held in great contempt. So perfect however was Roscius in his art, that his name became almost synonymous with excellence in any other branch, and thus when an orator produced a great impression of Rhoda's appearance, it was customary to say 'a Roscius is on the stage.' (Cic., De Orat., i. 28; Brut., 84.) Actors frequently received instruction from Roscius, who used to say however that he had never had any pupil with whom he was satisfied. (De Orat., i. 28.)

Macrobius relates (l. c.) that Cicero and Roscius used to try which of the two could more frequently express the same thought, the one by his eloquence, the other by his gestures; and that Roscius derived from this exercise such a high opinion of his own art, that he wrote a poem in which he compared eloquence with the art of acting. Macrobius also states that Roscius received about a 1000 denars a day for his acting (upwards of 35£). He died about A.D. 61; since Cicero, in his oration for Archias, which was delivered in that year, speaks of his death as quite recent (c. 8).

There is an extant oration of Cicero, though considerably mutilated, in defence of Roscius. The subject of the oration is a claim of 50,000 sesterces against Roscius, by C. Fannius Chares (Ueber die Rede des Cicero für Q. Roscius, Zeitsehri., p. 249).

Roscoe, William, born in 1753, near Liverpool, received a common school education till he was twelve years of age, after which he continued to improve himself by reading. When in his sixteenth year he was appointed to an attorney in a school, and in 1774 was admitted an attorney of the Court of King's Bench, and began to practice as such. In the meantime he wrote some poems, among others one on the origin of the art of engraving, which made him known to Sir Joshua Reynolds, Fuseli, and other distinguished artists. In 1784 he was elected honorary member of the Manchester Literary and Philosophical Society. He also turned his attention to the subject of the slave-trade, and wrote several pamphlets recommending its suppression. When the French revolution began, he was one of its warmest partisans in this country. He wrote 'Strictures' on Burke's 'Two Letters addressed to a Member of the present Parliament,' reflecting in severe terms...
upon what Roscoe considered as an apostacy in Burke's political conduct. In 1796 Roscoe published the 'Life of Lorenzo de' Medici, called the Magnificent,' a work which established his literary reputation. The subject was happily chosen, and the author treated it well. The work was translated into Italian, German, and French. It was generally well received on the Continent, but its spirit was criticised by two classes of writers: one of them, of which Simondi may be considered as the representative, saw nothing but perjury in a republican hero; the other, more mature and crafty towards Roscoe, who at one time was the advocate of the French revolution, accused of being the panegyrist of the tyranny of the Medici. The grounds of this controversy are adverted to in Florence, History of, and Medici, House of. Another class of critics was angry with Roscoe for having exposed the part which Pope Sixtus IV. took in the conspiracy of the Pazzi, which led to the murder of Giuliano, Lorenzo's brother, and also for having spoken unfavourably of Cosimo, the great statesman and statesman of the Medici dynasty. Simondi joined the papal advocates in representing that conspiracy as a laudable deed, justifiable under the circumstances in which it took place. After many years Roscoe replied to his various critics in pointed though not unmelodious language, in his Historical, Political, and Critical, of the Life of Lorenzo de' Medici, 4to., London, 1822. He inserted in the appendix, among other documents, an important letter written to Sixtus IV. by the signorina, or executive, of Florence after the failure of the Pazzi conspiracy, in which it was discovered in the archives of Florence by the Rev. F. H. Egerton, and printed at Paris in 1814.

The second historical work of Roscoe is his 'Life and Pontificate of Leo X.' In this also the author has been chargeable with partiality for Italy, and has reflected with much severity upon the great reformers of the sixteenth century, because, while they struggled against the overgrown absolutism of papal Rome, they could not satisfy themselves at once of the habit of intolerance which they had derived from early education. Count Bossi translated the 'Life of Leo' into Italian, adding notes in which he rebutted several of the charges brought against Roscoe's former work concerning Lorenzo: Vita e Pontificato di Leone X., di Giangiacomo Bossi, tradotta e note da diverse annotazioni ed altri documenti inediti, dal Conte Luigi Bossi, Milanese, Milan, 1817.

Considered as works of erudition and of general interest, the lives of Lorenzo and Leo by Roscoe stand deservedly high. The reader finds, in the reader finds, the records of modern history, among a chosen society of scholars, poets, statesmen, and artists, who gathered round the hospitable board of Lorenzo, and afterwards in the more pompous court of his son Leo. Numerous anecdotes concerning those individuals make the reader familiar with their persons; and poetical extracts and valuable historical documents add to the value of the work. The style is remarkably pleasant and fluent. These merits of Roscoe's biographies have been universally acknowledged, even by those who have censured the general spirit of his works.

Roscoe contributed greatly to encourage among his countrymen a taste for Italian literature and the fine arts. In his own town of Liverpool, the Royal Institution owes its formation to his persuasion.

Roscoe was returned to parliament for Liverpool in the Whig interest. In the latter part of his life he became partner in a banking house, in which however he was not successful. He died at Liverpool, in June, 1831. A biographical notice of him is appended to a new edition of his Life of Lorenzo, by his son.

ROSCOA, a handsome genus of the highly ornamental family of Scitamineae or Zingiberaceae, which was named by Brown, in honour of the renowned lexicographer who elucidated the plants and remodelled the genera of the Scitamineae in his beautiful work on that family. The species have been figured by Smith, Wallis, and Royle.

The genus consists of only a few species, which are confined to the Rainy Mountains. They are herbaceous, having spathaceous flowers, a single-leaved tubular calyx, coroll ringent, limb double, the outer tripartite, with the upper segment erect and arched. Inner limb two-lipped, ovary inferior, style enclosed in the furrow of the anther, which is two-lobed, incurved, surrounding the style with an appendage split at the base.

The species of Rosocoa, belonging to so tropical a family as the Scitamineae, are generally accounted showy evergreen plants; but they are found only on the slopes of the Himalayas during the rainy season, when there is moisture with uniformity of temperature, and a much less degree of heat than is usually found in the vicinity of tropic-like plants, and therefore less would suffice for the cultivation of these plants than is generally supposed; indeed Rosocoa purpurea has been flowered in a drawing-room in London, under a glass case, and without any artificial heat. It is curious to note that Rosocoa, which is an open air every year in the Edinburgh Botanic Garden. But the genus Rosocoa is that, of all the Scitamineae, which is found at the greatest elevations. R. alpina is found at as great an elevation as 9000 feet above the level of the sea, and on places whence the snow had just melted, like the snowdrop in early spring in European countries. (Royse's Hinal Bot, p. 357.)

ROSCOMMON, an inland county in the province of Connacht, in the north-west of Ireland, bounded east by the county of Leitrim, on the east by that of Longford, and on the south-east by those of Westmeath and King's, from all which it is separated by the river Shannon, except just on the north side; on the south-west it is bounded by the counties of Galway and Mayo, and on the north-west by that of Sligo. The river Suck, a tributary of the Shannon, separates it along the greater part of the border from the county of Galway; and the Curlew mountains for a short distance from that of Mayo. The river which flows from the west to the north is length is nearly from north to south, from the border of the county of Leitrim west of Lough Allen to the junction of the Suck with the Shannon, 60 miles; the greatest breadth, at right angles to the length, is from the junction of the three counties of Galway, Mayo, and Sligo, to the mouth of the bank of Lough Forbes near Tarmonbarry, 40 miles. The area is estimated by MacCulloch (Statistical Account of the British Empire) at 922 square miles, or 609,403 English acres of which 452,403 are in cultivation, 131,631 in unimproved mountain or bog, and 24,778 lakes. In the return of the population for 1831, the area is stated to be 357,10 acres. We believe MacCulloch's statement, which is taken from a table furnished by Mr. Griffith, the engineer, to the Lords' Committee on Tithe, to be the most exact. The population in 1831 was 249,613, giving 262 inhabitants to a square mile. In its area it is rather below the average of the Irish counties, but in amount and density of population rather above the average. Rosocomon, the capital, is 9 English miles by road from Galway, 15 from Sligo, 10 from the banks of Lough Forbes and Mulranny on the north, 8 English miles by the road through Mullingar, Longford, and Lanesborough, or by Mullingar, Ballymahon, and Lanesborough.

Surface, Geology, Hydrography, Communications.—The surface of the county is partly undulating, but along the banks of the Shannon and the Suck, and in other parts, it is very flat. There are some mountains. The principal groups are the Brauliere, or Braughlie, and Sliabh Curragh mountains (estimated at 1000 or 1200 feet high), which enter from the counties of Leitrim and Sligo on the north-west, and extend a little way into the county west of Lough Allen; the Curlew mountains, on the borders of Sligo next Boylo; the Sliabh Bawn mountains, 839 feet in the northern part of the county, and 990 feet high in the eastern part of the county, and not far distant from it, on the east side of the county; the hills between the Shannon and the Suck in the south; and Sliabh Aelwyn, between Castlereagh and Ballinlough in the west. The Braughlie and Sliabh Curragh have been designated the ambushed rock, and are composed of rock near their summits. The eastern side of the Sliabh Bawn mountains slopes gradually down to the bog in the valley of the Shannon at their base; the western side is broken by a range of hills, and the lower limestone, which constitutes another subdivision, subjective to the hill, are found in this county.
hills west of Castlerhea are composed of the yellow sandstone which is the lowest member of the limestone group. The Braughlove and Slievcurkagh mountains are composed of layers of sandstone and mudstone, and the latter rests on a rock on the beds of the millstone-ripped series, from which good stone is obtained. The coal of this district is not extensively diffused; it forms two fields partly or wholly in this county, separated from each other by the river Arigna, which flows from N. to S. 21 miles, and Lough Bodiag, which runs east-west. There are some other coal-fields in other adjacent counties round Lough Allen. The coal answers well for smelting iron, and is used in the Arigna iron-works (the only iron-works in Ireland) in this county. Cast-iron of the best quality is produced from the north to the west of Lough Allen, and some of the most famous in the country, where the charges are charged, are used in the possession of the most extensive and valuable coal-fields of the neighbourhood.

The Curlew mountains and the Sliev Bawn mountains consist of rocks of the old red-sandstone formation. (Grinta, 'On the Geological Structure of Ireland,' in Appendix to Second Report of Irish Railway Commissioners; Parliamentary Papers for 1837-8, vol. xxxv.) Good limestone is quarried for building at Potters, clay and pipe-clay are found in various parts of the county.

The county belongs to the basin of the Shannon, except a very small portion at the western extremity, which is drained by the Moy, which flows into Killala Bay. Lough Allen, which extends in summer, but is frozen in winter; from north to south, and through which it flows, is on the north-eastern boundary of the county. From the southern extremity of this lough the Shannon flows along the eastern boundary of the county to Carrick-on-Shannon, where it receives a stream from Longford. In the summer by this route, the Shannon pursues its course along the border, passing through Lough Carron, Lough Bodiag, or Bodarg, Lough Boffin, and Lough Forbes to Lanesborough, below which it enters Lough Ree. It quits the southern extremity of Lough Ree just above Athlone, and runs southward into the county of Longford, where it quits the county, after a course along its eastern side, including the loughs through which it passes; about 75 miles. The fall in this distance is very trifling. Lough Allen is only 160 feet above the level of the sea, and the fall between Lough Allen and the lower end of Lough Derg, which is about 40 miles below the junction of the Suck, is not more than about 62 feet, or about six inches to a mile. The Suck, the only important tributary of the Shannon, rises just within the county of Mayo, but its course is almost entirely within the county of Roscommon; its length may be estimated at more than 60 miles.

Both the Shannon and the Suck are navigable. The navigation of the Shannon commences in Lough Allen, half a mile below Lough, and the navigation of the Shannon commences at Ballinasloe (south), the navigation of the Shannon is much more direct than the navigation of the Shannon, and passes through the town of Athlone, and crosses it in a north-west direction to Ballinasloe in Galway. The road is excellent. Another road to Sligo, which branches off from the main road at Longford in Longford county, passes through Tarmonbarry, Strokestown, and Elphin, and rejoins the main road at Boyle. The road from Dublin to Roscommon (whether by Ballymahon or Longford) enters the county at Lanesborough, and runs south-west nearly eleven miles to Roscommon. Generally speaking the roads in the north of the county are inferior to those in the more level districts of the county.

The principal lakes are Lough Allen (6 miles long from north to south, and 3 miles broad); Lough Bodarg, or Bodarg, at the southern end of Lough Bodiag; Lough Bodiag, at the northern end of Lough Bodiag; Lough Garra (5 miles by 6 miles), and Lough Baggot (otherwise Rockingham Lough); and Lough Oakport, all communicating with the Shannon by a stream called the Boyle Water; Lough Skee and Lough Meelagh, also communicating with the Shannon, and the tides, as well as those which are mentioned, in the northern part of the county; Lough Glin or Glynn, Lough Cloonagh, and Lough Aelun, all small, in the western part; Lough Puchon and Lough Ballynacally, in the southern part; and several others in the eastern part, and the line of lakes on the Boyle Water, Lough Glynn, and Lough Meelagh, is broken by picturesque and beautiful scenery. Besides these there are a number of 'turloughs,' or temporary lakes, formed in the hollows of the limestone tracts. They usually disappear entirely in the summer by loss through the channels of the streams, such as have gravel bottoms and receive abundant crops. The water is drained off by fissures and passages in the limestone rock, which get choked by the vegetable matter washed into them by the first winter floods, and are cleared of this obstruction by the streams of the season; the 'turloughs' varies with the season: some of them are of considerable extent.

The soil in the limestone district is commonly fertile; there is however a large extent of bog or other waste. The soils vary considerably; some are light sandy soils, which are esteemed to be some of the best ground in the county, and are in the limestone districts, especially between Tulsk, Castlerhea, and Boyle. Rich deep loams are met with, and these are, as well as the limestone ridges between the Shannon and the Lough Allen, considered to be the best. The deep loams are resulted by the soil, so shallow indeed that in some parts the plough cannot be used. These tracts are commonly used for sheep-feeding. The surface of the mountains is commonly wet and boggy, but there are intervening spots of dry ground covered with heath. Some of the lands are better suited for the Curlew Mountains, near Boyle, is very poor, but is capable of great improvement from the admixture of lime, or rather of a compost of lime and bog earth, which is to be had above in this way, as well as by draining cold wet lands, wherever capital comes to be employed more extensively than at present in agricultural improvement.

The extent of the unimproved mountains and bogs has been estimated at 400,000 acres of land, and it is believed that a large part of this area is being dispersed over the face of the county in patches of various size and in almost every variety of situation: they are found on the tops of the highest mountains, on the banks of the loughs and rivers, and in the bottoms of the valleys. Several of those on the uplands are comparatively dry, and afford in their natural state coarse pasture for young and hardy cattle. Something has been done by spirited individuals towards reclaiming some portions of this large amount of waste land, but nothing has been done upon a large scale on any part of the county.

Many of the estates in the county are large, some belonging to resident landlords, others to absentee. Rents vary; on farms of several hundred acres, 20s. and 25s. per acre are usual, but at least 20s. and 30s. are given, and, in the immediate neighbourhood of towns, 40s., 50s., and 60s. Tillage has been much extended of late years, and the quantity of food raised is probably greater than ten years ago in any part of Ireland. 'To say nothing of the deficiency of produce attributable to bad ploughing, unskilful sowing, want of manures, and an utter inattention to the alteration of green crops with those of corn, potatoes alone excepted, the loss upon which the land actually does not yield is considerable, from bad and careless stacking, and the general want of barns. The stacks are commonly made
In one of the detached portions of the city of Roscommon. It appears to have derived its origin and its name (Ros-Conan, the pleasant place of Coman) from an abbey founded about A.D. 550, by St. Conan or Comana. Another abbey of greater magnificence existed in the place of Strawberry Friars, about A.D. 1257, by O'Connor, king or prince of Connaught; and a few years after, a strong castle was built by Sir Robert de Ufford, one of the early English adventurers. Of these last

* The principal part of the barony of Ballinamore is in the west side of the county; but there are two other large portions quite detached from it, on the banks of the Shannon and Lough Ree.
two edifices there are considerable remains; the castle is on the north side of the town, and the abbey on the south side. Both are on level ground, which the town occupies on the eastern and southern slopes of an intervening eminence. The castle is an oblong quadrangle, with a tower at each angle, and two additional towers to defend the gateway, which is on the eastern side. The town consists of three or four streets irregularly laid out, having in the center an open space opposite the old gaol, a building situated on the summit of the eminence on which the town stands, but now disused as a prison from want of sufficient inmates. The town has been converted into a Catholic chapel. A new court-house, a substantial and commodious building, but deficient in architectural correctness and effect, and a new gaol, have been built, and near them are some good new houses; but with the exceptions just given, the town presents a wretchedness and decay; four-fifths of the houses are mere cabins. There is a neat church with a square tower. The town is ill supplied with water. There is a county infirmary near the new court-house, a plain brick building. The ruins of the abbey contain a tomb, said to be that of O'Conor, founder of the abbey, with a mutilated effigy recumbent on it, and effigies of Irish gallow-glasses (antient light- infantry) sculptured in relief on the perpendicular sides of the tomb. The infirmary is on the Sally’s Hill, which is the name of a range of fields southward of the town.

The parish extends into the barony of Athlone; the entire population in 1831 was 8374, of whom 3306 were in the town. The shops are numerous, but business does not appear to thrive as in some other towns in the county. County Athlone has a weekly market on Saturdays, well attended, at which corn, the materials of clothing, and articles of clothing made up, are sold to a considerable extent. There is no direct communication with Dublin; but there are roads to Athlone and to the Royal Canal. Mendicity and prostitution prevail to a frightful extent. There is a barrack not far from the town.

The assizes for the county are held here; and also the Epiphany and Midsummer quarter-sessions, which are remarkably near each other. The barony of Athlone, Ballymoe, Moycarne, and part of Ballintubber, and petty sessions for the district. The town was formerly a parliamentary borough, but was disfranchised at the Union, since which time the corporation of the borough exists. There were in 1835 six schools connected with the Killadease Society, the London Hibernian Society, the London Ladies' Hibernian Society, or supported by endowment or contribution; a classical school, and eleven hedge-schools: in all, eighteen schools.

The town, and the church, are in the main-road to Sligo, and on the stream (the Boyle Water) which flows from Lough Garra into Lough Key. The town appears to have risen under the protection of a Bernardine abbey, which was transferred to Boyle, a.d. 1161, and attained great wealth. It was then a market-town, and in the time of the Boyle Water, about a quarter of a mile below the town bridge; they are tolerably extensive, and include the remains of the church and of some of the monastic buildings, now enclosed in a private garden. Some of the arches were walled up after the suppression, when the abbey was converted into a military post. The older part of the town stands on the northern side of the river; the more improved part on the southern. The newer houses are in this part; they are built of limestone or sandstone. Of these houses, many have gable roofs, and half the remainder are better. The town is inconveniently laid out. The bridge over the river is a handsome structure, 100 feet long and 42 feet wide, of three arches, and lately laid out, having in each one half low narrow arches. A new bridge of one arch has been thrown over the river a little below the town bridge, and just above the ruins of the abbey; and a third bridge lower down. The church is capacious, but the architecture is not. There is an ancient chapter-church, one or two dissenting places of worship, a new sessions-house, a bridge, and a barrack; the last was formerly a nobleman's mansion. The old sessions-house has been pulled down, and a building for religious and charitable purposes is in course of erection.

The population of the town, in 1831, was 3433; of the whole parish, 12,597. The town is fairly provided with shops, and is the mart of the surrounding district. Corn, and butter, which is sold in flirkins for exportation, are the staple articles of trade. The butter-market is on Monday; but the principal market, at which a considerable quantity of linen yarn is sold, is on Saturday. Heavy goods are chiefly brought from Sligo, lighter ones from Dublin. There are six fairs in the year.

Boyle was formerly a parliamentary borough, but the privilege of returning members was lost by the Union; and the corporation has been dissolved by the late Irish Municipal Reform Act. There were in the parish, in 1832, seventeen day-schools, including two private boarding-schools. One school supported by the Baptist Society, four schools partly supported by subscription, four private day-schools, and four hedge-schools. There were besides four Sunday schools. A weekly newspaper is published at Boyle.

The quarter-quarter-days are held here twice in the year, for the division which comprises the baronies of Boyle and Roscommon and part of the barony of Ballintubber; petty sessions are also held. There is a barracks for the county constabulary, of whom a body are stationed here. There are a charitable house, with convenient dispensary, one maintained by Lord Lorton, whose beautiful mansion and demesne of Rockingham are on the banks of Lough Key near the town.

Castlerea is in Kilkeevan parish, in the barony of Ballintubber, 17 miles north-west of Roscommon, on the main line of the Grand Canal. It is divided into two parts; a small stream, a feeder of the Suck, which runs through the town, and joins the river just below. The town consists principally of one long street, the continuity of which is interrupted by two bridges over the Suck and its feeder. To the north of the southern side of the street has been rebuilt, and new cottages for the peasantry are springing up on every part of the estate of Lord Mountsandford, whose demesne and residence are close to the town. The church was built in 1803, and was 1172; that of the whole parish, 10,867. Of about 175 houses, nearly 70 were mere cabins, and about 25 were thatched houses of two stories; but the cabins are better than in most other towns in the county, and some of them are fine, and are several neat cottages with gardens in the neighbourhoood.

The market is on Wednesday for corn, and on Saturday for provisions. There is a malthouse, a distillery, and a tan-yard, and a number of small shops. There is a market-place, with convenient dispensary. There are three fairs in the year. The Easter quarter-sessions for the Boyle division of the county are held here. The sessions-house stands near the market-place; and there is a bridewell. Petty sessions are also held. The parish church of Kilkeevan is close to the town, and there is a barn within the town.

The parish had, in 1835, twenty-three day schools, including two national schools, one school chiefly supported from Bramus Smith's fund, nine supported by Lord Mountsandford, one supported by the Catholic clergy of the parish, and nine hedge-schools. There are a loan-fund and a dispensary.

Elphin is in the barony of Roscommon, 11 miles south east of Boyle. The town extends along the summit of a ridge, and runs nearly east and west; more than two of the houses are mere cabins, many of them of the most wretched character; there are scarcely any slated houses. The cathedral stands at the eastern end of the town, and the Catholic chapel at the western. The cathedral, a modern building, is square and long and 28 broad, with a slated roof, is little in harmony with the tall dilapidated square tower with which it is united. It is used as the parish church, and is neat in its internal appearance. The bishop's palace is a spacious and comfortable country-house, with a large garden. The Catholic chapel is commodious, but not elegant.

The population of the town, in 1831, was 1507; of the whole parish, 6643. The shops are small and ill-supplied. A market has been established within the last few years by the bishop. There are two sessions-house, one or two dissenting places of worship, a new sessions-house, a bridge, and a barrack; the last was formerly a nobleman's mansion. The old sessions-house has been pulled down, and a building for religious and charitable purposes is in course of erection. The population of the town, in 1831, was 3433; of the whole parish, 12,597. The town is fairly provided with shops, and is the mart of the surrounding district. Corn, and butter,
a hundred houses, most of them mere cabins, at the junction of four roads. There are a Catholic chapel, a school house, and a market house, and the streets are within the last few years. The mansion and demesne of Frenchpark, the seat of the French family, are close to the town; and about half a mile distant, on the verge of a bog, are the ruins of Clonamore Abbey, a religious house consisting of the steeple, two detached chapels in the burial-ground, and the remains of a square building belonging apparently to the habitable part of the abbey. The ruins, from their situation in a flat open country, form a striking object at a distance. They are neither very extensive nor of much antiquarian interest when viewed nearer. In the burial-ground, which is still used, is a lofty cross. The population of the town, in 1831, was 447; that of the parish of Tybohan or Taughboye, in which it stands, was 16,460. Butter, yarn, and pigs are sold in the market, which is held on Thursday. There are three yearly fairs. Good sandstone is quarried in the immediate neighbourhood, and limestone in the town itself. Petty sessions are held here. Frenchpark has a dispensary.

Strokestown is in the barony of Roscommon, between Elphin and Lanesborough. It contained, in 1831, about two hundred and sixty houses and 1547 inhabitants. The town consists of two streets crossing at right angles; the one which runs east and west is nearly 150 feet wide, and has Lord Hartland's house on the left side of it, and the house of the county clerk on the right side of the other. Three-fifths of the houses are mere cabins, and more than another fifth are thatched cottages, little better than cabins. The rest are built of limestone or sandstone. The streets are paved with an earthen roofed with Welsh slates, imported into Sligo, and brought from thence by land carriage. Trade is prosperous, and the market is well attended; a considerable quantity of wheat, for the growth of which the soil round the town is particularly favourable, is sold; and a considerable quantity of linen, linen yarn, tow, woolen stockings, flannels, and a peculiar kind of woollen stuff which is dyed and dressed in the town. The market is also well supplied with lake and river fish, and some sea-fish, and goods of all kinds are sold in stalls. There are three yearly fairs. The sessions-house is in the town. There is a court for the sessions-house at Strokestown, and the quarter-sessions for the Boyle division of the county are held here once in the year. There is also a dispensary. The old mansion-house of Lord Hartland has been modernised; in the grounds, at a short distance from the house, are the ruins of an old church, used as the family burial-place. Races are held at Ballynahad, three or four miles south of the town.

Athleague is a small place, containing, in 1831, eighty-six houses, and 694 inhabitants. It has a long bridge, or rather series of bridges connected by a long causeway, passed perpendicularly across the river Suck, which here flows in a divided channel. Athleague is a dull place, with little trade; there is a flour-mill. Four fairs are held in the year. The court for the county is held in bad weather in a room, in the chapel in the town. Keadee is in Boyle barony, ten or eleven miles north-north-west of Carrick-on-Shannon; it consisted, in 1831, of about forty houses, chiefly cabins. A market-house was then building; and the place was increasing in prosperity from the neighbourhood of the Arigna iron-works. There are ten yearly fairs. Keadee has a dispensary. Mount-Talbot is in Athlone barony, on the banks of the Suck, and takes its name from the demesne of the Talbot family, which is close to the village. It is a small place, somewhat run-down. It has a fair on the same day in the year. Petty sessions are held both here and at Keadee.

Lough-Glynn had, in 1831, about fifty houses, chiefly cabins, but superior to those commonly met with; there were a Catholic chapel, a school house, and a market house at the parish church at some distance; the population was 254. Ruskey or Rooskey is in Ballintubber hundred, and on the Shannon, over which is a bridge of nine arches; the village is in the river in the three counties. The church of the parish of Tarmonbarry is in the village; also a Catholic chapel. Knockerohey (pronounced Nocorehey) is in the barony of Athlone, about 5 miles south-east of Roscommon, not far from Lough Rose. It has a new church and a new school-house. A considerable manufactory of tobacco-pipes is carried on; and there are two yearly fairs, one of them a large one. Tarmonbarry is in Athlone barony, on the right bank of the Shannon, which is here divided into two arms, over each of which there is a bridge; these bridges are connected by a causeway over the Demesne. The River Oughter, in the Shannon at Richmond harbour opposite Tarmonbarry: there are extensive basins, docks, and warehouses on the Longford side of the river. Castle-Plunket is a miserable place of about forty miserable cabins. Lough-oner is in the barony of Oranmore, and have each four fairs in the year; Castle-Plunket has three.

Divisions for Ecclesiastical and Legal Purposes.—The number of parishes in the county is differently stated; we believe the correct number to be fifty-six. These, with some exception, are divided into deaneries. The deanery of Clonfert consists of thirty-one benefices; of which twenty-seven are in the diocese of Elphin, one in that of Clonfert, one in Ardagh, and two in Tuam. All these dioceses were in the ecclesiastical province of Tuam, except Ardagh, which was in the province of Armagh; but by the late alterations in the Irish church, all are now in the province of Armagh.

The county is included in the Connaught circuit: the assizes are held at Roscommon, where is the county gaol. The county is divided into two parts for the sessions held at Athlone, which comprehends the barony of half baronies of Athlone, Ballinafonny, Moycarne, and part of Ballintubber; the division of Boyle comprehends the baronies of Boyle, Roscommon, and the rest of Ballintubber; the sessions for the first are held alternately at Athlone and Roscommon, and a new gaol is at Boyle, once at Castlerea, and once at Strokestown. The county gaol is at Roscommon, and there are bridewells at Athlone, Boyle, Castlerea, and Strokestown. The discipline of the county canons is carried on here, and the prison discipline is altogether lost sight of; nor is the size of the gaol or the number of the cells sufficient. The bridewells of Athlone and Boyle are clean and well ordered. Those of Castlerea and Strokestown are for the temporary punishment of offenders. The county is in the deanery of Boyle, 1838, amounted to 244, viz. 1 subsector, 6 chief constables, 7 head constables, 43 constables, and 187 subconstables. There is a county infirmary at Roscommon, and dispensary at Athlone, Boyle, Castlerea, Elphin, Frenchpark, Strokestown, Keadee, Lough-Glynn, Croghan, Tulsk, and Sallieaghe. The county is included in the district of the Connaught lunacy asylums, which is at Ballinasloe.

Two members are returned for the county, who are elected at a by-election. Athlone is the principal town in the county, and is the only parliamentary borough. The number of voters on the register for the county in 1843-4 was 1864; for the borough of Athlone 274.

You are a lay judicature presentment in the year 1831 was 27,503l. 15s. 3d., viz.: for new roads, bridges, &c. 250l. 3s. 6d.; for repairing roads, bridges, &c. 793l. 2s. 11d.; for building or repairing gaols, bridewells, and houses of correction, 41l. 10s.; for prison and bridewell expenses. 10l. 15s. 3d.; for poor officers' salaries. 8s. 10d.; for salaries of county officers, not included in the foregoing heads. 337l. 6s. 8d.; for public charities. 145l. 17s. 2d.; for the repayment of government advances, 510l. 10s. 4d.; and for miscellaneous expenses, 372l. 2s. 10d.

History, Antiquities, &c.—In the earliest historical period this county appears to have been partly or wholly in possession of the Auteri, a people mentioned by Ptolemy, and supposed by Sir James Ware (Hist. of Ireland, vol. iv. ch. vi.) to have inhabited some part of the counties of Galway and Mayo. The parishes of Roscommon and the septs or clans of O'Conor Ruadh (red), Rough, or Ross, and O'Conor Dhuine (brown) Dunn, or Don, whose territories comprehended respectively the baronies of Roscommon and Ballintubber; and by the sept of the Macdermots, Galway, ten or eleven miles to the west, where the parishes of Carrick and Rinvyle are situated, and where the bordering on Galway were occasionally encroached upon by the O'Dalys and the O'Kellys of Galway. The territories of the two tribes of the O'Conors were called Moylurg, west, and Moylurg, east; and those of the O'Dalys and the O'Kellys, Hy Mainse or Mainnech. Part of the county was included, with a portion of Galway, in Clancenwok, the territory of the Bourna: the most norther part was included in Corcomron, the territory of the O'Haelys and O'Breannes: between the Suck and the Shannon was the district of Dealbh Naundhu; Hy-Briun Sinna was another district along the bank of the Shannon; and a district called Kierman, afterwards Clauch-Kelheran, was included in the county, but
is what part is not specified. (Ware, Hist. of Ire,. edn, chap, vii, sec. 1.)

Of the earliest period there are few memorials, the ruins that remain deserving the name of castles are the principal. Of these there are more than four hundred and seventy. They are always upon natural eminences. They contained within their ramparts the dwelling-places of the chiefman and his family, commonly constructed of earth and hirdage, but having some parts of stone. This measurement was increased by Sir Edward Oran, between Roscommon and Castlerea, is one of the round towers whose use and origin are so uncertain. It is only about twelve feet high, and bears the appearance of never having been finished, rather than of having been thrown down. [1626-64] (Sir John Ker.)

In the reign of Elizabeth, Connacht was formed into counties, and the county of Roscommon divided into baronies. This measure was adopted by some of the most ancient of the baronies, having been established by the Saxons in the middle ages, between Lough Key and the Shannon.

The county fell into their hands, and the O'Conor Dunne now took part with them; some severe encounters took place, especially in 1642, when Callaghan O'Connor was defeated by the English. The insurgents long retained possession of the country, but on the termination of the war their chiefs were deprived of their privileges, and the castle, confiscated, and divided among English and Scotch adventurers. At the Revolution O'Connor Dunne or Don obtained the greater part of his property again, and his descendants are among the few native Irish families who have retained their lands. In the early part of the present century, when the condition of the county was the first ineffectual siege of Athlone by a body of William's army, under General Douglas (A.D. 1690), and the subsequent siege and capture of that city (A.D. 1691) by the main body of William's troops, then under General Ginkel.

Roscommon was built to secure the quietness of the county, at that time assumed to be subject to the English, and included in a grant of Connacht, made by Henry III., to the family of De Burgos, or Burgu. This was the county state of anarchy, the Irish septs struggling for independence with the De Burgos, their Anglo-Norman masters. In A.D. 1115, Richard de Burgu, earl of Ulster, and Felidam or Phelim O'Cror, Irish prince of Connacht, advanced in conjunction from Roscommon, to repel the invasion of the Scotch under Edward Bruce; but O'Connor, seduced by the offers of Bruce, entered into a secret treaty with him; and returned home to guard his own inheritance against his kinsman Roderic, who sought to usurp it. Felidam, whose fate well travelled into the west, was carried into the English, and by his aid he defeated Roderic, who fell in the battle. He now avowed his alliance with the Scots, but was entirely defeated by the English under William de Burgu, brother of Earl Richard, and Sir John Bermingham, at Athenry in Galway, A.D. 1316. The victory utterly broke the power of the O'Conors, who split into clans or septs, of which two have been noticed as occupying portions of Roscommon. These two septs became rivals, and wasted their strength in mutual hostilities. Meanwhile, the inheritance of the De Burgos came by marriage to Lionel, duke of Clarence, son of Edward III., whose descendants afterwards came to the throne in the person of Edward IV., except such of the territories of the family in Connacht as were reduced by some of the younger branches.

Of this troubled period there are several memorials, in the ruined castles and monastic buildings which exist. Roscommon Castle, and Roscommon, Boyle, and Clonshanvally abbey, the last near French-park, have been noticed. In twentieth of these are the ruins of Ballynotter Castle, the ancient stronghold of the O'Connor Dunne or Don. The walls enclose a quadrangle 270 feet by 237 feet, and are strengthened by polygonal towers resembling the walls. The walls are tolerably complete externally; but the towers are little more than shells. There are the walls of the church of some of the dependent buildings of Tusk Abbey standing. There was formerly a strong castle at Tusk, and there was one at Roscommon, but both were so reduced, and the ruins still visible: it was the stronghold of O'Connor Ruadh. A very remarkable ruined fort of unknown antiquity is to be seen near Lough Glyn. The keep of Athlone Castle, which is yet standing, is a deacony, and is in the Roscommon part of the town. There are several remains of small castles, especially of one on Castle Island in Lough Key, but none of consequence.

In the revolution, Roscommon was fighting for independence, and the county of Roscommon divided into baronies. This measure was adopted by some of the most ancient of the baronies, having been established by the Saxons in the middle ages, between Lough Key and the Shannon.

In the rebellion of the estate, the O'Conors remained faithful to the English. Boyle Abbey was besieged by the Ulster insurgents in the war of 1641. The county fell into their hands, and the O'Conor Dunne now took part with them; some severe encounters took place, especially in 1642, when Callaghan O'Connor was defeated by the English. The insurgents long retained possession of the county, but on the termination of the war their chiefs were deprived of their privileges, and the castle, confiscated, and divided among English and Scotch adventurers. At the Revolution O'Connor Dunne or Don obtained the greater part of his property again, and his descendants are among the few native Irish families who have retained their lands. In the early part of the present century, when the condition of the county was the first ineffectual siege of Athlone by a body of William's army, under General Douglas (A.D. 1690), and the subsequent siege and capture of that city (A.D. 1691) by the main body of William's troops, then under General Ginkel.

Roscommon was built to secure the quietness of the county, at that time assumed to be subject to the English, and included in a grant of Connacht, made by Henry III., to the family of De Burgos, or Burgu. This was the county state of anarchy, the Irish septs struggling for independence with the De Burgos, their Anglo-Norman masters. In A.D. 1115, Richard de Burgu, earl of Ulster, and Felidam or Phelim O'Cror, Irish prince of Connacht, advanced in conjunction from Roscommon, to repel the invasion of the Scotch under Edward Bruce; but O'Connor, seduced by the offers of Bruce, entered into a secret treaty with him; and returned home to guard his own inheritance against his kinsman Roderic, who sought to usurp it. Felidam, whose fate well travelled into the west, was carried into the English, and by his aid he defeated Roderic, who fell in the battle. He now avowed his alliance with the Scots, but was entirely defeated by the English under William de Burgu, brother of Earl Richard, and Sir John Bermingham, at Athenry in Galway, A.D. 1316. The victory utterly broke the power of the O'Conors, who split into clans or septs, of which two have been noticed as occupying portions of Roscommon. These two septs became rivals, and wasted their strength in mutual hostilities. Meanwhile, the inheritance of the De Burgos came by marriage to Lionel, duke of Clarence, son of Edward III., whose descendants afterwards came to the throne in the person of Edward IV., except such of the territories of the family in Connacht as were reduced by some of the younger branches.

Of this troubled period there are several memorials, in the ruined castles and monastic buildings which exist. Roscommon Castle, and Roscommon, Boyle, and Clonshanvally abbey, the last near French-park, have been noticed. In twenty of these are the ruins of Ballynotter Castle, the ancient stronghold of the O'Connor Dunne or Don. The walls enclose a quadrangle 270 feet by 237 feet, and are strengthened by polygonal towers resembling the walls. The walls are tolerably complete externally; but the towers are little more than shells. There are the walls of the church of some of the dependent buildings of Tusk Abbey standing. There was formerly a strong castle at Tusk, and there was one at Roscommon, but both were so reduced, and the ruins still visible: it was the stronghold of O'Connor Ruadh. A very remarkable ruined fort of unknown antiquity is to be seen near Lough Glyn. The keep of Athlone Castle, which is yet standing, is a deacony, and is in the Roscommon part of the town. There are several remains of small castles, especially of one on Castle Island in Lough Key, but none of consequence.

In the revolution, Roscommon was fighting for independence, and the county of Roscommon divided into baronies. This measure was adopted by some of the most ancient of the baronies, having been established by the Saxons in the middle ages, between Lough Key and the Shannon.

In the rebellion of the estate, the O'Conors remained faithful to the English. Boyle Abbey was besieged by the Ulster insurgents in the war of 1641. The county fell into their hands, and the O'Conor Dunne now took part with them; some severe encounters took place, especially in 1642, when Callaghan O'Connor was defeated by the English. The insurgents long retained possession of the county, but on the termination of the war their chiefs were deprived of their privileges, and the castle, confiscated, and divided among English and Scotch adventurers. At the Revolution O'Connor Dunne or Don obtained the greater part of his property again, and his descendants are among the few native Irish families who have retained their lands. In the early part of the present century, when the condition of the county was the first ineffectual siege of Athlone by a body of William's army, under General Douglas (A.D. 1690), and the subsequent siege and capture of that city (A.D. 1691) by the main body of William's troops, then under General Ginkel.
the plan of a society for refining the English language and fixing its standard, and he is said to have been assisted in the design by John Dryden; but no particulars upon this subject are recorded. (Wood's Pasti Oxonienses; Johnson's Lives of the Poets; Walpole's Royal and Noble Authors; Park's edition.)

ROSE. [ROSA.]

ROSE-COLOURED OUEZEL [STURNER.]

ROSE-COLOURED TURNING. [TURNING.]

ROSEMARY. [ROSMARINUS.]

ROSEN, FREDERIC AUGUSTUS, was born on the 2nd of September, 1805, at Hanover, and died in London on the 12th of September, 1837. He received his earliest education from his father, who resided in Westphalia, where he holds a high official situation in the government of the prince of Lippe Detmold. He afterwards went to the gymnasium at Gottingen. In the year 1822 Rosen went to the university of Leipzig, and two years afterwards to Berlin. The energy with which he applied himself to all branches of science and literature, and his great powers for acquiring knowledge, encouraged his friends to form the highest expectations of his future career. At an early period he had become distinguished for his critical studies in the Sanscrit language; but it was not until the year 1824 that he turned his attention to the Sanscrit, a language which at that time was little known in Germany, although its importance is now recognized. The early history of the Sanscrit had been pointed out by the two Schlegels, Creuzer, and William von Humboldt. During a visit which he paid to his family, he made himself acquainted with his father's friends, and, with the aid of his knowledge of the ancient writings, he gained the oldest of the grammatical works of the Hindus. This done, he applied himself to the Commentary, a full knowledge of which the texts are quite rare. All his labours were attended with success, and it is a matter of great regret that he was in a situation which would have made other labours necessary.

Among his various literary labours at this period were the "Dictionary, Bengali, Sanscrit," as revised by Sir Graves Houghton, London, 1836, also the "Catalogue Codicum Manuscriptorum et Carthusicorum in Museo Britannico," which has been published, since his death, under the care of Mr. Forster, and is attributed to Dr. Rosen all the merit of the work. Unfortunately Dr. Rosen's name does not appear on the title-page of this catalogue, nor after the publication of the work. He wrote, and which is printed at the head of the volume, "To Dr. Rosen, the Master of the Syriac language, with which he was imperfectly acquainted." At Colebrooke's request he collected the "Miscellaneous Essays," to which he addition an excellent index, 2 vols. He wrote all the articles relating to Oriental literature, from the article "Abbasides," to the article "Language," both included, "together with several other articles on Eastern Geography, such as 'Arabia' and 'Armenia.'" He also wrote the "Library of Entertaining Knowledge," the chapbook literature is entirely by his hand. For the "Library of Entertaining Knowledge," the chapbook literature is entirely by his hand. For the "Library of Entertaining Knowledge," the chapbook literature is entirely by his hand.

In the year 1836 he began to print the collected hymns of the "Rig Veda," giving the Sanscrit and English translation, and explaining the subjects treated in them. But his energy did not however fail him; and seeing that he could be useful in a secondary capacity, he applied himself for several months with great industry to the Hindustani, in order that he might qualify himself to teach that language. Some years afterwards he resigned his professorship of Oriental languages; but subsequently accepted the professorship of University College. The high opinion which the College entertained of his services is evident. He died at the age of 36, which was made after his death. He derived more satisfaction from his occupation as honorary foreign secretary of the Royal Asiatic Society than as secretary to the Oriental Translation Committee; just established. This brought him into communication with that great Oriental scholar, who entertained the highest admiration. By Colebrooke he published, under the sanction of the Translation Committee, the Arabic text of the "Alams of Maha Musa," with an English translation, accompanied by a critical apparatus. He was also the editor of the "Great Biographical Dictionary" of Ibn Khallikan, as well as another work, in which he intended to give a comprehensive view of the system of the Indian jats; which was never completed.

In 1830 he published his "Rig Vedas Specimen," part of the "Rig Vedas." He visited India, and from that time his principal efforts were directed to this great object. The abeolus of the language of the ancient writings, he had the oldest of the grammatical works of the Hindus. This done, he applied himself to the Commentary, a full knowledge of which the texts are quite rare. All his labours were attended with success, and it is a matter of great regret that he was in a situation which would have made other labours necessary.
widely, lie parallel to each other in a line with the river, and are irregularly intersected by others which are shorter. Between the houses and the Nile there is a wide space, which is the promenade of Rosetta. The houses, which are built of a dingy red brick, are two or three stories high; the bazaars are narrow, dirty, and dark. Rosetta carries on a considerable trade both with the pure and the elevated mind, the goodliness of his manners, and, above all, the genuine kindness of heart which formed the striking feature of his character, secured for him, in an eminent degree, the affection of his countrymen. A readiness on all occasions to aid and advise his literary friends, at any cost of labour, is well known to many who will read this notice. The loss of such a man will always be severely felt by all, but especially by those who were intimately acquainted with him. The chief works of the late Dr. Young are: '1. Historia Inscriptionum in Liberorum Evangeliorum in Ecclesia Christiana, ab Apostolorum Aetate ad Literarum Instaurationem.' 3 vols. 8vo., 1795-1814; and 2. 'Scholia in Novum Testamentum.' 3 vols. 8vo. The latter is a useful work, especially for young students, but the works of a Dr. Lechenn, with the same title, are far superior. His labours were devoted to the explanation of particular words and phrases than to the general comprehension of the sacred writings. He seldom gives a satisfactory solution of any formidatable difficulty.

ROSENmüLLER, John George, was appointed Professor of Divinity in the University of Leipzig, and superintendent in the Lutheran church at the same place in 1757, and died in 1815. His chief works are: 1. 'Historia Inscriptionum in Liberorum Evangeliorum in Ecclesia Christiana, ab Apostolorum Aetate ad Literarum Instaurationem.' 3 vols. 8vo, 1795-1814; and 2. 'Scholia in Novum Testamentum.' 3 vols. 8vo. The latter is a useful work, especially for young students, but the works of a Dr. Lechenn, with the same title, are far superior. His labours were devoted to the explanation of particular words and phrases than to the general comprehension of the sacred writings. He seldom gives a satisfactory solution of any formidatable difficulty.

ROSENmüLLER, Ernst FREDERICK Charles, son of the late Dr. Young, was born in 1768, and died on the 17th of September, 1835, after having for many years held the office of professor of oriental languages in the University of Leipzig. His chief works are: 1. 'Scholia in Vetus Testamentum.' 3 vols. 8vo., which is a philological and exegetical commentary on the Pentateuch, Isaiah, the Psalms, Job, Ezekiel, the minor prophets, Jeremiah, the writings of Solomon, Daniel, Joshua, Judges, and Ruth. The first edition was published 1795-1826, the second 1823-31. To the second edition several Rationalistic interpretations which appeared in the first are greatly modified. Rosenmüller's profound oriental learning and unrivalled knowledge of the works of the ancients. In many cases he has contributed to the elucidation of the inscriptions of the Jews and other nations. A 'Compendium of the Scholia,' in 5 vols. 8vo., containing the Pentateuch, Isaiah, the Psalms, Job, Ezekiel, and the minor prophets, has been executed by Dr. J. C. S. Lechenn, under the author's superintendence. Rosenmüller did not live to see the publication of it.

ROSENHEIM. [RHEIN, BAR.]

ROSICRUCIANS are the name of a sect of society whose existence became known. The first appearance of the order was published in the 17th century, by means of several publications, which has been attributed to John Valentine Andree, a German scholar, born at Herrenberg, in the duchy of Württemberg, in 1586, who, after studying at Tubingen, became a minister of the Lutheran church, and afterwards the declining king of France. Andree died in 1643. He was a man of a mystical turn of mind, who had conceived the idea of effecting a general reform of mankind. He wrote many works, chiefly on hermetic and alchemical subjects. And he is said to have written various peculiar works which would establish his connection with the Rosicrucian Society are really his. The following are the titles of these works:—1. 'Euchardius Major, ubi et de Reformatione gannen written Welt, F. C. aus ihren chymischen Hochzeit,' 1617, in which there is a mixture of precepts of alchemy with maxims of ethics. 2. 'Fama Fraternitatis des löblichen Ordens des

P. C. No. 1942.
Rosenkreuzer,'Frankfort, 1617, in which there is a story of a certain Christian Rosenkreuz, a German noble of the fourteenth century, who, after travelling long in the East, returned to Germany; and there established a fraternity, or as some adopt it, a sect; under certain regulations, living together in a building which he raised under the name of Sancti Spiritus, where he died, at 106 years of age. The place of his burial was kept a profound secret by the adepts, and the Society renewed itself, under the same name, in silence and obscurity, according to the last injunction of its founder, who directed the following inscription to be placed on a door of Sancti Spiritus:-'Post cax., annos patebo.' 3. 'Confessio Fraternitatis Rosicrucionis Europae,' which is appended to the preceding, and in which it is stated that the Order does not interfere with the religion or polity of states, but only seeks for the true philosophy; that many absurd fables have been told of the fraternity, either by its enemies or by fantastic people. It states also that once a year the members are to meet at appointed places to converse together upon secret matters, and that new members are to be admitted to supply the place of those who are deceased, and to work for the common purpose of the Order, giving an introduction for discovering what that purpose was.

In fact the secret, if secret there was, has been effectually kept to the present day. This appearance of mystic solemnity has given rise to various surmises. Some have supposed the Rosicrucians to be the forerunners of the Illuminati, Freemasons, Carbonari, and other secret societies. (Barruel, Mém. pour servir à l'histoire du Jacobinisme.) Others say that the order of Rosicrucians is identical with the Freemasons, of whose degrees or dignities is called in some countries the degree of the Red Cross. The Rosicrucians have not been heard of as a separate order for nearly a century past, but some have thought that they continued to exist under the name of Rosicrucian, which is much talked of in Germany and France in the latter part of the eighteenth century. Barruel, after describing the ceremonies with which candidates were admitted to the degree of Red Cross in some Freemasons' lodges, which however, he says, vary in different countries, observes that these ceremonies, which were apparently allusive to the Passion of Jesus Christ, were differently interpreted, according to the dispositions of the candidates; that some saw in it a momento of the Passion, others an introduction to the secrets of alchemy and magic, and others at last a blasphemous invective against the founder of Christianity, which the Rosicrucians had derived from the Templars of old. This assertion however has been contradicted by others. The reader will find a more ample account of the Rosicrucians in the works of F. Nicolls, 'On the Crimes ascribed to the Templars,' Chr. Murr, 'On the True Origin of the Rosicrucians,' 1803; and J. G. Buhl, 'Ueber den Ursprung und die vornehmsten Schicksale der Orde der Rosenkreuzer und Freimaurer,' Göttingen, 1804.

Buhl seems to think that the Rosicrucians are but a branch or affiliation of the Freemasons. The impostor Cagliostro pretended that he was a Rosicrucian. (Cagliostro.)

ROSMARINUS, a genus of plants belonging to the natural order Lamiaceae. It is one of the genera belonging to this order that are perennial and possess the character of shrubs. It is known by the following characters: the flowers are perfect; capsule, which is entire, and the lower two-parted; corolla not ringed in the tube, the throat slightly inflated with two lips, equal, the upper one emarginate, the lower two-parted, the middle lobe very large and hanging down; stamens two; filaments slightly toothed at the base; style with the upper lobe very short.

Rosmarinus officinalis, the common Rosemary, is an inhabitant of the southern parts of France, Spain, and Italy. It is found in Spoon and in some parts of Asia Minor. It is a very leafy shrub, growing to the height of three or four feet; the leaves are sessile, linear, quite on tire, revolute at the edge, and covered with white hair beneath; the flowers are few, and in short axillary racemes; the fruit is a brown bladder-like capsule, containing one or two seeds, the tube protruding a little beyond the calyx, the flower-leaves or bracts shorter than the calyx. The cultivated and garden plant differs very much in the shape and number of their leaves, on which account Miller described them as two species, the R. angustifolia and the R. latifolia. The age of the leaves varies according to the soil and situation in which the plant grows. It is generally observed that the broader and longer the leaves, the more vigorous is the plant. The Rosemary is a very desirable plant for the garden, both on account of its evergreen character and its flowers, which appear from January to April. There are three varieties known in gardens, the green or common, the silver-striped, and the narrow-leaved, which are distinguished principally by the colour of their leaves. The green variety is the hardiest, and is most generally used. It may be propagated by seeds, or slips or cuttings of the young shoots. The silver-striped is propagated by layering the young wood. They should be planted in a warm situation, as they are much more tender than the green. They are only cultivated as ornamental plants on account of their variegated leaves. The Rosemary abounds in the district of Narbonne in France, where it is used to form hedges for gardens, &c. It is supposed to be the aroma of this plant gathered by the bees that gives to the honey of this district its peculiarly fine flavour.

Rosemary was formerly held in high estimation, especially on the Continent. In the songs of the troubadours it is frequently mentioned as an emblem of constancy and devotion to the fair sex. It was thought to be a comforter of the brain, and a strengthener of the memory; and on the latter account was used as a sign of fidelity amongst lovers. Shakespeare makes Ophelia say:-

'There's my rosemary for you; that's for remembrance.'

In some parts of Germany Rosemary is grown in large quantities in pots for the purpose of selling small specks of it when in blossom, in winter and early spring, for various relishes.

ROSMARINUS OFFICINALIS, Rosemary, called also Anthon, a term which is apt to lead to the confounding of Rosemary with the Ledaum palustris or marsh-rosemary, which has very different and even dangerous properties. Gum Rosemary is a species of European, Asia Minor, and China. The official part is the tops or upper part of the twigs. The leaves are about as long, long, slightly revolute at the margins, dark green above, light green below, and quite smooth on the under. The leaves and calyces of the flowers have a strong, penetrating, aromatic odour, which is rendered stronger by bruising them; and a bitter, burning, camphor-like taste. They owe this to the presence of tannic acid, and also to an oil of an odour resembling that of oil of turpentine, of which one dram may, by distillation, be obtained from one pound of the leaves.

Oil of Rosemary (Oleum Rosmarini, or Ol Anthon) is chiefly prepared in Spain and the south of France, by distillation of the dried leaves and flowers. It is nearly transparent and very limpid, but by time it becomes both yellowish and thicker. It possesses the strong penetrating odour of rosemary, with a camphor-like taste, and a burning taste. It has an acid re-action. The gravity varies with the purity and age of the species; it is commonly 0°1, but by rectification with alcohol brought to 0°56 or 0°65. It mixes with alcohol of 43 per cent. of every proportion. By evaporation or by shaking with potash, it deposits a stearoptum, or rosemary-camphor. Hydrochloric acid gas blackens it, but does not form an artificial emulsio. With iodine it partially explodes.

The oil of rosemary of commerce is an artificial preparation of 10 parts, the upper extract of the resin, and 1 part adulterated with spike oil, obtained from the Lamiata Spicia. This may always be distinguished from the genuine by not reddening litmus-paper.

Rosemary possesses valuable stimulant and carminative properties; but it is chiefly employed as a perfuming agent, entering into the composition of the Queen of Hungary's Water, Eau de Cologne, and aromatic vinegar. It is also used to promote the growth of hair and prevent baldness.

ROSS and CROMARTY, SHIRES, two Scottish divisions, connected between Ross and Cromarty, comprehends a considerable area on the mainland of Scotland, together with the large island of Lewis, one of the Hebrides; and Cromarty is composed of a number of small islands, with extensive coast-line, many of which are a part of Ross or lying along its border. The manseland part of the two counties, especially in figure, having its vertex (Tarbet Ness) towards the east, was once facing the north, extending from Tarbet Ness to Le
Loch Broom, 3515 feet; Ben Lair, near Loch Maree, 3008 feet; Ben Attow, on the border of Ross-shire and Inverness-shire, is said to be 4000 feet. The three friths just mentioned are three branches of that great bay which penetrates Scotland from the north east, between Dunvegan Head, the north-east point of Skye, and the Mull of Kintail. The loch from which it rises is the most northerly of the three, extends about 24 or 25 miles inland to Bonar Bridge, on the road from Inverness to Wick and Thurso. It is about 10 miles across at its entrance between Tarbet Ness and Brora. Moray Frith extends about as far as Dornoch Frith, but is 14 miles across at its entrance between Tarbat Ness and Burg Head. Cromarty Frith is an inlet of Moray Frith. Loch Beasly is an extension of Moray Frith inland: we know not exactly where the line separating the loch from the frith is drawn, but there is a sheet of water of 17 or 18 miles inland from Fort George, where Moray Frith is contracted to a narrow strait, and three or four miles broad at the widest part. There are cliffs on each side of the entrance of Cromarty Frith, and again at Tarbat Ness and some miles south of it.

The principal inlets on the western or Atlantic coast are Loch Sunart, on the north-west extremity of the two counties of Argyll and Little Loch Broom, Loch Greinord, Loch Ewe, Loch Gairloch, Loch Torridon, and Loch Kishorn, which is a branch of it; and Loch Alsh, with its branches, Loch Ling and Loch Duish or Dutch. They occur in the order in which we have enumerated them from north to south, and are all narrow, long, and deep, and extend to the shores of Loch Broom and Loch Carron. The islands along this coast are small. The western coast of Cromarty and Ross is described at considerable length in the second volume of Macculloch's 'Highlands and Western Isles.'

The principal inlets on the coast of Lewis are Loch Carlow, Loch Bernera, Loch Roig, Uig Bay, and Loch Resort, on the west side, occurring in the order in which we have enumerated them from north to south, and Loch Tus, Loch Gremishader, Loch Luerboist, Loch Hourn, Loch Shiel, Loch Brodum, Loch Valumus, Loch Clay, and Loch Seafirth, occurring in the same order, on the eastern side. The three lochs Carlow, Bernera, and Roig are three branches of one great inlet, about nine miles in length, and extending about nine miles inland: in the middle of it is the island of Bernera, five miles long from east to west and three miles wide; and a number of smaller islands. The area between these lochs and the mainland is called from the head of Loch Resort to the shallower of Loch Seafirth, but not at the head of the Loch. There are cliffs at the northern extremity, and on a great part of the eastern and some part of the western coast of Lewis. It will be observed that these 'lochs' are not, as the name would seem to imply, lakes, but inlets of the sea. The headlands of Lewis are the Butt of Lewis at the northern extremity; Tolsta Head, near it; and Tiompan Head, at the extremity of the peninsula which forms the southern and eastern sides of Loch Tus, on the eastern side of the island; and Gallan Head, at the south side of the entrance to Loch Roig, on the western side. Lewis is as mountainous as the mainland, though the peaks are not so lofty: the mountains form a range extending eastwards and south, and the branches of the rivers near the centre of the island, are 780 feet high; and Sualmal, on the western side, between Loch Roig and Loch Resort, 3768 feet.

Hydrography and Communications.—The two counties have two very large rivers. The Oich rises at the foot of Ben Mohr in Sutherland, just on the border of Ross-shire, and flows for twenty-six miles along the border of the two counties till it unites with a stream from Loch Shin in Sutherlandshire. It then expands in Loch Gairloch, 10 miles long, called the Kyle, which opens into Dornoch Frith. The Reapath Water and Carron Water are one stream twenty-three or twenty-four miles long, which joins the Kyle at its lower end. A number of streams flowing eastward unite above Dingwall, just below which they fall into Cromarty Frith. The longest of these streams rises in the western part of the county, and has a course of forty miles to Dingwall.

The district of Ferrintosh, which is a portion of Nairnshire, is included in the boundaries we have given, but not in the description of the county of Ross-shire.
wall, watering Strath Bran, and passing through several
lakes, among which is Loch Luichart, nearly five miles long
by two miles broad, Loch Gairloch, six miles long and two
miles broad, is drained by another of these streams: it is near
the centre of the counties. Loch Monar, five miles long by
one mile broad, is drained by a stream which belongs to
Inverness-shire; Loch Glass, five miles long, and many
other lochs and bays extend inland. The slopes of the
extensive lowland plains drain into the numerous rivers
flowing into the friths of the eastern coast. All the above
discussed lakes have their greatest extension from east to
west.

The streams on the western coast have a shorter course
than those on the eastern. There are several lochs in this
part. Loch Maree, the largest fresh-water lake in the
counties, extending twelve miles in length, and two miles
or two miles and a half across in the broadest part, is
drained by the river Ewe, and Loch Na Shallag, three miles long; Loch Fair or Fair, three
miles long and above a mile wide; Loch Dambh or Damff,
four miles long; Loch Lundie, three miles long; and Loch
Clunie, partly in Inverness-shire, nearly four miles long, are
drained by streams which flow into the sea on the west
coast.

Lewis abounds in lakes; but they are all small, except Loch
Longavat, which extends in length nearly ten miles from
north to south between Loch Alsh and Loch Resort. The
streams in Lewis have all a very short course.

The two counties have very few roads. The greater part
of them, including those of chief importance, are on the
east side, and lead to different places further north. One
leaves Inverness, goes to Invergarry, Fortrose, Culloden,
and Tain, to Dornoch, Wick, and Thurso, the communica-
tion being made in several places by ferries over the lochs
and friths. Another road from Inverness, to Wick and
Thurso runs more inland, passing round the heads of Loch
Beal and the Frith of Cromarty, and through the town of
Dingwall, which is at the head of Cromarty Frith; it
crosses into Sutherland, by Bonar Bridge, which is
thrown over the Kyle at the head of Dornoch Frith. There
are several other roads and ferries; these two roads from
Dingwall leads across the country through Strath
Bran to Loch Carron, a distance of 49 miles, sending
to branches on the right to Ullapool on Loch Broom, to
the heads of Loch Gairloch and Loch Ewe, by the side of
Loch Maree, and to Loch Torridon. The road from
Inverness to the Isle of Skye, with a branch to Loch Alsh and
Loch Carron, runs through Rhiabue and Glen Shiel, in the
southwestern parts of the county of Ross; and that from
Dornoch to the north-east to Loch Ewe, the eastern part of
the northern part of the same county. The greater part
of these roads are under the direction of the commissioners
of Highland roads and bridges.

Soil; Agriculture.—The arable land of the two counties is
chiefly loam, and the case may be classified into the
principal two terms, ‘an Oilean Dubh,’ or the Black
Isle, between Loch Beal and Cromarty Frith; and Easter
Ross, between the Cromarty and Dornoch friths, together
with the comparatively low and level tracts immediately
adjacent to these. The central and western parts are ‘wild,
rugged, and mountainous, interspersed with lakes and
narrow gllens that afford pasture for sheep and black cattle.’
(MacCulloch, Statist. Acc. Brit. Empire.) Since the
commencement of the present century, agriculture has im-
proved in a most extraordinary manner. ‘The fields were
formerly detached pieces of land, ploughed irregularly, as
the ground with the least labour suited. The cart generally
used a plough of four wheels, as ploughing, with a kind of
tumbar or solid wheel, and wicker or post-plough. The
plough was used for agricultural purposes. ‘I succeeded
to a farm in this country about thirty years ago (says Major
Gilchrist, of Opisdale, Sutherlandshire), when the working
strength consisted of sixteen oxen and twenty-four small
horses called garrons; this farm is now laboured by three pair
of horses.’ (Appendix to Fourteenth Report of Commis-
sioners of Highland Roads and Bridges; Furb. Papers for 1826,
vol. iv.) The individual who introduced the ploughing of
large areas of upland straths, circular ridges, and the division of fields into
various parcels, by means of systematic arrangement, was living in the
employ of Major Gilchrist at the period of the above Report.

The total amount of wheat then (viz., at the commence-
ment of the present century) raised in the county was not
equal to what is now produced on many single farms. It
was not until 1813 that the first barley-mill north of the
Cromarty Frith was erected, and in 1821 the first flour
mill (at Drummond, on the estate of Fowla) by the same
individual. The cultivation of barley, it has been
carried, that the growth of wheat alone is now (1825)
estimated at 20,000 quarters annually; and the exportation
of grain to London, Leith, Liverpool, &c. during the last
year exceeded 500,000 quarters, and upwards of 10,000 quarters; besides the
supply of the extensive districts already supplied, and the
county of (Ross), and the towns of Dingwall, Tain, Inver-
ness, &c. to which places I am credibly informed upwards
of 10,000 bolls of flour are now annually sent for the
consumption of the inhabitants. This has contributed
the produce of various extensive whiskey distillers,
situated in different parts of the country, and a con-
siderable quantity of salted pork from the ports of Cromarty
and Invergordon.’ (Appendix to Report, as above.)

The soil in the peninsula of the Black Isle is very
rich, and much of it poor. The cultivated portion consists chiefly of
clayey loam, good black mould, and sandy loam. In Easter
Ross there is a considerable extent of clayey loam and light
sandy soil. Around Dingwall the soil is clayey. There
are more than the usual number of gentlemen’s seats and pla-
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have, in addition, butter, cheese, oats, &c.; and in winter and spring, have broth and mutton, in place of herring. 

Peat is the common fuel, but the better class of farmers have coal. There has been much improvement in agricultural implements. Iron ploughs, drawn by two horses, and described by the ploughman "as big as the tower of London," are now used instead of the old plough with four horses, a ploughman, a driver, and two other persons to keep down the plough in the ground and level the riggs. The crooked spade is still used where there is but little pasture for horses or where the ground is too soft for ploughing. Peat is now found in places on the coast which were formerly barren. Deer are tolerably numerous in some places, not in others; roe and hares are not numerous. The fox, badger, polecat, weasel, marten, mole, rat, and mouse are common; as are the eagle, raven, and a variety of hawks and owls. Plovers are frequently met with; gruses are perhaps diminishing. The smaller tenants usually possess a considerable extent of grazing ground, sometimes near their arable land, sometimes remote from it; they occupy the straths or valleys.

There are stone-quarries in some parts of the two counties, but they are not of much importance. They have limestone, but no coal.

The herring fishery is carried on along the eastern and western shores; but this branch of industry has declined on the east side of the Firth, and the herrings now brought in are chiefly those that are caught in the rivers and estuaries of the eastern coast.

**Divisions, Towns, &c.**—The two counties are divided into thirty-three parishes, two of which extend into the adjacent counties, viz. Urquhart, a portion of which (the district of Firth) extends into the county of Stirlingshire. The county is surrounded on one side by Ross-shire, and on the other by Inverness-shire, according to the small portion of Inverness-shire, which is surrounded on one side by Ross-shire, and on the other by Inverness-shire, according to the small portion of Inverness-shire, which is surrounded on one side by Ross-shire, and on the other by Inverness-shire.

The parishes are all large, as compared with the average extent of English parishes; but on the other hand, more cultivated land and better systems of farming mean so large as the Highland parishes of the west, which have a small extent of twenty, thirty, or even forty miles. There are four royal burghs, viz. Tain, Cromarty, Dingwall, and Fortrose, and one burgh of barony, viz. Struan, in the island of Lewis.

Tain is on the shore of Dornoch Frith, in the north-east part of the county. The parish extends nine to ten miles in length from north-east to south-west, and five to six miles in breadth. Tain appears to have been incorporated very early in the 12th century, and the earliest charter extant is that of James VI., A.D. 1587. It was early celebrated for a chapel of St. Duthus, bishop of Ross, which had right of sanctuary. The sanctuary was violated and the bower of St. Duthus was violently elbowed in 1409. It was again elbowed in 1494, and once more in 1540, by order of the Duke of Sutherland: the chapel was never rebuilt. The town is situated on a ridge or terrace chiefly composed of a stratum of red clay overlaying the sandstone which forms the higher ground of the parish, and overlooking a low plain which extends from the foot of the terrace on which the town stands, to the present shore, a quarter of a mile distant. This low plain consists of a bed of peat, in which are observed the trunks of trees, chiefly oaks, the remains of a forest, decay of which has formed the peat-bed; over which extends a bed of sand and shells, and over that a cultivated alluvial soil, on which the sea is gradually encroaching, and which is in some parts already converted into waste by the sea sand with which it has been overgrown. One or two large cliffs near the sea contain beds of very valuable building stones, chiefly composed of granite, veined with white quartz rock, and lined with blocks of hornblende. Towards the centre and western parts of the parish these primitive rocks are overlaid with sandstones and other secondary formations, the latest being towards the west. East of the town is a large accumulation of peat, with trunks of trees embedded.

The name of Cromarty occurs early: Macbeth was thane of it. The town was peopled by lowlanders, who, from their advance position, were exposed to frequent hostilities from the neighbouring highland clans, by a combination of which, early in the reign of James IV., it was plundered. It is likely that the admirable position of the town near the entrance of the Frith, which forms a secure and land-locked harbor, had caused it to be selected as a place of settlement by lowland merchants, and that the townsfolk had early carried on trade with Flanders and France. After the union of the crowns it declined, but revived after the Revolution by means of the herring fishery. It appears to have been suffered after the Union, but since this depression has again revived.

The town stands on a low alluvial tongue of land jutting out into the Frith. It is irregularly built, exhibiting in its streets and houses a mixture of the old and the new, and a style of architecture characteristic of all our older towns of the north. (New Statistical Account.) There are a plain church, a Gaelic chapel, and a town-house; the last a substantial building with a hall in the upper story and a prison in the lower, and surrounded by a dome or clock-tower. The harbour, formed by a pier, is near the extremity of the point on which the town stands. Vessels of 400 tons can come up to the quay.
The population, in 1831, was 2901, about one-fourth agricultural: the population of the town itself was 2215, that of the country part of the parish 686. There are a hampden-chapel and a parsonage house, which employs twenty to two hundred of them in the factory itself, and a brewery. A considerable trade is carried on with England in salt provisions; and in 1831, about fifty men were engaged in the herring or white fishery. There are a branch bank and a post office, besides a station for mail coaches with Inverness, and by steam-boats with Leith and London. Some ship-building is carried on. There are a market on Friday and one yearly fair.

Fortrose is a royal burgh, but was disfranchised at the request of the burghers, a.d. 1672, and was accounted only a burgh of barony. Its privileges as a royal burgh have been restored by the Scotch Burgh Reform Act, but the magistrates can effect little from the want of funds; the ancient property of the burgh having been alienated before its disfranchisement. It unites with Kirkwall, Wick, Dornoch, Tain, and Dingwall to return a member to parliament.

Dingwall is on the south-western extremity of Cromarty Firth, 23 miles from Inverness by a circuitous road, and 176 miles (according to Chamber's Gazetteer of Scotland) from Edinburgh. The parish comprehends an area of above ten square miles, three-fifths of it moorland or upland pasturage, and the remainder cultivated. Dingwall was perhaps a Danish settlement: it was erected into a royal burgh by Alexander II., a.d. 1297, and, by pavements and other traces of buildings which have been found, appears to be more extensive than it is now. It was the principal town in this part of the county, and the town has greatly declined after the extinction of that earldom. Some traces of the ancient castle of these earls, comprehending the earthworks and a small portion of the massive walls, may be seen on the north-east side of the town. In the early part of the last century Dingwall was in a deplorable condition from poverty and neglect, and the public tranquillity was repeatedly broken by the frays of hostile clans. Subsequently to the suppression of the rebellion of 1745 great improvements took place, and the town has especially improved of late years. It consists at present of one main street running east and west, and one or two smaller ones branching from it; the streets are paved, but either not lighted or very imperfectly so; and the police is too imperfect to enforce cleanliness, so that even in the main street dunhills are sometimes seen in the front of the houses. Cleanliness is however gaining ground, and there are some good houses and shops. The kirk is a neat and commodious building, and it is said to be out of the town. In the town is an obelisk fifty-seven feet high and six feet square at the base, erected on a large artificial mound, by a former earl of Cromarty, to mark out the burial-place of himself and his family: the town-house, a curious old building with spire and turrets, is but little below its original height; and there is a small and wretched gable and an episcopal chapel.

The population of the parish, in 1831, was 2139: about one-fifth agricultural. There are good roads, and a short canal from the thirteenth enables vessels with coals and other merchandize to come quite up to the town. There is a coach communication daily with Inverness, and steam-boats weekly from Edinburgh, and every second week from London, touch at Invergordon, distant fourteen miles. There are a weekly market (on Friday) and three yearly fairs.

The burgh council consists of fifteen members, including a provost, two bailies, a dean of guild, and a treasurer; the burgh unites with Kirkwall, Wick, Dornoch, Tain, and Cromarty in returning a member to parliament.

There were, in 1837, a parochial school, an infant school supported by subscription, and three other daily schools in the parish; also one large Sunday-school.

Fortrose is in the parish of Rosemarkie, and on the shore of the Cromarty Firth, where the Firth can be entered by a passage of only two miles. The Firth is connected opposite Fort George. It was antiently the cathedral town of the bishopric of Ross, and is still called Garoon or Canony of Ross, as it was erected into a royal burgh by James II., a.d. 1444, and name is connected with existing Rosemarkie. The present burgh consists of the two thus united. Fortrose is a small town, with little manufacture and very little trade; and Rosemarkie is an insignificant fishing-village; the two places are about three-quarters of a mile distant from each other. There are some remains of the antient cathedral at Fortrose, comprehending an aisle or chapel which was an appendage to the main part of the church; an antient building, probably a vestry, with an aisle; and a chapel of the monks, with effigies of the bishops, carved in stone, and much defaced; and an antient bell, now hung in a spire of modern erection. There are an episcopal chapel and a prison. The parish church is in Rosemarkie, and was erected during the chief improvement of the poor of Fortrose has been a house of Rosemarkie, weaving: the inhabitants are engaged in fishing. There is a ropewalk at Rosemarkie, and a distillery at Fortrose. There is communication with Fort George by road and by river; and with Aberdeen, Dundee, Leith, and London by trading vessels.

The inhabitants of Rosemarkie parish, in 1831, was 1799. The burgh council consists of a provost, three bailies, a dean of guild, a treasurer, and nine other members; fifteen in all. The burgh unites with Inverness, Nairn, and Forres to return a member to parliament.

Storsnoway, the only town in the isle of Lewis, is situated at the head of a bay on the east side of the island. The parish is extensive, extending twelve miles one direction, and ten in another; with a population, in 1831, of 5422, of whom three-fifths were in the town or its immediate vicinity. Stornoway consists of several streets. The houses are in general good, with slate roofs, and many not only well built but well kept. The town is in decay, having been situated in 1794, and lately repaired; there are a neat custom house, a house in the county part of the parish are in general miserable and squalidly filthy habitations. The principal employment of the inhabitants is fishing, and fish are exported to the ports round Glasgow. Haddocks are caught and cured for home consumption; and flounders, hakes, sole, turbot, and conger-eels, and occasionally whales, grampus, and porpoises, are taken.

Stornoway was founded by James VI. of Scotland and I. of England, for the purpose of introducing civilisation into the Highlands. The harbour is good and much frequented. Sixty-seven vessels, with an aggregate tonnage of 3059 tons, and fifteen hundred boats, belong to the port and district. There are a corn-mill, a saw-mill, and a worsted-spinning mill, a ropewalk, and a large distillery. Kelp-making and the manufacture of coarse pottery are carried on. There is a well-frequented yearly fair for cattle. Sheriff and constable are appointed by the crown; and it is governed by a body of the chief landholders. There are several public buildings, a kirk, and a hospital, where the sick are held regularly. There are thirteen schools in the parish, viz., the parochial school, seven supported by the charity of societies or individuals, two 'supported by the country people,' and three without any extraneous support. There are nine miles of good turnpike roads, and the parish is divided into four districts: North, South, East, and West. These districts are connected by several roads, and there are numerous bridges across the tributary streams. The administrative and ecclesiastical divisions of the parish are divided into the following districts: 1. Insular district; 2. South district; 3. North district; 4. West district. There are many churches, but no other religious societies.

Fortrose, Dingwall, Cawdor, and Ross; and Cromarty, they are all bad. Crime is not frequent in the two counties, and has diminished considerably within the last seventy or eighty years. Highway robbery and cattle-stealing, which were common for some time in the highlands, and were attended with almost daily thefts, and violent assaults and child-murder, which continued to be common till a much later period, have become rare. Sheep-stealing still goes on; but the most common offence are minor assaults, committed under the influence of whiskey and beer. The diminution of crime is attributed to the
to the improved condition of the people, the spread of education, and the more efficient administration of justice. The most serious offenses are usually committed by hawkers, squatters, and other vagrants; the police, though impartial, is still insufficient; and there is still a good deal of pauperism and mendicity. (Inspectors of Prisons' Second and Fourth Reports, 1836 and 1839; see Parl. Papers for 1837, vol. xx., and 1839, xiii.)

Education has been greatly extended and improved of late years. In 1833-4 there were thirty-three parochial schools, with as many teachers, and one hundred and twenty-four schools not parochial, with one hundred and twenty-nine teachers, and one hundred and fifty-seven schools and one hundred and sixty-two teachers. The greatest number of scholars in these schools during the year was 5118 boys and 2850 girls, together 7968; and the number of the children of the parish schools for the year together 3901 children. The number of children under fifteen who could read or were learning to do so was 9718; the number who could write or were learning to do so, 3021. (Parl. Papers, 1837, vol. xxvi.) The schools established during the last ten years by the National Association are particularly reported as working well. In these schools the improved system of teaching introduced among the poorer classes by Mr. Wood, of Edinburgh, is, it is said, generally adopted; so that the children, instead of being stuffed in quantity of nude, instead of being satisfied with mere ability, are now led to analyze and clearly understand all they are taught. Small libraries too are often appended to these schools. Tain appears to be distinguished for the increased attention paid to education. In addition to the regular parochial school, a public academy has been opened during the last few years, in which an education of a superior kind is given. A great many of the adult population are unable to read easily, or indeed to read in any way. On the western side of the county it is difficult to find a person forty years of age (of course, excepting the richer classes) who is able to read. Under these circumstances it is not surprising that there is in fact but little reading among the people at present, although the newspapers of the liberal classes are, of course, read. The subscribing classes is a small one at Lochalsh, supported partly by the subscriptions of the members and partly by donations. (Second Report of the Inspectors of Prisons.)

Antiquities. - At the earliest historical period this country appears to have been inhabited—the western part by the Creones, the eastern part by the Cantii (Cervantes), and the centre by the Caledonii (Kalidonaion) of Ptolemy; but it is impossible to assign the limits of their respective territories. The Bay Volans (Oblasa Aequalis) of the same geographer may be identified with Loch Broom. The strata (theae) of Varar (Oblaspor), or Varse, as it is in some editions of Ptolemy, which is mentioned also by Rubinius, is also inhabited by Creones. The Arm Anhium Imperii Romanii of Richard may perhaps be fixed on the ness or promontory of Tarbet, and the Abona strata of the same writer may be identified with Dornoch Frith.

Of this early period Ross-shire contains several remains. In Kincardine and Fearn parishes are some Druidical circles; and on the eastern shore of Loch Rhoig, in Lewis, are the very entire remains of a Druidical circle, the stones of which, some of them very large, stand on end, at a distance of five or six yards from each other. These stones are stated to have been taken from the shore. There are cairns in different places on the summits of hills. The Druidical origin of the circles is disputed by Dr. M'Culloch ('Highlands, &c. of Scotland,' vol. iii., p. 229, seq.). To the long period of the age of the oat ree, the theory that these circles were formed after the departure of the Romans, may be assigned the duns, or dunns, or Picts' houses, as they are termed, which some suppose to be Danish forts, though some ascribe them to an earlier period than that of the Danish ravages. Some cairns, vitrified ruins, stone obelisks, on or near the eastern coast, and the traces of habitations in the caves of the western coast, belong to early but uncertain periods.

At a subsequent period Ross became an earldom, which was united with the earldom of the Isles (i.e. the Western Isles) by the marriage of Donald M'Donell, lord of the Isles, with the daughter of the earl of Ross. These honours were held, about the middle of the fifteenth century, by Earl John, who allied himself with Edward IV. of England (1461), rebelled against the government of Scotland during the minority of the king James III., and proclaimed himself king of Ross and the Hebrides. He was supported by Donald Balloch, lord of Isla, and by the earl of Douglas, now in banishment. The rebellion was attended with much destruction; but Ross, in the course of it, in the castle of Inverness, and the rebellion came to an end without its chiefs having attained their object.

The succeeding earl appears to have inherited the turbulence of Earl John. He was involved in hostilities with the earl of Huntley, another powerful Highland chiefman, and, adhering to his predecessor's English alliance, rebelled against James III. But the extent of the king's preparations induced him to submit to the royal clemency (a.d. 1476). He was deprived of the earldom of Ross, the lands of Knapdale and Kintyre [Argyle, vol. ii., p. 313], and the hereditary shrievality of Inverness and Nairn, which was conferred upon his brother-in-law, a peer of parliament with the title of John de Isla, lord of the isles. During this period Ross gave title to a bishopric, erected by David I., king of Scotland; the cathedral was at Fortrose.

There are several remains of antient castles in Ross-shire. Lochlin Castle is on an eminence six miles east of Tain; it consists of two square towers sixty feet high, united at one corner of each, with a staircase at the point of junction, and large turrets raised upon the turrets. Craigcailhouse Castle, on the eastern shore of Lochcarron, is an antient tower of five stories; the castles of Kilcoe and Redcastle are on the shore of Moray Firth, or rather of Loch Beasly. There are some ruins of Cabbale Castle on the east coast, between Cromarty and Moray friths, and of Donan Castle, on the shore of Loch Alsh, on the west coast. There are also some ecclesiastical ruins. Lochlin Abbey (or Fearn Abbey) is near the castle of that name, east of Tain; and there are the ruins of a number of antient chapels in Lewis, especially of St. Mulvay's chapel, in the north part of the island. In 1649 the M'Kenzie's of Ross broke out into rebellion, to revenge the execution of Charles L, but were defeated. The last battle fought by the garrison was at Montrose was in this county, at Craignichan (i.e. the rock of lamentation), in Kincardine parish, just on the northern border of the county, where he was defeated by Colonel Strachan; he swam over the Kyle into Sutherlandshire, and was comprehended in that county's gaol; and was executed at Edinburgh (a.d. 1650). The earl of Seneforth having forfeited his estates, which lay in the west side of the county, by his share in the rebellion of 1715, and the military not being able to penetrate into so inaccessible a district and levy the rents for the crown, the faithful clansmen regularly paid theirs to an agent, who transmitted them to the earl, then in exile. In 1718, Donan Castle was seized by the earl of Seaforth and one or two other Jacobite noblemen, who arrived in the coast in two vessels, with a small body of Spanish troops; a few Highlanders took arms and joined them, but they were defeated in Glenshiel by the government troops, and the leaders compelled to make their escape. 'Rob Roy' was engaged among the insurgents in this conflict.

(See Statistical Account of Scotland; Playfair's Description of Scotland; Forsyth's Beauties of Scotland; Chambers's Gazetteer of Scotland; Tytler's and Scott's History of Scotland; and other works.)

ROSS. [HEREFORDSHIRE.]

ROSTEL'LA/RIA. [STROMBIDAE.]

ROSTELLUM, a botanical term applied occasionally to very different parts: 1. It is most frequently used as a dimi-

nutive of rostrum, the beak, it is then applied to the upper beak of certain birds, as that of Cygnus, or of the harpooner or eider; 2. It is applied to the short beak-shaped process found on the stigma of many violets, as Viola hirta, V. odorata, and V. canina, &c.; and Orchidaceae, as Orchis, Spiranthes, Listera, &c.; some writers have also used this term to indicate the radicle or descending element of the embryo of the seed.
ROSTOCK, the largest town in the grand-duchy of Mecklenburg-Schwerin, is situated in 54° 5' N. lat. and 12° 20' E. long. It stands on an eminence, in a flat and fertile valley, on the bank of the river Warnow, which is there 2400 feet broad, and forms the harbour. The Warnow falls into the Baltic at Warnemünde, nine miles below the town.

Rostock consists of three parts, the old, the middle, and the new town, besides the suburbs, and it is surrounded with antique fortifications. A great part of the city is built in the old fashion of the free German cities, with the gable ends toward the street, but it has been very much improved within the last twenty-five years. It is famous for the richness of its languages and houses. Most of the streets are straight and pretty broad, and well paved. On the whole the old town is the most irregular, the middle town the handsomest, and the new town the most regularly built. The principal public buildings are the grand-ducal palace, more remarkable however for its extent and its admirable situation than for the style of its architecture; the university, a very extensive building; the court of justice, and the town-hall, both modern edifices; the theatre, and the churches of St. Mary and St. Peter. The church of St. Mary, 300 feet long, 240 broad, and 96 feet high up to the cupola. It has one of the finest organs in Northern Germany. This church contains the tomb of Grotius. St. Peter's church, which was at the end of the twelfth century chiefly remarkable for its fine steeples, which, with the very lofty conical spire, is 420 feet in height. The university was founded in 1419. It has 23 professors, but only about 110 students. The library consists of above 80,000 volumes, including rare and valuable works, and works of science, and has been much increased by the collection of Professor Tychsen, especially in Oriental and Spanish literature; likewise a cabinet of medals, a museum of natural history, a botanical garden, and an anatomical theatre. There are also a theological seminary, a Bank Society, a medical dispensary, and several other useful institutions. The number of inhabitants is 18,200.

Rostock was a town of the Wends, or Vandals; it was taken in 1161, by Waldermar, king of Denmark, and burnt, with its celebrated tower. In 1323 it was annexed to Mecklenburg, and joined the Hanseatic League in 1636, and was for a long time the next city in rank in the Baltic after Lübeck.

Great privileges were granted it by the dukes of Mecklenburg, many of which it still retains, such as the right of choosing its own magistrates, the right of taxing itself, of coinage money, the jurisdiction over all its inhabitants, and its estates in the country. Though its commerce is not so considerable as in the time of the Hanse, it is still the principal trading port of Mecklenburg; it has about 150 shipping houses, and the number of ships which arrive every year is about 600, the foreign vessels being mostly English, Russian, Swedish, and Danish. The exports are chiefly corn and wool. The imports are colonial produce, wine, spices, hemp, and wood. The products of canvas, herring, herring oil, balsam, ships' anchors, soap and vinegar, and some breweries, distilleries, and sugar refiners.

(Cannabich, Handbuch; Stein's Lexicon; Stein's Handbuch, by Hörschelmann; Hempel's Mecklenburg.)

ROSTOPLY [YARASLOW]

ROSTRUM, or, more properly, ROSTRA, was a platform or elevated space of ground in the Roman forum, from which the orators used to address the people, and which derived its name from the circumstance of the orator's being placed at the foot of the rostrum. The rostra were a fixture of the Comitia, or place of assembly for the Curiae, and the Forum, properly so called, or place of assembly for the Comitia tributa. Bunsen, in his work on the Roman Forum, quoted by Arnold (History of Rome, vol. ii., p. 165), judging from the views of the rostra given on two coins in his possession, supposes that it was a circular building, resembling, with a single story, a ship. The steps leading by a parapet, the access to it being by two flights of steps, one on each side. It pointed towards the Comitia, and the rostra were affixed to the front of it, just under the arches. Its form has been, in all the main points, preserved in modern times; the circular pulpitums, or pulpits, or churches, which also had two flights of steps leading up to them, one on the east side, by which the preacher ascended, and another on the west side, for his descent. Specimens of these old pulpits are still to be seen at Rome, in the churches of S. Clement and S. Lorenzo fuori le Mura.

The orators appear to have walked up and down the rostra in addressing the people, and did not, like modern speakers, remain standing in one spot. Down to the time of Cæsar Gracchus, the tribunes in speaking used to front the Comitia; but he turned his back to it, and spoke with his face towards the Forum. (Niebuhr, History of Rome, vol. i., note 990; vol. iii., note 268.)

ROSTRA, a botanical term applied to any rigid protuberance, remarkable in the annexed process of the end of any of the parts of a plant. Under the term are included the most processes and long points of an irregular character, as the thin spines upon the operculum of the ripe fruit of the pine, or the long and pointed spines of the calyx upon the scabiosa, Tragopogon, Lactea, and many other Composite, as well as of Scandix and Anthriscus, the remaining and often enlarged style upon many fruits, as of Brassica, Sinapica, Saxifraga, and many other prolonged points, as those upon the urticula indica, Carex flava and C. amplexica. The term corollis is often applied to parts similar to rostrums.

ROT, DRY. [DAY-ROT.] ROTALIA [Pomponazzi, vol. x., p. 348.]

ROTATE, a botanical term applied to either the calyx or corolla, when the tube is very small or entirely wanting, and the petals or sepals are united and spreading. Examples are seen in the genera Anagallis, Lychnis, Borago, Salvia, etc.

ROTATION (Rota, a wheel). The popular conception of a body in rotation is vague, except only in the case of a wheel, in which the rotation is made about an immovable axis. This subject has accordingly been usually treated by mathematicians. In a true rotation, all the parts of a body continue in the same straight line of motion, and the results, and with their power of interpreting them, did nothing towards the improvement of the manner of presenting the elementary view of rotation. Within the last seven years however, a French philosoper of a truly remarkable ability for simplifying the most complex of machines, M. Poinsot, in a paper which excited wonder that ideas so simple should never have occurred to any one before, if it had not been so often seen that simplicity is native of the first genius given. In this article it is to be remembered that we confine ourselves to notions connected with motion, independently of its producing forces, reserving the latter for Theory of Complexes; an arrangement dictated rather by our desire to keep in one article what may be accessible to the general reader, than by its own intrinsic propriety. For the mathematical part, it is evident, we enter into it, see Virtual Velocities.

There is a close parallel between the conception we form of the simple motion of a point and that of a solid body, namely, that each has a case of peculiar simplicity, by which others are rendered more easy to describe. A point may move in a straight line, or may preserve its direction unaltered, or point of the motion, namely, that of the tangent of the curve. It is not so easy to see that whenever a body moves about a fixed point, no matter how irregularly, there is always, at every instant of the motion, some one axis which is, for that instant, at rest. This notion of an instantaneous axis of repose, not continuing to be such for any finite time—answering to that of an instantaneous direction in curvilinear motion, which does not continue for any finite time to represent the direction—must be first distinctly formed, before every satisfactory account of the motion of a body can be given.

Let us suppose a uniform sphere, with a fixed centre, but otherwise free to move in any way. Let a succession of positions of the sphere be successively defined, and let us, at the same time, observe, for each position, the circumstances under which the line joining the fixed centre of the sphere to the centre of the body remains unaltered; or, if this be not perfectly perceptible, the geometrical considerations presently to be given, will...
If we suppose no fixed point in the system, so that motion of translation, as well as of rotation, is possible, M. Poinsot has given another equally distinct notion of the state of the motion during an infinitely small time. The most simple notion which we can form of a combined translation and rotation is the screw-like motion, in which a uniform motion of translation is accompanied by a uniform motion of rotation round a line parallel to the motion of translation. M. Poinsot has shown that every motion of a system must be, at any one instant, either a simple motion of translation, or one of rotation, or the screw-like motion above described.

That is to say, at every point of time in the motion of a system there exists a line (whether internal or external to the material system) on which, as long as they are immovably connected, both the system is at that instant dropping, while all the rest of the motion at that instant is simple rotation about that slipping axis. Perhaps we might like to ask the first question of these ideas; but when they are once understood, the precision they will give to the conception formed of the motion of a system will be found highly valuable.

In every solid system, whether regular or not, can be described an ellipsoid (Stability of the second degree, which is called by M. Poinsot the central ellipsoid). Its centre is the centre of gravity of the system; its three principal diameters have their squares inversely proportional to the moments of inertia about these diameters as axes; and the position of the three regular diameters depends upon the distribution of the masses of which the system is composed.

If the centre be fixed, these three diameters are the only axes upon which the system can permanently revolve without the axis being also fixed; and they are called the principal axes of the system. But if, in the course of the motion, these axes all differ in length, the revolution about the greatest and least axes is stable (Stability), and about the mean axis unstable. The conception of the effect of given forces on a system is much facilitated by the use of this ellipsoid. [Theory of Couples.]

Let us now suppose a system to receive at the same time two motions, round two different axes of repose: that is to say, given two different motions, required the motion which will result from the sum of the two motions being impressed on the system at once. There will be at the first instant an instantaneous axis of repose, which it is required to find. First let the two axes pass through the same point A, and choose the angle BAC out of the four angles made by the two axes in such a manner that points of the system lying in the angle BAC would be elevated by the rotation round BA, and depressed by that round CA or vice versa. On the axes take AB and AC, lines proportional to the angular velocities about those axes, complete the parallelogram AD, and draw the diagonal AD. Then AD is the axis of repose at starting (which however it may not continue to be), and AD represents the angular velocity round that axis at starting, in the same manner as AB and AC represent the impressed angular velocities about AB and AC.

Next let the axes be parallel to one another, say perpendicular to the plane of the paper, passing through A and B. If the rotations are such that A and B would both rise, or both fall, on the paper, each by the rotation about the other, take a point C in AB continued nearest to the axis about which the angular velocity is greatest (say that of A), and such that CA is to CB as the angular velocity about B to

\[ \frac{CA}{CB} \]

the angular velocity about A. Then the axis of repose at starting is a line passing through C parallel to the former axes, and the angular velocity is the difference of the angular velocities about A and B in the direction of the greater. In this case the directions of the rotations about A and B [Direction of Motion] are different. There is one remarkable case, namely, when the rotations about A and B are equal. In this case the rule would lead us to a rotation equal to nothing.

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[Image of a diagram showing the arrangement of the axes and the rotation process.]

P. C, No. 1933.
made about a point at an infinite distance—one of those extreme conclusions which require interpretation. The fact is that these two rotations give only a simple motion of these points relative to that fixed point. Feedback of the second order is made as to make the system move upwards or downwards on the paper according as the separate rotations would make the points A and B move upwards or downwards. This particular case will be more intelligible when looked at with the help of the Theory of Couples.

But if the rotations be in the same direction, so that A will be lowered and B raised, or vice versa, each by the rotation about the other:—Take a point D, dividing AB so that AD is to DB as the angular velocity about B is to that about A. Then will the axis of repose at starting be a parallel drawn through D to the axes passing through A and B, and the angular velocity will be the sum of the angular velocities about A and B, its direction being that which lowers A on the paper and raises B, or vice versa, according as is done by the given angular velocities.

Lastly, let the axes be neither parallel nor intersecting, as AB and CD:—Through the point in which CD meets the common perpendicular draw EF parallel to AB, and at the instant at which the rotations round AB and CD commence, give a couple of equal and contrary rotations about EF, each equal to that about AB. This last pair produces no effect, so that the composition of the four rotations gives the same result as that of the two. Now, as above has been seen, the rotation round AB, and its equal and contrary round EF, produce nothing but a motion of translation, while the remaining rotation about EF, compounded by the first rule with that axis, gives only an axis of repose, if it were not for that translation. The whole result then is, that the system begins to move about an axis, which axis begins to undergo a translation in space.

There is no work to which we can refer the reader for a simple demonstration of these rules, apart from higher considerations. But the student of mechanics who does not pay attention to the simple phenomena of translation and rotation, will rarely find himself able to attain a complete comprehension of the equations by which these phenomena are applied in practice.

ROTATION OF CROPS. It has been observed in a former article [ARABLE LAND] that a repetition of the same crops in succession has a peculiar effect on the soil, so that if grain of the same nature be sown year after year in the same ground, it will not produce the same return of the seed, even when abundantly matured. The reason of this is not satisfactorily explained, but the experiments which have been made by men of science lead us to conclude that the real cause will be gradually discovered; and considerable advances have been made towards a rational solution of the question. It has been observed that it is the formation of the seed which principally causes the deterioration of the soil; for if the crop be fed off in a green state, or mown before the seed is formed, the same may be safely repeated, and no diminution of the plants is ensuing. This takes place in a meadow which are mown before the blossoms is faded or the seed formed, will spring up again vigorously; but if the seed is allowed to ripen, the roots die away, and the best effect of the crop appears. It is thus that when a meadow is mown year after year for hay, and the earliest grasses are allowed to ripen their seed, the crop will be later and later, and all the earliest grasses will disappear. Irrigation prevents this, and seems to restore to the land whatever the grasses require for their continuance. Feeding of the meadows does the same; and this leads to the conclusion that water restores the power of production; and that, the grasses not being permitted to run to seed, the deteriorating effect is not produced.

If it had been a more exhaustion of the nutritious particles in the soil which caused the deterioration of the subsequent crops, some kind of manure might restore the fertility; but this is not the case. However judiciously the land may be manured, it is not practicable to raise a crop of wheat or clover, or of many other plants, on a soil which has shown that the ground is in the habit of losing all or most of this crop; for clover grows well after wheat, and wheat after clover, so that the same effect is not produced in the soil by these two crops. Experiments have been made by eminent chemists, particularly by Macaire of Geneva, at the request of De Condorcet, who found that one to two seeds or other nutritious parts of plants, the sap is digested, that it takes up certain elements and deposits others, which are the residue of the process: and these being no longer necessary to the formation of the seed, are rejected by the root and exude by the roots. Thus certain inferior animals, which in many respects have some analogy with vegetables in their growth, as the polypip, take in nourishment by the same openings or pores by which the excreta are voided after digestion; and the practice of these inferior animals enables one class to feed on the excreta of another; whereas no animal in a healthy state can derive nourishment from that which it has already digested and voided. But if these experiments are conclusive or not, they found that beans and beans together, and turnips, carrots, or potatoes. Independently of the manure, the farmer who plants his fields to the proper mixture, put into the soil at the proper season, in the right place, and where the proper succession is attended to, that on the contrary to the supposed excretion; and, on the other hand, wheat thrives in the water in which beans had grown. This confirmed the well-known fact that heavy soils of a rich quality and well manured will bear alternate crops of wheat and beans without the intervention of a fallow for a long series of years, as is practised in some parts of Kent. The effect of following land is explained on the same principle; the excrement is washed out by the rains, or is decomposed by the light and air to which it is exposed by the repeated ploughing. In this case, then, the result is said to follow from the supposed excretion of the crop, which is common among those farmers who adhere to the following system.

If the chemical nature of the excrement of each plant cultivated could be accurately ascertained, artificial manures might be prepared, by which a deposit in the water of the nature of a bitter extract; and this they concluded to be excrementitious. Whether these experiments were conclusive or not, they found that beans and beans together, and turnips, carrots, or potatoes. Independently of the manure, the farmer who plants his fields to the proper mixture, put into the soil at the proper season, in the right place, and where the proper succession is attended to, that on the contrary to the supposed excretion; and, on the other hand, wheat thrives in the water in which beans had grown. This confirmed the well-known fact that heavy soils of a rich quality and well manured will bear alternate crops of wheat and beans without the intervention of a fallow for a long series of years, as is practised in some parts of Kent. The effect of following land is explained on the same principle; the excrement is washed out by the rains, or is decomposed by the light and air to which it is exposed by the repeated ploughing. In this case, then, the result is said to follow from the supposed excretion of the crop, which is common among those farmers who adhere to the following system.

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at least should be supplied with. Wheat sown after clover, which is allowed to happen the succession on light soils, fulfills all the conditions; when it is sown other beans, the addition of the preceding crop not ripening its seed is given up, and consequently this succession is inferior to the other. Potatoes, at first sight, appear to fulfill all the necessary conditions; but al also very rich manure is used, the bulbs of the roots contain so much farina. That in the formation of these the soil is notoriously deteriorated; and farmers well know that, except in peculiar cases which form exceptions, wheat never thrives so well after potatoes as it does after clover, and that the former is so richly manured as to contain more organic matter in a soluble state than there is in the roots of the clover.

A knowledge of the different plants which may succeed each other on the same land is of great importance in forming a judicious crops conversion, so as to obtain the most valuable produce from any given soil, in so quick a recurrence as possible without the risk of failure. In the triennial system, which could only be profitable where much of the land remained in a state of pasture, two crops of corn were taken in succession after a complete fallow. But even here it was found advisable to have different kinds of grain, and not to repeat the same crop without a fallow intervening. In very rich soils wheat and barley were the usual crops after clover, that lay down manure, and cattle or sheep kept on the pastures in summer and on hay and straw in winter. Repeated ploughings were indispensable; and the farmer who stirred his land the most was the most certain of good crops. But when pastures were broken, the clover system maintained itself, and it became indispensable to devote some portion of the land to raise food for the animals whose dung is required to keep up the fertility. Hence the introduction of roots and artificial grasses. It was soon observed that these would not grow better if the land had not been borne these roots and grasses, even with less manure, than after crops of grain; and a rotation was adopted in which green crops were raised between every two crops of corn. In process of time the fallows were found to be superfluous without them. It is now the custom to keep the land clean by careful weeding and hoeing. The effect of a judicious rotation on the produce raised in a given time was so evidently advantageous, that it gave rise to a notion that in this alone consisted the whole art of the farmer, even to the neglect of manure; and clauses were introduced in leases prescribing the rotation to be strictly adhered to, often with detriment to the land and loss to the tenant, when the circumstances required a deviation from the system.

In order to find the crops which may advantageously succeed each other in rotation, many circumstances must be taken into consideration. First of all the quality of the soil, and its fitness for particular crops; next the wants of the farmer's family, and the stock required to produce a sufficient supply of manure. It is unreasonable to expect poor light land to produce wheat and beans, although by high cultivation these crops may be forced. Rye, oats, and roots may give the farmer a better profit, by being raised at a less expense than more valuable crops, which must be forced with manure, and at best be precarious in soils not adapted to their growth. In moderate soils wheat may recur every fourth or fifth year, whereas in very rich soils it may recur every third, and even every alternate year. Clover and many artificial grasses do not succeed well if they recur oftener than every sixth year, or with even a longer interval. Rape, flax, and potatoes require a still more distant recurrence on the same soil. The crops are made in this system to correspond to the selection of the most advantageous rotation for the soil of his farm; and where the land in a considerable district is nearly of an uniform quality, experience soon establishes a course which no one finds prudent to deviate from. It is impossible to devise a rotation suitable for a variety of soils, very different in their nature and fertility, are intermixed; and then, unless the farmer can apply the true principles of rotations, he may greatly err by following the course, which may be very judicious for the prevailing soil. Here the old advice to a young farmer, to 'look over his neighbour's hedge,' may not be a prudent one to follow; and even if there were no difference in the nature of the soil, or in the state of fertility in which it is at the moment,

a blind adherence to the practice of others will never lead to any improvement. For such improvement can only be effected by some knowledge of the reasons on which any practice is founded. Hence a knowledge of the crops suited to any particular soil, and the order in which these crops should succeed each other, is indispensable to the advantageous cultivation of land.

That which forms the food of man is always the principal object in the cultivation; and, excepting rice, which only grows in warm climates, there is no food more universally used than that which is made from wheat. Rye, barley, and pulse are the next in the order of importance, and are raised in sufficient quantities. Next to grain comes meat, chiefly beef, mutton, and pork, of which the consumption increases with the weight of a nation and the advance of its agriculture. Wheat and fat cattle are therefore primary objects with every good farmer; and those who can raise, most wheat and fatten most oxen or sheep or pigs will realize the greatest profit.

Many circumstances may indicate a deviation from the course, which, as a general rule, is most advantageous. The facility of purchasing manure from neighbouring towns may allow of more frequent crops of corn, and of nutritious roots which require much manure, such as potatoes, and which give no return to the land in the shape of dung. But there are changes of circumstances which may often be conducive to the same result. A farmer who has no access to the land, and has no resources to recruit the land with manure, so that it may give the greatest produce without diminishing in fertility; and this can only be done by a judicious feeding of live-

stock.

In a simple rotation of wheat and beans alternately would be by far the most profitable in rich clay soil, as both these crops always obtain a good price in the market; but if a whole farm were so cropped, nearly all the manure must be purchased; for, after a few crops, the wheat-straw and bean half the manure will be thrown away. Hay and oats must be purchased for the horses required for the tillage, which might not be procured so readily or so cheap as they may be raised on the farm. On very light sands wheat or beans cannot be raised, except by a very expensive mode of cultivation: but buckwheat, and roots for cattle must be substituted. On chalky loams the principal crops are barley and artificial grasses for sheep. In short, no particular rotation can be prescribed without a complete knowledge of the soil, the locality, and every circumstance connected with any particular farm. As the most universal rule, it may be laid down that every alternate crop should be consumed by animals on the farm, and that, as much as possible, the plants which succeed each other in this order shall be of different families. Experience has generally shown the time that should be allowed to intervene between the recurrence of the same kind of crop, and we have only to form our plans accordingly.

In order to prove that the principles we have here laid down are not formed on mere theory, we have only to show that experience and observation have led to the same practical results, and that those rotations which have stood the test of the longest experience have been gradually brought to a considerable perfection in consequence of the failures which generally followed any great deviation from the true rational course.

Of the old triennial course (fallow, wheat, barley or oats) it must be observed that the two corn-crops so rapidly deteriorate the soil, that a complete year of fallow is required to purify it, and a good manuring to keep the land in heart, and that all the industry of the farmer cannot keep up the fertility of the land without extraneous help, either from the manures produced in the farm, or from humus kept in commons or pasture-grounds. This system, which prevailed so long, cannot be called a rotation; and no real improvement was introduced into agriculture until the notion of its perfection was exploded, and tenants were permitted to devise a rotation suitable for their particular soils. The principle of this old system necessarily partook at first of its main defects. Green crops were introduced of necessity to supply the loss of the commons and pastures, which, as the population increased, was gradually diminished, as arable land continued to be cleared. This was remedied in succeeding, and even now, such is the force of habit and early impression, that one of the most difficult points to be gained with more practical farmers is to make them have patience when their land is in a good state, and to prevent their sowing a white
Crop, which is immediately profitable and obtained at little or no expense, instead of a green crop, which will keep the land in heart and improve it for future crops, but which does not figure in the account of sales. Yet it can be clearly shown, that in most cases the second corn-crop is dearly purchased by the expense required to restore the land to the state in which it was when the seed was sown a second time, and manure cannot alone will not do this; following and repeated ploughing can alone effect it: and whether you plough several times before a crop, or are forced to do so after it, there is no difference in the expense of labour, although there may be much in the value of the subsequent crop.

The Norfolk course (turnips, barley, clover, wheat), which is so well known and deservedly in repute for light lands, has only one defect, which is the too frequent recurrence of clover. Rye grass, the usual substitute in sandy soils, unless it be fed off young, is far inferior to clover as a preparation for wheat, and this accords with the theory; for wheat and rye grass are both of the natural family of the gramineae. Tares or vetches are a good substitute in heavy soils, as well as beans, both of which are leguminosae, but not well suited to light sandy soils. Peas are sometimes introduced; but they are apt to encourage weeds, unless the crop be very heavy, and then they exhaust the soil, and leave little vegetable matter behind them in their roots.

### Rotation of Crops for Four Years

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<th>First Year</th>
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<td>0 12 Colza plants</td>
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<td>0 6 Turnips</td>
<td>0 8 Rye</td>
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<td>0 6 Cow-cabbage</td>
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In this rotation there are a great many different crops, but the chief is wheat, which occupies 18 acres in 60, and thus recurs nearly every third year on the same ground. It invariably follows clover, flax, colza, and beans, all plants of different families. After these, various green crops follow, and, excepting a very small portion of winter barley and rye, which are generally cut green for the cattle, all these are likewise of different families from wheat. Then come colza, beans, and oats, all but the last of different families, which it was then the seed was sown a second time, and manure could not alone will not do this; following and repeated ploughing can alone effect it: and whether you plough several times before a crop, or are forced to do so after it, there is no difference in the expense of labour, although there may be much in the value of the subsequent crop.

In many countries there are other vegetable products, which are required for the food of the inhabitants, and the raw materials of manufactures, these must be taken into the rotations, according to their effect on the soil and the cultivation they require. Indian corn, or maize, French beans, for their seed, are cultivated in many climates as field crops. Potatoes are now as essential a product in some districts, and one which, after rye, gives the greatest quantity of food for man from a given piece of land. But potatoes require much manure, and cannot be cultivated to a very great extent as a farm crop in any length of time, even when grown under the best conditions. As a specimen, we will give a rotation which has been adopted in the neighbourhood of Lille in France, noticed in the 'Journal of the Royal Agricultural Society of England,' vol. 3, part 3, page 292.

The quantity of land is 12 'bounaires' (about 60 acres). Each 'bounaire' is divided into 16 'cents,' and consequently one-fourth of an acre.
Mr. Thomas Blackie's scheme of Rotation upon a Farm of 100 Acres, as proposed to the French government.

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<td>10 lucern</td>
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<tr>
<td>(To be ploughed up after seven years, and followed by wheat.)</td>
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</tbody>
</table>

Insects can afford a tenth part of it; but this is very easily modified by substituting a green crop for a portion (perhaps one-half) of the potatoes, and letting the potatoes be succeeded by barley or oats instead of wheat. The rotation will then be less sorcerous, and better adapted to land of moderate fertility, where extraneous manure cannot be depended upon. We give it as an example of the application of the true theory of rotations, and it is remarkable how nearly it accords with that which was the result of practice alone without theory. We have ourselves for many years adopted a rotation without being tied down to any positive rule, which has been suggested by circumstances, and in some measure regulated by our conviction of the truth of the theory we have attempted to elucidate. In a clayey loam on an impervious subsoil, but mostly completely drained, we have had turnips and Swedes on high ridges, tares, mangel-wurzel, potatoes, and a portion of rye to cut up green; succeeded by barley and oats sown with clover, rye-grass, and other biennial grass seeds. These were mown for hay the first year, and sometimes the second also, but generally only depastured one year at least; then followed beans, and after these wheat. The green crops were put in after repeated and deep tillage, and with an ample allowance of manure. The whole of the layer was top-dressed with peat or coal ashes in the first year, and that manure could be got or spared was put on the second year before winter, when it was ploughed up. All the corn crops were put in upon one shallow ploughing. We have had no reason to repent of pursuing this course; but we allow that one year only in clover would probably be more profitable. The land is not sufficiently fertile by nature to bear wheat after the first year of clover, instead of feeding or making it into hay. This would bring it to some of the rotations adopted in rich alluvial soils. It is a rule which should never be transgressed, that after every crop passed there should be a remnant of manure sufficient to ensure a good crop the next year; and that this should always be in the land, and considered as stock in trade or capital invested at good interest. By means of judicious rotations and tillage a much greater quantity of produce may be raised at a certain expense of labour and capital, than by any desultory and experimental mode of cropping. The farmer should find it his own interest to cultivate his land according to the most approved principles, and the landlord should impose only such restriction as will prevent the tenant from injuring himself by diminishing the produce of his farm.

**ROTATION, INTERCELLULAR.** [Sarp.]

**ROGATORIA.** One section of the Infusorial animals is thus termed by M. Ehrenberg. It is arranged in the diplozoan division of the animal kingdom by Dr. Grant, a view which has been many times suggested to original observers, from the figure, division, and movements of the body. Ehrenberg's classification of these minute but often highly organised creatures is formed upon the same general model as that of the Polyzoaria, there being in these the same double series of analogous nude and loricated forms.

**General Character.**—Swimming invertebrate animals, apodous, often caudately, capable of executing rotatory movements by the aid of peculiar ciliated organs. No true heart, but a dorsal vessel, and transparent vessels in which no movements appear. No distinct branchiae. Many nervous pharyngeal ganglia (cerebral); in general a cervical nervous ring and an abdominal nervous. Very often eyes coloured red. Alimentary canal distinct and simple; sometimes a stomach, in other cases conical appendages; pharynx almost always armed with jaws, which often carry teeth. Sexual organs distinct, hermaphroditic; reproduction oviparous and viviparous, never fissiparous, as among Polyzoaria.


Section I. Monotrocha. Ciliary Circle simple and entire, and not variable. Monotrocha nuda. Monotrocha loricata.


Section II. Schizotrocha. Ciliary circle simple, divided in parcels. Schizopoda nuda. Schizopoda loricata.

aa, Rotatory organ multi-
* Rotatory organ quin-
** Rotatory organ with
* Mouth direct, terminal.
** Mouth oblique, inferior.
Gen. Meliceria.

Section III. Polytrocha.
Several small ciliary circles.
Polytrocha loricata.
Gen. Hydatina.
A. No eyes.
a, Mandibles dentate.
Gen. Hydatina.
aa, Mandibles edentate.
* Mouth direct, terminal.
Gen. Euteropoda.
** Mouth oblique, inferior.
Gen. Pteropoda.
B. Two eyes, which are ef-
* Tail bifurcate.
Gen. Lepadella.
aa, Cuirass compressed.
** Tail simple.
Gen. Monura.
** Tail bifurcate.
Gen. Colorus.
B. One eye.
b, Cuirass depressed.
* Tail simple.
Gen. Monostyla.
** Tail bifurcate.
Gen. Euchlamis.
bb, Cuirass swollen or
* Tail hairy and simple.
Gen. Masticogora.
** Tail bifurcate or trifur-
+ No cornicle.
Gen. Salpinia.
++ Cornicated.
Gen. Dinocaris.
C. Two eyes (frontal).
c, Head nude.
Gen. Metopidia.
cc, Head hooded.
Gen. Stephanops.
D. Four frontal eyes.
Gen. Squamella.

aa, Tail bifurcate, not cor-
** Rotatory organs, sup-
** Rotatory organs sessile
C, Two eyes (frontal).
Gen. Hydrias.
** Rotatory organs sessile
and lateral (no frontal pro-
Gen. Typhlina.
B. Two eyes.
* Tail bifurcate, and with
two pairs of horns
Gen. Actinurus.
** Tail bifurcate, and
without horns; no
Gen. Monobis.
bb, Eyes dorsal.
(Tail bifurcate, and
with ten pair of corn-
icles; a frontal pro-
Gen. Philodina.
In illustration of this classification, we present draw-
inings of—
Notommata centrum, as an example of nude Polytro-
chous Rotatoria; and of—

Zygotrocha.
Two small ciliary coronas.
Zygotrocha loricata.
1st Fam. Philodinacea.
C. No eyes.
aa, Tail bifurcate and cor-
nicate (a frontal pro-
Gen. Calididina.

Notommata centrum. The branchial apparatus (A, c) omitted on the left side.
Brachiosaurus ureclosa, an example of loricata Zygotorichus Rotatoria.

ROTE, a musical instrument of former times, mentioned by the early French writers of Romance, and by Chaucer, as well as others among our early poets: it seems to have been similar to what the French call a vielle, and the English a hurdy-gurdy. The English name is now obsolete. They consist of twelve inhabitants elected for life by the freeholders and rate-payers of the township, and they have the management of certain lands bought by the inhabitants of Queen Elizabeth. The total income at their disposal is about £600 a year, a considerable proportion of which is expended in the improvement of the town and in other objects of public utility. Mr. Hunter states (South Yorkshire) that he has inquired in vain for the decree or patent under which the rotees act. The town is lighted under a local act obtained in 1801. A general rate for lighting was enacted in 1833, but is not incorporated, nor is the water company, which was formed in 1827. The police are regulated by a general local act (3 and 4 Wm. IV., c. 90), and consists of a day and night watch, for which the township only is rated. The county magistrates sit in petty sessions. In 1836, 62 persons and offenders were committed temporarily to the town gaol. The Midsummer quarter-sessions for the West Riding are held at Rotherham. A court of requests was established in 1839, as its jurisdiction extended to places in the county north of Rotherham is the centre of a union under the Poor Law Amendment Act. The expenditure for the relief of the poor averaged £2905 for the parish, before the union, and in 1866 the expenditure was £4900.

Great improvements have been recently taken place in the general appearance of the town. Streets have been widened, old houses pulled down, and many good buildings erected. The materials for building are abundant, the town itself standing upon a mass of the old red sandstone. Besides the parish church, there is a chapel at Tinsley, a small antient edifice; a church at Gresborough, built in 1826, with the aid afforded by the Church Building Commissioners and voluntary contributions; a new church at Thorpe; and a new church at Kimberworth will be completed in 1842. The oldest chapel for Protestant dissenters was built by the Presbyterians in 1705, and is now used by the Unitarians; it was repaired and enlarged in 1840. The Independent chapel, situated in Mabsbrough, was built in 1826. It stands the end of the last century, and has been much enlarged. The Wesleyan Methodist chapel, built in 1805, has been twice enlarged. A Primitive Methodist chapel has been opened since 1820. In 1836, a handsome Baptist church was erected; and the last large church that has been erected is that of the Roman Catholic church, which has been performed in a building formerly occupied as a theatre. The court-house, in which the Midsummer quarter-sessions are held, was built by the county in 1837, and is the most convenient in the West Riding. The present rise and fall of the town is mainly a result of the lease that has been granted, and indicates that the town is now on the point of being a good town.

About a mile south of the town, on the south bank of the Don, there are some Roman remains, which consist of a rectangular encampment called Temple Brough; and at a distance of 300 yards higher up the river, there is an earthwork, which is conjectured formed part of a larger work. Roman coins, bricks, and pottery have been found on both these sites. The station of the 'Ad Fines' on the great road from Little Chester to Castelford, is fixed at Temple Brough by the best authorities. There is nothing however to give Rotherham a claim to a Roman origin, but it probably originated very early in the Saxon period. The church at Rotherham was in that period the only ecclesiastical edifice in the extensive district, and title was paid to it from lands now forming the parishes of Rotherham, Newbold, Sheffield, Handsworth, Treeton, and Whiston, in addition to which those who are comprised within the parish at the present time. (Hunter's South Yorkshire.) A weekly market and annual fair were held before the Conquest; the Saxons lord of the manor had his corn mill; and these were sufficient, with its ecclesiastical superiority, to render Rotherham a vil of some importance. The Saxon possession of the manor being displaced at the Conquest, Nigel Fosard, a Norman, was subinfeudated under the earl of Morton. In the reign of Henry III. (13th century), the manor and church were granted to the monks of Rofford Abbey, in Nottinghamshire, with the rights which had been exercised by the former feudal possessors, such as regulating weights and measures, the assay of bread and beer, punishment of crimi-
Rotherham possesses many important advantages calculated to encourage manufactures. Extensive beds of coal, of a quality suitable to manufacturing purposes, and of a richness nearly part of the parish, and iron-ore is also abundant. Leland notices, in the sixteenth century, that a mine from Rotherham 'be veri good pites of coalt;' and also that in the town 'be veri good smithes for cuttyn,' but it was not until about the eighteenth century that any extensive manufacturing operations began to be carried on. In 1746, the Walkers established a work for the manufacture of cast-iron goods of all kinds; and at the large establishment in the centre of the town, erected about 1820, part of the cannon used in the navy during the American and French wars was cast, and for a considerable period nearly the whole country was supplied with them from cast-iron goods. The iron bridges at Sunderland, Yarm, Stainnes, and the Sheffield-bridge over the River Thames were cast at their works. After a period of inactivity which followed the close of the war, the various branches of the iron-manufacture are again carried on with great vigour, many new establishments have been commenced, and a greater variety of articles is produced. Stoves, furnaces, engineering and millwork, and many kinds of hardware goods are now made. Glass, earthenware, starch, soap, naphtha, pyroligneous acid, are manufactured at Rotherham. There are two two-ship paddle steamers and porter boats, and vessels of 50 tons burden are occasionally built in yards adjoining the Don. A flax-mill has been carried on for several years. The markets for corn and cattle are held on Monday: both are of great importance; but the greatest is on Monday the market is on the second largest in the county, and is attended by buyers from Manchester and other towns at a great distance. There is a covered stone building in the market-place for the accommodation of the dealers in butter, poultry, eggs, etc. The foreshore is intended as a port for the conveyance of coal and other bulky commodities by en-closing one of the sides. The barges occupy the northern sides of the market, and were built by the foreshore. They are for horses and cattle chiefly, and in November there is a hiring service.

Besides the various natural advantages which the manufacturers of Rotherham enjoy, there are several places possessing such extensive facilities for traffic. The Don was made navigable from Doncaster to Tinsley (the latter place situated between Rotherham and Sheffield) in 1728; and in 1729, the navigation was extended from Tinsley to Sheffield by a canal. The Don gives to the town the means of exporting and importing commodities by water, which is not the case with its nearest rival, until the navigation of the River Don was completed with the Trent by the Stainforth and Keadby canal. The Sheffield and Rotherham railway was opened in 1838. It commences in West-gate, Rotherham, where a handsome station is building, is carried across the Don by a beautiful bridge, the Greenhow Bridge, and terminates in the Wicker, Sheffield. Trains depart from each terminus every hour during the day; and the distance between the towns, which is 5½ miles, is performed in about fifteen minutes: the lowest fare is sixpence. Upwards of a million of passengers have been conveyed along the line in the two years ending October 1840. The Rotherham station on the North Midland Railway is one of the most important on the line, being used by Sheffield on the one hand, and by Rotherham and an extensive district eastward: it is a handsome stone edifice with a spacious waiting-room and offices. This railway, which connects Leeds, York, and Hull, and the counties of Durham and Northumberland, with the midland and western counties and the metropolis, passes through a considerable portion of the parish, and has greatly increased the value of property adjacent to it. At the fekles, a hamlet in the parish, it is carried over the Don and the Sheffield road by a fine viaduct of twenty-five arches. The communication between London and Rotherham is effected in about 6½ hours.

The population of the parish and township at the four periods when the census was taken, was as follows:

<table>
<thead>
<tr>
<th>Period</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801</td>
<td>3483</td>
</tr>
<tr>
<td>1821</td>
<td>3348</td>
</tr>
<tr>
<td>1841</td>
<td>3448</td>
</tr>
<tr>
<td>1861</td>
<td>3050</td>
</tr>
</tbody>
</table>

The population of the parish is at present estimated at 6500: in the latter part of the town, at 5600: in the latter part of the town houses are rising, though many new houses have not yet been almost built. The population of the different divisions of the parish, in 1831, was as follows:—Rotherham (as before stated), 4833; Kimberworth, 4031; Great Grimsby, 1596; Grimsby, 1831; Brinsworth, 229; Catcliffe, 194; Dalton, 158; Orgreave, 35.

The establishments for education at Rotherham are:

1. The Independent academy, situated in Masborough, at which 25 young men are educated for the Independent ministry, under a master until about 15 years of age, the instruction is supported by voluntary contributions. 2. The grammar school, founded in 1684: the classics are taught gratuitously to the boys of the town. The master has a house rent-free; the fees for the girls are not more than 4l. per annum, for the fees, who are the trustees, add a gratuity. The school has a claim to a fellowship and two scholarships in Emmanuel College, Cambridge, in case the same are not occupied from the free-school at Norton: and there is a fellowship at Lincoln College, Oxford. 3. Hall's School, erected in 1663, by Thomas Hollos, a Non-conformist, for the education of thirty children. 4. The Feoffees' school: to boys and girls are educated and instructed in reading, writing, and arithmetic. 5. A school on the Lancasterian system: 200 boys and 200 girls. 6. 3 Sunday schools. 7. Sunday schools.

There are several reading and writing schools. There is a small library of theology in the church, for the purchase of which the sum of 100l. was left a century ago.

ROTHEBITHIE. [Sturvy.]

Rothesay, or Rothesay, is a fine burgh in Scotland, on the north coast of the Isle of Bute, chief town of the county of Bute, 12 miles from Glasgow, or 19 from Greenock; in 55° 31' N. and 5° 17' W. long.

Rothesay owes its origin to a castle erected here in the time of Magnus, King of Norway, to secure the western isles of Scotland, which he then held. Under the protection of this castle a village was formed, and, under the patronage of the Stuart family, to which it belonged, it came to be of great importance. Robert III. raised it from being a borough to the rank of a royal burgh, and James VI. and I. of Scotland, by charter in 1585, further augmented its municipal privileges. It suffered much in the wars of the middle ages, and was repeatedly taken and plundered by the English, the Norsemen, and the Lords of the Isles, until it was speedily recovered by the Scotch, and inhabited by a small population. In the early part of the last century many of the inhabitants left it, in order to settle at Cambelltown, and the town appeared like a desert, but since then it has much revived.

The town is on the east side of the island, at the bottom of a small bay. It consists of several streets and houses, and has been enlarged along the shore on each side of the old part of the town, by the addition of villas and lodges. The houses for the accommodation of the barmen who resided in the summer from Glasgow, and to whom the place was recommended by its mild and healthy climate and picturesque situation.

Rothesay Castle, a tall heavy-looking ruin, consisting of a circular enclosure with massive walls flanked with square towers built of red stone, stands in the middle of the town. The town-hall and county buildings, a handsome castellated structure with an elegant tower, and the present, for the county, are adjacent to the castle. The building of a modern building about a mile from the town. There are two chapels of ease, one of them Galchle, a third chapel of ease, of elegant architecture, has been built by the Squire of Bute in the northern part of the parish. There are three four dissenting places of worship in the parish. The parish church are the church of St. Mary, once the cathedral of the bishops of the Isles; the walls of the choir, and one or two ancient monuments, standing.

The population returns of 1831 were as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitable houses</td>
<td>549</td>
</tr>
<tr>
<td>Families</td>
<td>1149</td>
</tr>
<tr>
<td>Persons</td>
<td>1417</td>
</tr>
<tr>
<td>Burgh</td>
<td>208</td>
</tr>
<tr>
<td>Rest of parish</td>
<td>242</td>
</tr>
<tr>
<td>Total</td>
<td>1227</td>
</tr>
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</table>

About one-third of the population of the part of the parish...
not included in the burgh is agricultural. By a subsequent account carefully taken in 1837, the population was given at 4924 for the burgh, and 1165 for the rest of the parish; total 6089.

There are a cotton mill and a power-loom factory, a tan-yard, two boat-building yards, and several cooperages. The gardens and fishery is carried on. There are and the principal branches of the Greenock, the Renfrewshire, and the Royal Bank. The harbour was formed A.D. 1825, and has a slip and building dock, either now finished or in course of construction. The exports are cotton and cotton yarn and cotton goods, herring, fresh fish, barley, turnips, potatoes, root-crops, and hemp. The imports are raw cotton, cotton yarn, hides, wheat, oats, flour, beans, bone-dust, lime, freestone, coal, salt, and barley. The principal trade is with Ireland and Lancashire. There are 15 to 300 tons, total registered tonnage 2950: men 255, employed in the coasting trade, foreign trade, or fishery. There is a communication by steam-boats with Glasgow. There is a weekly market, and there are three fairs of little importance.

Port Bannatyne, a village in the parish, with a population of about 300 persons, has 25 small vessels engaged in the herring fishery.

The parish is in the prebendry of Donon, in the synod of Argyle. There were, in 1640, fifteen schools in the parish, including a school at Largs, which was attended by three teachers, two schools endowed by the Marquis of Bute, and three others which were partially assisted. The number of scholars in these schools, in the spring of 1840, was 921, nearly one-sixth of the whole population. The management of the schools was under the control of the ministers, and a young person brought up in the parish who cannot read and write. There are in the parish six public libraries and two public reading-rooms. A periodical publication, *The Bute Register*, has lately been established; it is useful to agriculturists. There are several friendly societies, and a savings' bank.

The burgh is governed by a provost, two bailies, a dean of guild, a treasurer, and twelve councillors. Burt court, which holds its sessions at Auchendinny House, is attended by three or four persons at most. The council of the county is held here. The provost of the county, who had previously returned a member alternately with Caithness, was allowed to return one constantly. (New Statistical Account of Scotland; Parliamentary Papers.)

ROTBOLLA, a genus of the tribe Rotboellaceae, of the very natural order Balsaminaceae, of the family of grasses, named by Mr. Brown in honour of C. F. Rotboll, a Professor of Botany at Copenhagen, who died in 1797, and who published several works, one in particular on exotic species of Grammeus and Cyperus. The genus is distributed, especially in India, New Holland, and the tropical Islands, and extends also to Egypt. The species are usually tall, erect, and flat-leaved, with the spikes round and jointed; spikelets two in each joint, pressed close to or sunk into the sheath; of these one is sessile, the other stalked. The species are not relished by cattle, with the exception of *R. glabra*, of which they are said to be fond in India.

ROTTERDAM-STONE, occurs massive. Fracture uneven. Color greyish, red, or blackish brown. Dull, earthy, and opaque. Soft, soils the fingers, and is fetid when rubbed or scraped. Found near Bakerswijk, Derbyshire, in Wales, and at Albany in the state of New York.

It is employed in polishing metals, &c.

Analysis of a chip.  

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumina</td>
<td>86</td>
</tr>
<tr>
<td>Silica</td>
<td>4</td>
</tr>
<tr>
<td>Carbonaceous matter</td>
<td>10</td>
</tr>
</tbody>
</table>

ROTTENHAMER, JOHN, was born at Munich in 1564, and received instruction in the rudiments of painting from an obscure artist named Donhaour or Donower. Early in life he went to Rome, and became known for small historical compositions painted on copper in a style of most minute finishing. Emboldened by success, he undertook to paint for one of the churches of Rome a large altar-piece, representing several saints and a glory of angels, a work which, when completed, excited astonishment at the P. C. No. 1524.
was 1835, in all 354,334 tons, of which 1394 were with cargoes to the amount of 275,517 tons. Rotterdam is a very famous harbor, and its harbor has been described by Tennyson as "the harbor of the world." The population of Rotterdam has increased rapidly in recent years; in 1880 it amounted to 75,098, of whom 17,763 were Protestants, 8,325 Roman Catholics, and about 2,800 Jews.

(See also "Rotterdam," by Tennyson, in "The Illustrated London News." )

**Rotterdam, New.** One of the islands which constitute the group of the Friendly or Tonga Islands, and is situated at 29° 15' S. lat. and 174° 48' W. long. This island was discovered by Tasman (1643), and named New Rotterdam, but it is now better known as Annamooka, or Namooca, as Mariner writes it, which is the name given to it by the inhabitants. The island is about twelve miles in circumference, and in the middle there is a lagoon which is a mile and a half across. The island is low, and surrounded by a sea with regular sounds, and three miles from the shore, the depth varies between 25 and 36 fathoms. On the north-western side there is a roadstead called Van der Ley by Tasman, on which Cook anchored in 1773 and 1777. As to its productions, the Mariner says:

*Fruit and Vegetable Produce.*

(Cook's Voyages; Mariner's Account of the Natives of the Tonga Islands; Krusenstern's *Atlas de l'Ocean Pacifique.* )

**Rotterdam, Time.**

**Rotterdam, The.** The genus of plants named in honour of Dr. Rottleri, a native of Denmark, who was sent out to India by the Church Missionary Society, and was distinguished there for his labours as a missionary for nearly 50 years, as well as for his acquaintance with the Tamil language, on which he was long engaged, as also for the attention he paid to botany, having formed one of the first of early botanists at Tranquebar, who, with Koenig, were the first since the time of Reede to study that science in the peninsula of India. Dr. Rottleri's extensive Indian herbarium is deposited in the museum of King's College, London.

The genus belongs to the natural family of Euphorbiaceae, but the same name was applied to Yahl to one of the Cyrtandraeae. It is characterised by having male and female flowers upon different plants. Male calyx 5-7-partite, Corolla none. Stamens 30 to 40, inserted into the convex receptacle. Filaments free or united at the base. Female: — Ovary 3-3-4 celled, each one-seeded. Style deeply, 2-3-petalled. Capsule 2, each one-seeded. The genus, which is found in the tropical parts of Asia and throughout India, contains handsome moderate-sized trees. *R. tetracosa* grows in Silhet, and yields a hard and valuable timber. The capsules of *R. tinctura*, a small village in the island, is however notorious to circular buildings whose height does not much exceed their diameter, for which reason we should not describe a lofty cylindrical edifice, such as a round tower, by the term rotunda; while on the contrary it is frequently employed to designate polycylindrical or polygonal edifices formed of a series of concentric circles: for instance, the Colosseum in the Regent's Park, London, might without any great impropriety be classed among rotundas, it being a polygon of sixteen sides, which seemingly form a very obtuse angle.

We may here remark that what has been said on the subject of circular plans in the article Roman Architecture, and therefore proceed to remark, that notwithstanding their beauty, there are very few instances indeed of what can strictly be termed rotundas. In fact, such shape is utterly unsuited to buildings in general, whatever their particular purpose may be, unless it be one for which nothing more suitable can be found. It does not admit of being divided within into regular-shaped rooms, without very great loss of space, and therefore although plans of the kind have occasionally been attempted in the form of domes, nothing like the perfect exercise and regularity which the circle can afford in this respect can be adopted as the figure of the entire plan: accordingly instances of it are very rare. It is applicable only where a large space is to be provided as a place of public rendezvous or assemblage, where it is desirable to have columns and an area unobstructed by columns, in which a square one of the same superficial extent would be indispensable in order to support the roof. Therefore though it is well adapted for an Exchange, a market-hall, or similar purposes, and is adopted by the habitants of such places; it is nevertheless very rarely resorted to even for them. The Halle des Bils, or Corn-Exchange, at Paris, is almost the only example of the kind that occurs to us.

In ecclesiastical architecture circular and polygonal structures were to mean under certain circumstances for the Church, Christian, especially for baptisteries and sepulchral chapels. The tomb of Theodoric, or what is now called Santa Maria Rotunda, at Ravenna, is a singular example, having a flat topped segmental dome (about 34 feet in diameter) cut out of a single block, and the height of these domes was so great that the portions of the thickness. The Costanza mention has been made under Roman Architecture, and to them may be here added the Rotunda or Church of Santa Maria Maggiore at Nocera, a work of about the same period. While it greatly resembles Santa Costanza in plan, but having coupled columns, and omitting the colonnade, but the dome springs immediately from the columns and the architrave, the height of the base of the dome. Consequently, the proportions are much lower, the diameter of the space enclosed by the columns being 39 feet, and the height to the top of the dome 42—proportions differing very little from those of the Pantheon and other ancient edifices. The earlier edifices of this class are, for the most part, of moderate dimensions, but others were afterwards erected on a larger scale, and among them is the celebrated Baptistery at Pisa (Baptistery), which is externally about 129 feet in diameter, and the height of the dome. Besides being remarkable on account of its size, this edifice presents other architectural peculiarities, one of which is that the central area is covered by a conical roof, the upper part of which is carried up so as to pierce the external dome, and, except that it has no openings, appears like a lantern placed upon it. Woods therefore conjectures that the interior cone originally formed a spire, and that the external dome was an after addition to the structure.

The Rotunda became afterwards in a manner incorporated with or added to the cruciform plan, being raised above the level and placed over that part of it where the transepts intersect the body of the edifice. Nearly all modern cupolas may be described as rotundas elevated above the rest of the building and viewed by looking up at them, supposing there was a floor at the level of the whispering gallery at St. Paul's. The dome and space beneath it would form a perfect and well proportioned rotunda, whose height and diameter general form is that of a circle: in itself alone the rotunda form does not accommodate itself to the purposes of a church, and does not afford space for the processions and occasional ceremonies required by the Roman Catholic worship; nor is it better fitted for the Protestant service, since besides that nearly all its beauty would be destroyed by the floor being covered with pews. It requires an amphitheatrical arrangement of seats in concentric curves. Neither is it a form that can be enlarged to any required capacity, for 140 feet is almost the maximum
striking defects, and the balustrade (without pedestals) over the periaktoi is intolerable.

Madonna di Campagna, Verona. (Sanmicheli.) Exteriordiameter 74 feet in diameter, and 105 high. The lower part of the dome is beautiful, and the upper part is imperfect, with a dome of the same. Interior diameter 40 feet, internal 30. Two orders within. Height to spring of dome 46 feet, entire height 64.

La Maddelena, Venice. (Temanza.) Interior diameter 56 feet, height to spring of dome 36, entire height 63, or 71 more than that of Marseilles. Arrangement hexagonal, i.e. six arched compartments.

Halle des Bîts, Paris. (De Mazières.) Exterior diameter 223 feet, interior diameter of the rotunda beneath the dome 127, height to spring of dome 42½, to summit 105.

Passage. (Canova.) Exterior diameter 116 feet; width of portico 90, projection of portico 55, height of stylobate 10¼, interior diameter 90, height 90.

Madre di Iddio, Turin. (Buonsignori.) A rotunda about 130 feet in diameter, with hexastyle Corinthian portico. Interior diameter 74 feet, height 51; plan four semicircular tribunes, with two Corinthian columns in front of each, bearing the entablature continued over those spaces. Attic with a large panel over each of the four recesses.

Museum of the Vatican, Rotunda. (Simonielli.) Divided into ten recessed compartments: diameter 50 feet.

Berlin Museum, Central Hall. (Schinkel.) Diameter 67 feet, height of gallery supported by a peristyke of twenty Corinthian columns, the lower part 21½; height to spring of dome 42 feet, entire height 70.

Catholic Church, Darmstadt. (Moller.) Extreme interior diameter 135 feet, peristyke of twenty-eight Corinthian columns supporting dome; diameter of dome and arches 102 feet, height to spring of dome 48 feet, to summit 102.

Rudolphi Library, Oxford. (Gibbs.) Basement a polygon of 16 sides, and 104 feet in diameter. Exterior height 148 feet, interior diameter 88, interior diameter of central space and columns 50 feet. These interiors are larger than the Pantheon, but is still sufficiently ample to be imposing. In its proportions, and in its coved dome, the centre of which has a glazed opening to light the whole interior, it resembles the Roman structure. Not so however, in the architecture as much in being too plain and cold, that as the other building does in being broken into too many parts, and too much cut up by heavy ornament. Like the Pantheon, the plan is divided into eight compartments, those in the Depression, that within which is placed the door, and the opposite one (forming a deep sanctuary for the high altar), being rather loftier than the rest. The arches themselves are quite plain, without either keystones or archivoltas, and, except the tabernacles or altars within the recesses, the only decoration is that produced by the panels filled with sculpture, in the spaces between the arches. Nevertheless, taken altogether, it is a noble monument, especially when it is considered that it was raised by a private individual.

In describing other examples of rotundas in a similar manner, we shall put our notices relative to them into a condensed form, and for convenience sake shall include those already mentioned, as their relative sizes may thereby be more readily compared.

Arch Paris, Exterior diameter 88 feet, internal height 142, internal height 142. [Pantheon.]

Temple of Minerva Medica. Exterior diameter 110 feet. Interior a decagon 78 feet in diameter and 105 high. The columns form an arch to the temple, and the diameter of the rotunda within the peristyle and beneath dome 70, height of dome 130.

Nocea, Santa Maria. Exterior diameter 78 feet in diameter and 105 high. Interior diameter 80 feet, height of order 48, entire height 90.

Rotonda at S. Pietro in Montorio, Rome. (Bramante.) Exterior enclosed by a Doric peristyke of 15 columns. Interior diameter 22 feet, height 48. This edifice is generally admired as a classical piece of architecture, but it has many

ROUBLIAC, LOUIS FRANÇOIS, an eminent sculptor, born at Lyon in France, but long resident in England, where all the works by which he gained his reputation were executed. He was not popular at home, and his works were not much noticed by the public. He was sent to England by Desmarest, a French agent, who procured from the Elector of Hanover a commission for this purpose. He was at first employed in the decoration of the Orangery at Syon, and then at Blenheim, where Sir Roger Penfold was a great admirer of his works. He died in 1786, at the age of 62, and was buried in the church of St. Pancras.
do honour to the new favourite. Roubilane's chief works are the above-mentioned monument of the Duke of Argyle, that of Sir Peter Warren, and of the Nightingale family, all in Westminster Abbey; those of the Duke and Duchess of Montague, in Northamptonshire; and one in memory of Bishop Hough, in Worcester Cathedral. His principal statues, which are of George I., at Cambridge; of George II., in Golden Square, London; of Handel, the composer, in Westminster Abbey; and those of the Duke of Somerset and Sir Isaac Newton, both at Cambridge. His busts are worthless.

Of the high merit of Roubilane there can be no doubt. The monuments of Mr. Nightingale and his lady, the statue of Eloquence in the Argyle monument, the draped figure in Bishop Hough's monument, and the statue of Newton, are of great power and impression, and are remarkable also for minute and careful execution. At the same time they are deficient in the required simplicity, unity, and breadth which are found to characterize the finest works in sculpture, and which alone can ensure the lasting reputation of productions in this art when the interest that may have been felt in the individual subjects, the fashion of the day, and the popularity of the artist, have passed away. In the absence of these principles we must look for the thankless guardianship (or, more accurately) low estimation in which the sculpture of the Rykasch and Roubilane schools is now held by all real judges of art.

The most striking defect in the Nightingale monument (to illustrate criticism by reference to a well-known work), is the tendency of the sculptor to sacrifice the groups and figures to the drapery, and to attempt to give form to this idea by representing a common-life figure, in modern dress, wrangling over a palpable and material dart about to be hurled by a grim skeleton—making that agent which is the result or consequence of dissolution, the prominent object, without any attempt to impart to it the beauty of the original. It is only necessary to refer to it to show its impropriety.

The statue of Newton, though possessing great merits, is open to objections of another kind. The attitude is intended to express thought and calculation, and the action of the hands is finely conceived and perfectly in harmony with this feeling; but the impression is weakened by the general air of the figure, which, critics have justly observed, is not that of a great philosopher; and the drapery, though executed with great mechanical skill, and with minute attention to correctness of costume, is equally wanting in the repose appropriate to the subject. The sacrifice of simplicity to attitude and flutter, and the ambition to display skill in mere execution—the sure indication of the decline of art for art's sake—general merits the statues referred to in the monuments of the Duke of Argyle and Bishop Hough. Roubilane's faults are however the faults of the age; and artists, unfortunately, are too often tormented or driven, against their better judgment, to adopt the mode, however opposed to pure taste or sound principles, by which alone they can expect to gain public notice.

Roubilane died on the 11th of January, 1762, and was buried in the parish of St. Martin's.

ROUEN, capital of the departement of Seine Inferieur, 65 miles by a direct line north of Paris; 76 miles by St. Denis, Pontoise, and Magny, or 83 miles by Meulan,Maintes, and Vernon; in 49° 27' N. lat. and 1° 5' E. long.

The first mention of this town is by Psalterius, who speaks of it as a part of the Vexin. The name is variously written: Rotomagus, Rotomagus, Rotamagus (in the Antonine Itinerary, probably by a transcriber's error, Latomagus); in the Peutinger Table, Rotamagus; and in Ammianus Marcellinus in the plural form, Rotomagones. The inhabitants of this capital had their own proper designation superseded by that of the people to which they respectively belonged, and was in subsequent times shortened into Rouen or Rodomona, hence the modern Rouen. Under the Romans it was the chief town of the province of Lupundensis Secunda. Some Roman antiquities, but of little importance, have been discovered at various times. In the early history of France, Rouen appears as the scene of some of the principal events of French history; the incursions of the Northmen or Normans, whose capital it became, when, by virtue of the treaty between Rollo and Charles the Simple (A.D. 911 or 912), they settled as part of France. [NORMANDY] Under the duke of Normandy, it increased on the south side, where several buildings were obtained by contracting the bed of the Loire, which was here carried out to sea. After the death of Richard I. of Normandy, it was claimed to be his. In a subsequent dispute, the town was captured and imprisoned at Rouen, A.D. 945, and being at war with Richard, he attacked it, but was repulsed. The town was taken and sacked by the French, and the inhabitants swore allegiance to the French king, when his troops appeared. In the year 1257, the town was besieged by the French and English, under the command of Richard the Lion-Heart. The town was taken by the English, and the inhabitants were treated with great severity by them. The town was again besieged by the French in 1262, and was taken by them after a long and bloody siege.

From this time till 1418 it continued subject to the Duke of Normandy, when it was surrendered to the English by the treaty of Brétigny, and the town and castle were granted to the English. In 1418 it was besieged by the French, and the town was taken and plundered. The town was again besieged by the English in 1425, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Rouen in 1435.

The town was destroyed by the French in 1436, and the castle was taken and plundered. The town was again besieged by the English in 1448, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Windsor in 1453.

The town was again besieged by the English in 1498, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Arras in 1503.

The town was again besieged by the English in 1522, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Amboise in 1526.

The town was again besieged by the English in 1544, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Cateau-Cambrésis in 1559.

The town was again besieged by the English in 1675, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Aix-la-Chapelle in 1678.

The town was again besieged by the English in 1707, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Ryswick in 1713.

The town was again besieged by the English in 1745, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Aix-la-Chapelle in 1748.

The town was again besieged by the English in 1793, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Ryswick in 1795.

The town was again besieged by the English in 1814, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Portsmouth in 1815.

The town was again besieged by the English in 1854, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Paris in 1856.

The town was again besieged by the English in 1870, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Versailles in 1871.

The town was again besieged by the English in 1885, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Paris in 1886.

The town was again besieged by the English in 1914, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Versailles in 1915.

The town was again besieged by the English in 1925, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Paris in 1926.

The town was again besieged by the English in 1935, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Versailles in 1936.

The town was again besieged by the English in 1945, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Paris in 1946.

The town was again besieged by the English in 1955, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Versailles in 1956.

The town was again besieged by the English in 1965, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Paris in 1966.

The town was again besieged by the English in 1975, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Versailles in 1976.

The town was again besieged by the English in 1985, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Paris in 1986.

The town was again besieged by the English in 1995, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Versailles in 1996.

The town was again besieged by the English in 2005, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Paris in 2006.

The town was again besieged by the English in 2015, and was taken after a long and bloody siege. The town was again surrendered to the English by the treaty of Versailles in 2016.
in this part by a floating bridge, supported by nineteen large boats or barges, so as to rise and fall with the tide; but it is now taken away. Just below this may be seen, at low-water, the ruins of a stone bridge, erected in the twelfth century by the empress Matilda or Maud, daughter of Henry I. of England, and carried away by a flood, A.D. 1561. Opposite to the upper and lower parts of the city and suburbs are two long islands: the upper called 'Ile de la Croix' or de la Monnaie, the lower, the 'Ile du Petit Gay.' At the western or lower end of the Ile de la Croix, a stone bridge crosses the river; it is divided into two parts by the point of the island, resembling in plan the Pont Neuf at Paris. Each part has three arches, the central one being in the form of a tunnel of about 50 feet, having in a half circle of the arches of 83 feet. On the point of the island between the two parts of the bridge is a circular area adorned with a column. This bridge was begun by Napoleon, but has been finished since his reign. Two small rivers, the Rôbec and the Aubette or Prefontaine, flowing from the east-north-east, traverse the eastern part of the suburbs and city by artificial channels, formed by the Cardinal Georges d'Amboise, archbishop of Rouen, and flow into the Seine, the Aubette and the Rôbec being below the stone bridge.

Another little stream flows from the north in a covered channel, and falls into the Seine some distance lower down.

On the east side of the city, just above the bank of the Seine, on the left bank, the river and the Aubette, rises the hill or mount of St. Cloud, which overlooks the Seine, and sends down a steep street of old buildings, which are spelt with patches of vegetation or with cottages. On the south bank of the Seine, along which it extends for about a mile, is a small tower; it was a very beautiful and costly structure, and was built at a much later period by archbishop Georges d'Amboise. A great bell, 33,000 lbs. weight, cast by order of the same prelate and named after him, hung in this tower, and, being very cracked in 1786, was melted down at the time of the Revolution, and cast into cannon.

The doorway in the northern transept, called the 'Portal of St. Romain,' is adorned with an endless variety of fanciful sculptures. The end of the northern transept is flanked by towers, and in the centre is a magnificent rose window. The southern transept bears a general resemblance to the northern, but has suffered more from the violence of the Hugenots and the Revolutionists.

The central tower is of the year 1200; it is low and compact, but in its height, its form, and its materials, it is more modern than the others. It is not surmounted, was erected in 1824, in place of the former one destroyed by lightning: it is described as being much more elegant than its predecessor, which, though not elegant, was remarkable for the boldness of its architecture. The first spire was of stone, the second and third, and, we believe, the present one, of wood. The Lady-chapel and the roof of the choir were finished in the sixteenth century.

The interior of the cathedral contains twenty-five chapels, and many interesting monuments, to the memory of the dukes and his son Guillaume or William I. (Longue Épée), dukes of Normandy; but the effigies of these princes are of later date than their time. The tombs or cenotaphs of Henry the younger, son of Henry II.; of his brother Richard; and of his son, Philip Augustus, are all modern. On the right of the altar is a memorial to King Louis V. of France; of John, duke of Bedford; and others of interest, have been destroyed, partly by the religious and political troubles of subsequent ages, partly to make way for repairs and alterations in the building. The library was plundered during the Revolution; the staircase of the roof which contained it is remarkable for its delicacy and beauty. The extensive palace of the archbishop, adjoining the cathedral, contains some good paintings.

The abbey church of St. Ouen was the noblest edifice in the pointed Gothic style in the city, and perhaps in France. Its beauty caused it to be preserved in the general destruction of the conventual churches at the Revolution, though it did not escape being plundered and desecrated. It had suffered much from the hand of time, but it was kept in repair by the city, and by contributions from the town. The abbey to which it was attached was founded in the sixth century, if not earlier; and the first church was dedicated to the twelve apostles, but afterwards transferred to the patronage of St. Ouen. The church was rebuilt in the twelfth century, but mostly in the fifteenth. The interior of the church is by far the most remarkable in the west. The tower of the church is 230 feet in height, and has eight bells. The nave is 330 feet long, and has a width of 90 feet. The height of the aisles is 75 feet, and the height of the western towers, 230; dito de nave, 84; dito of aisles and chapels, 42; dito of interior of central tower, 152; depth of chapels, 10. (The French foot is to the English in the proportion of 65 to 61, or nearly as 16 to 15.)
with crocketed pinnacles and unusually lofty shafts; the beautiful south porch; the large rose or circular windows; the hall of the 14th century with its glazed heraldic stained-glass windows; the church and the aisles; the painted windows, the whole of which have been preserved; and the rich central tower, terminated by a smaller octagonal tower, enliven this church to the highest admiration. Its dimensions are as follows: the height of the nave, 234; of the choir, 108; of the Lady-chapel, 65; of the transept, 130; width of the transept, 34; of nave without aisles, 100 of nave with aisles, 78; height of tower, 100 of tower, 240.

The church of St. Maclou is next in beauty to the cathedral and the church of St. Ouen. The churches of St. Paul and St. Germain, insignificant in themselves, show some remains of the Norman style. Those of St. Patrice and St. Godard are in a vitiated intermediate style between Gothic and Roman. There are in all fourteen Catholic (six of them parish) churches, several of Roman architecture. There are also a Protestant consistorial church and a Jews’ synagogue.

The Palais de Justice, or court-house, built in the 15th or 16th century for the parlement of Rouen, forms three sides of a quadrangle, of which the fourth side consists of an embattled wall and a gateway of elaborate architecture. It is, not improperly, said to be the most curious and greatest example of Gothic architecture of a late period, in a style approximating to what in England is sometimes called the Tudor style. Several of the apartments are admirable for their noble dimensions, for carved panelling, and decorated walls and roofs. In the Place de la Pucelle is a house, l’Hôtel Follicole, of similar architecture to the Palais de Justice, but far richer. It is ornamented with bas-reliefs or tablets, one series representing the interview of Henry VIII. and François I. on the scaffold of the Gothic style. There are also a town hall, formerly an abbey, a clock-tower, and several other Gothic buildings of less interest and importance: there are some remains of the ancient castle, and a very few fragments of the town wall. The Caserne Martinville, or barracks, at the south-west corner of the square, also has an imposing front; the Hôtel Dieu, or great hospital, is spacious and airy; and the Halles, or covered markets, are considered to be among the finest in France. They surround on three sides one of the public squares, and form several conveniently arranged and extensive apartments. The Mercury Hall, or Halle des Roueniers, is 272 French or 290 English feet long by 50 French or 53 English feet wide; the corn-market is 300 French or 320 English feet long. A considerable number of fountains are distributed about the streets and squares, and are Gothic, and of better architecture than the rest. The fountain of La Croix de Pierre resembles the crosses erected by our own Edward I. to the memory of his queen Eleanor; they were erected originally by the Académie of the more recent period. The fountain of La Place de la Pucelle consists of a plain triangular pedestal, with dolphins at the base, surrounded by a statue of Jeanne d’Arc in military costume; it marks the place of her execution. There are mineral springs in two places: those of La Marquerie are resorted to by a number of people; they are chalybeate. La Bourse, or the Exchange, sometimes called La Bourse à-coutant, from its being used only in unfavourable weather, the merchants at doors waiting in an uncovered enclosure adjacent to it. It is called the quay.

The population of Rouen, in 1856, was estimated at 90,000; in 1831 it was 88,086; in 1836, 92,083. Rouen ranks next to Lyon among the manufacturing towns of France; it is the principal seat of their cotton-manufacture. Cotton-yarn is spun, but not much manufactured. In fact, the manufactures of Rouen are chiefly designed to meet the wants of the middling and humbler classes. The spinning-machine is worked by manual labour, by horses, or by water, or by a combination of the three. There is also a considerable manufacture of worsteds, and one of the productions of the town is known by the name of Rouennaises, or Rouen goods; it comprehends chiefly checked and striped cotton for women’s dresses, distinguishable usually by certain predominant colours, violet, blue, rose, and more commonly red. Since 1810 the manufacture of nankeens has been introduced and carried to a great extent. Dupin, in 1827, estimated the quantity made yearly at 600,000 pieces, of 15 mètres, or about 5 yards each. They are carefully made up to imitate the Indian nankeens, under which character they are sold. Kerseymeres are manufactured from dyed wool mingled with white cotton, in 1856, to produce both the fine and the coarse qualities. The bleaching of the raw cotton, tons with Turkey and Indian red, dyeing woolens, calico-printing, and bleaching by chemical processes are carried on to a considerable extent. To the above manufactures may be added dimities, muslins, linens, and muslins, bleaching and dressing, silk and cotton velvets, prints of numerous and silk and cotton. From the increasing demand for labour, many of the Rouen manufacturers have been induced to send their raw materials into the departments of Somme, Pas de Calais, Aisne, and Nord, to these colour-works. The looms of the looms of Rouen are sent chiefly to the central parts of France. Paris, Lyon, Limoges, Bordeaux, Toulouse, and Marseille are the principal markets to which they are transmitted; from Lyon, Toulouse, and Marseille they are exported to Germany, Italy, and the Levant.

Besides the woven fabrics, confectionary of high reputation, especially apple-sugar and apple-jelly, cards, pasteboard, paper-hangings, toys, hats, pottery, cards and combs, leather, glue, caoutchouc, colours, chemical products, near’s-foot and sex salt; soap, brass wire, cotton-wadding, small shot, sheet lead, and pitch are made. The western part of the city is the mercantile part; the centre is chiefly occupied by retail traders; and the eastern part is inhabited by the manufacturing population. The Faubourg St. Sever is also occupied by the latter. The streets and houses are all small and narrow, and the length of the navigation is almost twice that distance. The influence of the tide is sensibly felt at Rouen; and vessels of 250 or 300 tons can get up to the town. The ready communication of Rouen with the capital and with other towns, the long distance covered by the navigable rivers, and the very good, has made it a place of considerable trade, independent of its manufacturing industry. The articles of trade are wine, brandy, cider, corn, fruits, &c. There are six fairs in the year, two of them of fifteen days each.

Rouen, besides being the capital of the Seine, is the seat of an archiepiscopacy, of a Cour Royale, of an Académie Universitaire, and of the head-quarters of the fourteenth military division. The archiepiscopacy is of great antiquity: the diocese comprehends the department of Seine and of the department of Oise. The bishop is the representative of the French bishops, the guardians of the bishops of Bayeux, Evreux, Sées, and Coutances, whose dioceses comprehend the departments formed out of the ancient province of Normandie. The Cour Royale and Académie Universitaire is four hundred years old. There are between five and six hundred public schools, of the departments of Eure and Seine Inférieure, and the fourteenth military division includes the departments of Seine Inferieure, Eure, Manche, Calvados, and Orne. Government offices, administrative, fiscal, or judicial, are numerous; they include, with others, a Cour Royale, a tribunal of commerce, a subordinate justice court, a mint, and a custom house. The churches and other places of worship have been enumerated. There are two seminaries for the priesthood, a faculty of theology, a school of medicine, a royal college or school, and other institutions of a similar sort. The city has lostochly, schools of drawing, painting, and navigation, and forty elementary schools. There are two public libraries, one of which, which is deposited in the town-hall, was estimated 10,000 years of age; the other, containing 70,000 volumes, has 600 MSS., 1,000 engravings, a gallery of drawings; some of the best, and is also the oldest, was established in the town-hall; an excellent botanical garden, with much admired hothouses; a royal academy of science, literature, and art; societies of commerce, art, and agriculture, and a commission of antiquities. Among the charitable institutions are four hospitals, including one for the insane, and one for foundlings; a savings-bank, and a Protestant Bible Society. There are, besides these institutions, a prison (the Bichat), and the department has three departments; three ranges of barracks, well kept, and two theatres.

Rouen was the birth-place of Cornelle, his brother Thomas Corneille, Fontenelle, the Jesuit Snardon, Bo-
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clear, Jacques Basnage, the painter Jouvenet, and the architect Blondel.

The arrangement of Rouen has an area of 362 square miles, and comprehends 155 communes; it is divided into fifteen cantons or districts, each under a justice of the peace. The population in 1821 was 259,800; in 1836 it was 396,963.

ROUERGUE, a province in France, forming the eastern extremity of the military government of Guienne; it was bounded on the north by Auvergne; on the north-east by Gers and the portion of Languedoc; on the east by the district of the Cévennes; on the south by the Pyrenees; on the west, south, and south-west by other portions of Languedoc; and on the west by Quercy, which, like Rouergue, was a part of Guienne. It was of considerable size, extending 105 miles from north to south; its boundaries are given for the whole commune. The department of Aveyron comprehends nearly the whole of the province of Rouergue and the physical features are described in the article AVEYRON.

Rouergue was subdivided into the Comtat (de Rhodès?) in the north, chief town Rhodès; La Hague Marche in the east and south, chief town Milhaud; and La Basse Marche in the west, chief town Villefranche.

The name derives from the Romans, the Celtic people who inhabited it. A few Celtic or Roman towns are known to have been within its limits: Segodunum, afterwards Ruteni, now Rhodès; Crestomagus, near Villeneuve, and Condolomagus, near Montsegur. The western boundary of the Roman empire had a line in the south-eastern border, near the Cévennes. On the downfall of the Roman empire this part of France underwent various changes, the possession of it being contested by the Visigoths, Franks, and the Ostrogoths of Italy, under their king Theoderic. This region was afterwards incorporated with the duchy of Aquitaine.

From the time of Charlemagne it was governed by counts of its own, who were a branch of the same family as the counts of Toulouse; their power was very considerable. The county was afterwards united to the dominion of the counts of Toulouse.

Rouergue was held by a line of nobles, vassals of the counts of Toulouse; it was united early in the fourteenth century to the county of Armagnac. It was seized by Louis XI, and the number of inhabitants about 1470.

ROUFFACH. [RHIN. HAUT.]

ROULERS, or ROUSSELAER, is situated in the province of West Flanders, in the kingdom of Belgium, on the Morele, a small river which falls into the Lys. The chief occupations of the inhabitants is the linen manufacture and bleaching of linen; there are some sugar-refineries, and many persons are employed in the cultivation of flax in the adjacent country. The pasture-land in the vicinity is rich, and the breed of cattle is very fine. A considerable quantity of butter is exported. The number of inhabitants is about 9000. Roulers is eighteen miles south of Bruges.

[Horchemann; Hassel; Stein.]

ROULOU, the name of a bird whose position in the system has occasioned some difference of opinion among ornithologists.

Gmelin placed it among the pigeons, Sparrman among the pheasants, and Latham (the female) among the Tetraonidae. The form has been elevated to the rank of a genus under the names of Cryptonyx, Temn, and Liponyx, Vieill. Cuvier arranges it between the pheasants and the great genus Tetraon, Linn.

Mr. Vigors observes that the groups which compose the Tetraonidae are chiefly distinguished in modern times from those of the Phasianidae by their more simple appearance; by the absence, in fact, of those ornaments to the plumage, and those naked or carunculated appendages to the cheeks and head, so conspicuous in the latter family, but which are reduced in the Tetraonidae to the mere space that encircles the eye. The still weaker conformation of the bird, too, he remarks, tends further to separate them. In the Tetraonidae this member becomes shorter and gradually wider; until it is completely lost in some of the groups. In a point of view he considers that the Tetraonidae hold an intermediate station between the Phasianidae, where the hind toe, although articulated high on the tarsus, is yet comparatively strong, and the Struthionidae, where it is generally if not always deficient; and he is of opinion that the groups which compose the Tetraonidae, corresponding with those which form the genus Tetraon of Linnaeus, seem to be immediately united to the preceding family (Phasianidae) by means of Cryptonyx, which resembles them in the similar appendage to the plumage of the head. This group, he adds, leads directly to Columbina, Bris., and the true Perdix, where it has indeed been generally arranged, and from which it has been chiefly separated by the defacement of a nail to the hinder toe. (On the Natural Affinities that connect the Orders and Families of Birds, in Linn. Trans., vol. xv. p. 207.)

M. Lesson arranges the form as the first genus of the family Tetraonidae, a position which it occupies in Mr. Swainson's method.

Mr. G. R. Gray (List of the Genera of Birds) places it in the subfamily Pterocneminae, between the genera Philopachus, Sw., and Orius, Stephens.

Generic Character.—Bill strong, stout, compressed, convex above, curved towards the point; nostrils longitudinal, placed in the middle of the bill, and covered by a naked membrane; orbits and lore naked; hind toe without any nail, not touching the ground; wings short; third, fourth, and fifth quills longest.

Geographical Distribution of the Genus.—India and its islands.

M. Lesson states that only one species is known; but Mr. Swainson says that three or four species have been recently described—Cryptonyx niger, for instance.

Example, Cryptonyx cristatus (Cryptonyx coronatus, Temm.).

This is the Rouleul de Malacca of Sonnerat. According to Mr. T. C. Eyton, the Malay native name is Bestum. (Catalogue of a Collection of Birds from Malaya, &c., in Zool. Proc., 1839.)

Description.—Male.—On the front a few long and floating hair-like appendages. A thick crest directed backwards covers the occiput; at its origin it is pure white, and then becomes fire-red. Forehead and upper parts of the neck blackish-blue, on which the red patch round the eye and that of the commissure of the bill are well defined. Upper part of the body emerald-green, lower part rich azure-blue; wings ruddy-brown; bill lead-colour; and feet flesh-colour. Tail short and but little visible, its feathers black. Length about ten inches.

Female.—No crest, but only the isolated hair-like appendages of the forehead. Head and neck deep brown; the whole body uniform grass-green. Wings ruddy-brown, waved with brown.

Locality and Habitat.—These beautiful birds haunt the great forests of Malaya, Sumatra, and Java. Wild and shy, they avoid the face of man, and are kept in captivity with great difficulty.

Cryptonyx cristatus. Male in the front; female behind.

ROUND (rotundus, from rota, a wheel) is a term which is
ROU 192 ROU

The height of these towers varies greatly, one being only thirty-five feet, while the loftiest is one hundred and twenty, but the common range is between eighty and a hundred feet. The bases are on circular bases, which form two or three deep steps round the tower. Thus Doughmore has a two-step base, each step or plinth being composed of very large blocks of stone. The basement of Kell's tower is square, and the stones are of great size. And St. Colman's, both in the country of Limerick, have circular plinths fourteen inches deep, projecting six inches, and resting upon a square base formed of great blocks of stone.

The tower of Clondalkin, about five miles from Dublin, stands on an elevated and stony ground, and St. Columba's tower, at Loundonerry, rises from a vaulted crypt. So also does that at Oughterard, in the county of Kilkenny.

In external character all the towers may be said to agree, since there is only one which does not taper, and in that case the tower is cylindrical throughout its entire height. It is nicely faced, inside and out, with coggele-stones, and filled up with rubble.

Though all bear to each other the strongest family likeness, there are many striking differences in the mason-work and other details.

The stones in some are truly chiselled, and closely and beautifully laid in fine cement. Some are only coarsely hammered, others merely faced, and of various shapes and sizes, but well fitted to each other. Some towers are built of round coggele-stones. In all the mortar is as hard as the imbedded stones.

The above and various other little diversities prove that these remarkable structures were erected by various workmen, at different times, and in different styles, and that the ornamentation of the obseuse crescent rising from the cone, and somewhat resembling what is called the trident of Seeca.

Ardmore, near Waterford, also, within the same year was finished, with a conspicuous result. In the other towers, the conical caps are either more or less injured, or have altogether vanished. Some few are topped by battlements, but all these appear to be of more modern construction than the towers, except Kilree, in the county of Kilkenny, which have been built originally with a battlement; but as the stone roof is completely destroyed, there can be no certainty upon this point.

The battlement on Tullsherin tower in the same county, as well as the uppermost fifteen feet of the tower, is built in the so-called Ghiberti style of masonry, and the side in parapitly modern church is in the same churchyard is built, and with precisely the same pattern of battlement, while the remainder of the tower is constructed of hammered stone, in the most perfect manner, each stone being an accurate imitation of the circular course, an exact copy of the build covering the churchyard. This low-browed church of Tullsherin was built by St. Kieran, early in the sixth century, at which time the masonic art was in a very degraded state, when compared with that which was in the possession of the Church at the time of building the tower also terminates in a battlement, but that we know was added to it in the eighteenth century, as was the battlement on Cloney tower in 1749.

Though most of these round towers were evidently divided into stories, yet Cashel tower is smooth, and even polished on the inside from top to bottom. That at Ardmore was plastered with a very fine white and durable cement. The divisions are usually formed by projecting ledges for the flooring joists, which however in some instances were inexcusably bad, and in the interior, where the ends were still visible not many years ago.

On each floor there is one very small window, and immediately below the conical cap four windows may be traced in the green stone of the tower, in one there are five and in a few six windows; and so many as eight appear in one or two of the towers, but this is the largest number hitherto observed. In three or four of these buildings no windows appear in the upper story—only one small loop-hole—a convin- cing proof that they could not have been intended for campanili. In most of the towers the doors are at a considerable height above the ground, in one even twenty-four feet, in several fourteen, and in others only eight, seven, or six feet, but in none of them are there any traces to assist in con- jecturing the mode of reaching the tops. In each of those where the door is on the ground, or raised from it by a couple of steps.

There are 107 of these towers, or of the sites where they once stood, now known, and there is reason to believe they were formerly more numerous. Some of them are still perfect, and preserve their conical roofs; but only one, the tower at Clane, in the county of Offaly, has a circular ornament, with a most perfect regularity. After painting the stone, the crombie, the firo-house, and the holy spring of sacred water necessary for the mystic rites, all these are found along with the tower, and the little antient church within the same narrow boundary.

The speculations of antiquaries as to the objects of rearing these mysterious towers have indeed been manifold—penitentiaries, the abode of anchorites, beacon-towers, alarm-posts, places of safety for goods, sepulchral steins, bell-towers, etc. All these theories have been nearly equally rested, and are very little known. It is in the age of the builders of these masonry towers that we find the earliest and most perfect, and the holy spring of sacred water necessary for the mystic rites, all these are found along with the tower, and the little antient church within the same narrow boundary.

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ROU

Commonwealth. The name seems to have been first applied to the Puritans because they wore their hair cut close, but to have been afterwards extended to the whole republican party. The Cavaliers, or royal party, wore their hair in long ringlets (Cavaliers).

ROUSSEAU, JEAN BAPTISTE, was born in Paris, April 6, 1670. His father, who was a shoemaker, furnished him with a liberal education. In 1688 he attended the French ambassador to the court of Denmark, and afterwards made an embassy to the court of Sweden. On his return to Paris he devoted himself to poetry. His first productions consisted chiefly of satirical epigrams, most of which were pointed against contemporary writers. He thus created a number of enemies, and laid the foundation of that spirit of persecution which afterwards drove him from his native land. In 1694 his first comedy, 'Le Cafet,' was performed, with little success. This was followed, in 1696, by the opera of 'Jasan, ou la Toison d'Or,' and, in 1697, by that of 'Adonis,' both of which were even more unsuccessful than his first comedy. His next dramatic effort was the comedy of 'Le Flatteur,' which was brought out at the Théâtre Francais, and was received with considerable applause, but did not command more than ten representations. He continued to write, and they were not successful.

He finished his dramatic career about four years afterwards with the comedy of 'Le Capricieux,' which met with an unequivocal condemnation, while Danchet's opera of 'Hesione,' which was brought out at the same time, was brilliantly successful. This failure, and his engagement to write and make money for the opera, gave vent to his disappointed feelings in a satirical parody of some couplets of the prologue to 'Hesione.' The parody consisted of five couplets, confessedly by Rousseau, but they were followed by others, written in calumnioussly which were given to some frequenters of the Café Laurent, and these were attributed to him by La Motte, Saurin, and others, who belonged to an opposite party. To this charge he made no other reply than that of stating to his friend, de Fleury, that he had written his 'Sacred Odes,' in accordance with the solemn piety, real or affected, which Louis XIV. had rendered fashionable at his court during the last years of his reign. He is charged with composing licentious epigrams at the same time. He was the author of another class of his acquaintance.

ROUSSEAU was said to be

* Pécarné à la ville,
  Daviél à la cour.*

In 1710 the place left vacant by T. Cornelle in the Académie Française was contested for by La Motte and Rousseau, and obtained by the former. The approaching death of Boulanger was expected soon to occasion another vacancy, and also to leave at the disposal of the court the pension which he had enjoyed, and which could only be bestowed upon an academician. Rousseau expected to fill the vacancy, and also aspire to the pension; La Motte, however, prepared to contend with him for the latter. Such was the state of the two literary parties which then divided France, that the bickering parties of the wit and wit themselves, and the bickering parties of the wit and wit against each other, were attacked. These couplets were immediately addressed to the academicians, and the academicians indignantly disavowed them; and having discovered the man who dropped them about the streets, and drawn from him a confession that they were given to him by Saurin, he charged that gentleman before a court of law with having written them, but failed in establishing his charge by legal proof. Finding that he was now placed in a dangerous situation, he withdrew to Switzerland; and on the 7th of April, 1712, an arrest of parliament, given 'par contumace,' condemning him to perpetual banishment from France. Rousseau defended the point that he had anything to do with these couplets; and Boindint, to whom they were addressed,
was admired for its eloquence; but his usual paradoxical vein runs through the whole composition. Rousseau asserts that man is not intended for a social state; that he has a bias for a solitary existence, and that the condition of the savage in his native wilds is a true state of freedom, and the natural state of man. The conflict of the social and natural systems of law in the infringement of man's rights. He also maintains that all men are born equal, in spite of the daily evidence which we have of the inequalities, physical and moral, observable even in childhood. This idea of the equal rights of men, derived not from reason, but from his favourite theory of man's equality in a state of nature, Rousseau afterwards developed more fully in his 'Contrat Social,' a work which after leading astray a number of people, and causing considerable mischief, is now regarded by all sound thinkers as a superficial essay. (D'Alambert.)

Rousseau, after reading the works of Bernardin de Saint-Pierre, had observed that in all the projects of society and government of that writer there was the fundamental error of supposing that men in general and all had so long conducted themselves according to the dictates of reason and justice, rather than according to the impulse of their passions or wayward judgment.

In 1756, Rousseau, on the invitation of Madame d'Epinay, took up his winters from the exhausting mountain retreats in the pretty valley of Montmorency near Paris. Here he began to write his celebrated novel, 'Julie, ou la Nouvelle Héloïse,' which he finished in 1759. It is of little value as a work of imagination or invention, but as a specimen of elegant and graceful writing, it is a classic. Rousseau, while he wrote it, was under the influence of a violent attachment for Madame d'Houdetot, sister-in-law: Madame d'Epinay: and this passion, absurd and hopeless though it was, served to inspire him during the progress of the book.

'La Nouvelle Héloïse' has been censured as tending to render vice an object of interest and sympathy. The character of the hero is culpable, for he forgets the obligations of hospitality, and betrays the confidence reposed in him. He is however not without a favourite paradox; for, in a state of nature, such as Rousseau fancied it, the relative position of St. Preux, his pupils, and her parents would not have been the same as in the novel, for they would have all been savages together, and the intensity of St. Preux's love would have been a matter of course. Rousseau however, by the character which he has drawn of Julie after she becomes a wife, paid a just homage to the sacredness of the marriage bond and to the importance of conjugal duties, which constitute one of the foundations of social life. He felt its value, though he did not always follow its rule. He says of himself, that after much reflection, perception of nothing but error among philosophers, and oppression and misery of mankind? He had no true pride, that he was born to dissipate all prejudices. But he saw that, in order to have his advice listened to, his book ought to correspond to his principles. It was probably in compliance with this growing sense of moral duty that at last he married the woman whom he had so long conducted himself according to the dictates of reason and justice, rather than according to the impulse of their passions or wayward judgment.

Rousseau's 'Emile,' which appeared in 1762, contained a new system of education. He gives many good reasons for this, and his plan for improving the education of children was productive of a beneficial change in the early treatment of children in France: it induced mothers of the higher orders to nurse their children themselves; it caused the discontinuance of the absurd practice of soothing children with honey, washing them with alcohol, and even sometimes cutting their ears. These measures were intended to soothe the feelings of children, and to develop their natural faculties rather than to frighten them into submission by blows or threats, or to terrify them by absurd stories. In these respects Rousseau was a benefactor to children, but an enemy to the system of discipline which he advocated. He wrote a letter on the subject, 'Letter to the Musique Francaise,' which sorely wounded the national vanity.
proscribed it; and the council of Geneva had it burned by the hand of the executioner. The publication of his "Con-
traet Socia," which took place soon after, added to the out-
cry that led him, in consequence of which Rousseau left
Paris and repaired first to Yverdon, but the senate of Bern
ordered him to quit the territory of the republic. He then
went to Neuchâtel, of which Marshal Keith was governor
for the king of Prussia. Keith received him kindly, and
Rousseau was then welcomed. He then went to Yverdon,
whence he wrote a reply to the archbishop of Paris, and a
letter to the magistrates of Geneva, in which he renounced his citizenship. In his retirement he wrote the
"Lettres écrivies de la Montagne," being a series of stric-
tures on the political condition of the people of Geneva and
the mismanagement of the affairs of the state. He was with
Geneva as it then was. This work increased the irritation
against the author, a feeling which spread even among the
villagers of Motiers, who annoyed their eccentric visitor in
various ways, which however the suspicious temper of Rou-
seau could bear, and he was received hospitably in the house
of a woman named Juliette de Girardin, who lived on the
banks of the lake of Geneva. He then returned to Paris and
published the "Emile," which was noticed by the Censors of
the press and suppressed. The author was not able to
return to Switzerland, and he was not permitted to
make himself known to the public. At last Horace Walpole acknowledged himself the
author of the offensive letter. Rousseau however would not
be pacified, and he continued to charge Hume with the
blackest lies against him. The correspondence that
passed between the parties has been published in the com-
plete editions of Rousseau's works. Rousseau afterwards
appeared to have acknowledged that during his residence
in England he had been subject to fits of insanity.

After his residence in England he went to all sorts of unsettled life, often changing his place of residence, till 1770. He pub-
lished in the mean time a "Dictionnaire de Musique," which was considered to be both incomplete and obscure. He then
returned to Paris, and took lodgings in the Rue Pâtriôsière, which was the place in which he was last seen. The leaves of
Rousseau. He was left undisturbed by the authorities, but he was cautioned, as there was still a prosecution pending against him on ac-
count of his "Emile," not to make himself conspicuous in
public, an advice which seemed to produce the contrary
effect. When he appeared in public, he was met with a
affected state of insanitary, fancying that everybody was
conspiring against him, and he complained at the same time
of acute mental suffering. Byron, who in his mental bias
had some points of resemblance with Rousseau, thus de-
scribes him:

"His life was one long war with self-sought foes,
Or friends by himself banished; for his mind
Had grown suspicious, and chose
For its own cruel sacrifice, the kind.
"Gainst whom he raged, with fury sanguine and blind,
The torch to himself he threw, and knew
From whose rude hands it might be snatched from him,
If not with wounds, or brains or scorn.
"Those cries which act the world in flames,
"Till worst pitch of all, which wears a reasoning show.
For then he was inspired, and from his came,
Those words which pierce the heart, and cease to
or never cease to burn till kingdoms are no more." (Childe Harold, canto III.)

One of Rousseau's grievances was that he thought the French ministers were too much given to writing. One of his friends applied to the duke of Choisy
on the subject. The duke's answer, dated 1772, is as
follows: "If ever I have advised M. Rousseau not to pub-
lish anything without my previous knowledge, of which fact
I have to my knowledge, it could only have been with a
view to save him from fresh squabbles and annoyances. As
now however, I have no longer the power of protecting him
(duke had just resigned his premiership,) I fully acquit
him of any engagement of the sort."

As Rousseau was getting old, his health, the labour of copying
music became too irksome, and all his income consisted of an
annuity of 1460 livres, not quite 60 pounds sterling. His
wife was also in bad health, and provisions were very dear,
and he found that he could not remain in Paris. The Mar-
quis de Girardin, being informed of this, kindly offered Rou-
seau a permanent habitation at his château of Eremen-
ville near Chantilly. Rousseau accepted for his residence
a detached cottage near the family mansion, whither he re-
moved in May, 1776. In this new abode he appeared for
some time to be happy, and he was botanised and walked
with one of the sons of the marquis. On the first of July
he went out as usual for the purpose, but returned home
fatigued and ill. The next morning after breakfast he
got to his room to dress, as he intended to pay a visit to
Neuilly. He fell exhausted and died an hour later. His death
in came in gave the alarm. Madame de Girardin came at
once to see him; but Rousseau, whilst thanking her for
all her kindness, begged of her to return to her house,
and leave him for the present. Having requested his
brother to sit by him, he bequeathed his friends, saying
that he might have caused her, and said that he died in
peace with all the world, and that he trusted in the mercy
of God. He asked her to open the window, that he might
once more behold the lovely verdure of the fields. How
strange that he was to die, for the sun was shining, and a
cloud on it. I hope the Almighty will receive me there."

So saying, he fell with his face to the ground, and when he
was raised, life was extinct. His death was purely natural,
and not in consequence of suicide, as was said by some. He
was buried, according to his request, amidst the sacred
poplars, in the little lake of the park of Eremenville, and
a plain marble monument was raised to his memory.

He had begun to write his autobiography when he was in
England, under the title of his "Confessions." This work
contains many exceptional passages; it ought to be ob-
served however that he did not intend it for publication
until the year 1800, judging that the persons mentioned in
it would then be dead; but through an abuse of confidence
on the part of the depositaries of his MSS., it was published in
1788. Rousseau cannot be called a bad man. He did
not, like Voltaire, sneer at religion and morality. He
was sceptical, but had no fanatical hatred of Christianity;
but on the contrary, he admired and praised the morality of the
Socratics. "The life of a humble man in the midst of the
majesty of the Scriptures astonishes me, that the holiness of
the gospel speaks to my heart. Look at the books of the
philosophers; with all their pomp, how little they appear by
the side of that one book! Can a book so simple and yet so
pure present a society of humiliated men, that must be, who can compare the son of Sopho-
nicus (Socrates) with the son of Mary?" With such senti-
ments Rousseau could not long agree with Diderot, Helve-
tius, D'Holbach, and their coterie. They ridiculed him as a
philosopher, not a man. Other times, occasional, it is believed from literary jealousy; but Rou-
seau never retorted. "I have spent my life," says Rousseau,
"amongst infidels, without being seduced by them: I es-
teeemed and loved several of them personally, and yet their
directions were insane. It is not for any that I could not believe them. . . . . . . I leave to my
friends the task of constructing the world by chance. I find
in the very architects of this new-fangled world, in spite of
themselves and their arguments, a fresh proof of a God,
Creator of all."

Through his deficient education, and his infirmities of
judgment and temper, Rousseau was totally unfit to be
a political writer. He set a pernicious example to many
others, who were still less qualified by proper study to con-
sist for themselves as legislators and reformers. He per-
his eloquence misled the understanding: Voltaire by his
sneers and ribaldry destroyed all moral feeling. Both writ-
ers exerted a great influence on the generation which they
grew up and left behind it the stamp of the French revolution; and yet Rousseau might well disdain
all intention to contribute to such a catastrophe. While
Helvetius maintained the principle that all action be-
comes lawful and virtuous in the furtherance of the pub-
lic weal," Rousseau says that "the public will not rise
unless all the individuals of society are safe and pro-
tected." And elsewhere he says that if the attainment of
liberty should cost the life of a single man, it would be
too dearly bought. He also said, speaking of his "Contrat
social," that it was a book he would not publish if Angar
one day introduced his son to Rousseau, saying that
he had been educated according to the principles of the "Emile." when Rousseau gruffly replied, "So much the worse for you and for your son too!" All these circumstances set the moral character of Rousseau's mind.

Rousseau set to music about one hundred French "Romances," some of them very pretty, which he published under the title of "Consolations des miéres de la vie." He was passionately fond of music, though he seems not to have attained to a great degree of proficiency.

There have been several editions of Rousseau's works: those of Lefebvre, 22 vols. 8vo., 1819-20, and of Lequien, 21 vols. 8vo., 1821-2, are considered the best.

The town of Geneva has raised a bronze statue to his memory on an island where the Rhône issues from the lake, which is a favourite promenade of the citizens.

ROUSSILLON, a province of France, coinciding with the department of Pyrénées Orientales, under which it is described. Its situation is from the town called by the Romans Rustica, and afterwards Roscisciana, now Tour de Roussillon, near Perpignan. It was subdivided into Roussillon, properly so called, chief town Perpignan; Le Vallespir, chief town Prats de Mollo; Le Conflent, chief town Vielha; Le Cerdagne, chief town Puyvalador; La Cerdagne Francaise, chief town Mont-Louis; and La Vallée de Carol, chief place Carol. [PYRENEES ORIENTALES] Its condition under the Romans is mentioned elsewhere. [PYRENEES ORIENTALES] The country came afterwards into the hands of the Visigoths and the Franks. In the ninth and tenth centuries it was united with the county of Ampuries in Spain; but towards the close of the tenth century they were separated. In 1113 this country was besieged, by its count Gérard or Guinhard II., and in 1118 it was ceded by John II. of Aragon to Louis XI. of France, in pledge for the payment of money borrowed; but restored by Charles VIII. to Ferdinand the Catholic. In the reign of Philip IV. of Spain, the inhabitants of this province joined the Catalan insurrection to recover Catalonia, of which they are still a part. The French, who had early fomented the rebellion, afterwards openly took part in it, and ultimately obtained possession of Roussillon, which by the treaty of the Pyrenees, and others were ceded to them.

ROUT. [Riot.] ROVERE'DO. [Tyrol.] ROVIGNO. [Illyria; Istria.] ROVIGO, the Province of, in the Lombardo-Venetian kingdom, is bounded on the south by the province of Padua, from which it is divided by the Adige; east by that of Venice, west by the provinces of Verona and Mantua, and south by the papal province of Ferrara, from which it is separated by the Po. The length of the province of Rovigo is about 11 miles, and its greatest breadth is 51 miles. It is about 15 miles. The surface is flat, and crossed by various canals, which communicate with the Po and the Adige.

The principal towns of the province are:—1. Rovigo, the capital of the province, a bustling modern town, with about 7,000 inhabitants, a collegiate church, the Palazzo del Podesta, or government-house, and church dedicated to the Virgin, with some good paintings. Lucy Celio Richeno, who took the surname of Richelino, a learned man of the sixteenth century, and author of the 'Antiquum Leonetum,' was a native of Rovigo. 2. ADRIA. 3. BADIA, a small town, with a manufactury of fine pottery.

The province of Rovigo produces abundance of corn, hay, hemp and flax. Its population amounted to 135,000, by the census of 1833. [Serritons, Statisticum.]

ROWAN-TREE, or ROAN-TREE, is a species of Pyrus, known also under the names of the Fowler's service-tree and mountain ash. Its Latin name, P. pumila, and its various names have been given because of the general use made of its fruit for the purpose of decoying birds into traps. It is much cultivated, both on account of its valuable wood and rapid growth. It is known from the other species of Pyrus by its slightly glabrous serrated leaves and its globe fruit. It is found in most parts of Europe, in the north-west of Asia, in Nova Scotia, and other regions of the northern parts of North America, and in the island of Japan. It does not however attain equal magnitude in these latter regions. In its most alpine situations it is a low shrubby bush; whilst in southern districts it forms a handsome tree, growing to the height of twenty or thirty feet. The finest trees in this island are found in the Western Highlands and on the west coast of Scotland. This tree has enjoyed from remote times a distinguished reputation. A belief in its power against witchcraft and evil spirits is such as seems to have prevailed at a very early date; and, according to Lightfoot, in his 'Flora Scotia,' it was till a late period held in high reputation in Scotland as a charm against evil influence. It is through a hoop of this wood that sheep are made to pass on the night and morning as a preservative against evil spirits.

The rowan-tree is a graceful tree, with an erect stem and orbicular head. It grows very rapidly for the first three or four years of its existence, and, on the soil it is well adapted for planting with young trees, which it protects till they grow above it, when it is destroyed by their shade. It also forms excellent coppice-wood, the shoots being adapted for poles and for making hoops. The bark is used by tanners. The rowan has been frequently planted in the north of Europe as a substitute for wheat in times of scarcity. It is prised next to yew for making the bow. In Wales it is as religiously planted in churchyards as the yew is in England.

The rowan will grow in almost any situation, being found on the sea-shore and the tops of mountains. Hence it is a valuable plant for growing in places exposed to the sea or in very open situations. It flourishes best in a free soil, near water, and in open airy spots, especially in a moist, windy situation.

ROWE, NICHOLAS, an English dramatic poet, was born at Little Beckford in Bedfordshire, in 1673. His father was John Rowe, of an old Devonshire family, and a serjeant-at-law of some eminence in his day. The son was educated at Eton College, and afterwards to Cambridge to study law, and to enter commerce. At the age of sixteen he was removed from school by his father, and entered as a student of the Middle Temple. He studied law for about three years, when, being left his own master by his father's death, he began to turn his attention to poetry, and the practice of the less attractive reading of his profession. When he was twenty-five years of age he produced a tragedy, called 'The Ambitious Step-Mother,' which was very well received; and in it he had, according to Tamerlane, and the taste of the time. Louis XIV. and William III. are represented respectively by Bajazet and Tamerlane.

This tragedy obtained great popularity, from its connection with the politics of the day. In 1703 was published "The Fair Penitent," and in the interval between this date and his death he wrote "Ulysses," 'The Royal Convert,' a comedy called 'The Biter,' which proved a failure, 'Jane Shore,' written professedly in the style of Shakspeare, though with little of Shakspeare's manner, and lastly 'Lady Jane.' The most interesting of his works is 'Tamerlane:' we find him in the office of under-secretary for three years when the duke of Newcastle was secretary of state, and after having been made poet-laureate at the accession of George I., he was appointed one of the land-surveyors of the customs of the port of London, also clerk of the council to the prince of Wales, and was made secretary of the presentations by Lord Chancelor Parker, afterwards Lord Macclesfield. Rowe died December 6, 1718, aged forty-five, and was buried in Westminster Abbey. He was twice married, and had issue by both wives. Besides the plays enumerated, he wrote short poems, a translation of Lucan, and of Quinet's "Callipedia." He published an edition of Shakspeare, in which there are, according to his authority, the only copies. As a poet and as a scholar, he is not to be laid up either among the dead or among the living. As a poet he is, in the composition of his ditties, Rowe shows little depth or refined art in the portrayal of character, but he writes with the easy grace of a well-educated man of fashion, undisturbed by the cares of noxious business. He is not only a master of the delicate at the expense of good taste. His versification is harmonious, and the language of his characters natural in the dialogues. 'The Fair Penitent' contains several passages which are well wrought and show great powers of imagination. His translation of Lucan has been much admired. Johnson for preserving the spirit of the original. Through comparison it will often be found forcibly diluted. His other poems are not of sufficient importance to require notice. (Johnson's "Lives of the Poets," with a former Life written by Dr. Welwood, and prefixed to the early editions of his works.)
ROX

ROWLEY, WILLIAM, an English dramatic writer, of whose life hardly anything is known. He flourished during the reign of James I., and belonged to the royal company of players, and an actor excelled most in comedy. The 'Master Rowley, once a rare scholar of Pembroke Hall, in Cambridge,' mentioned by Meres (2nd part of 'Wit's Commonwealth,' 1598) is probably some earlier author. Rowley wrote several plays, of which the following are the best known: 'A New Way to Pay Old Debts' (1600), comedy, 4to., 1632. A tragedy, called 'All's lost for Lust,' 4to., 1633. 'A Match at Midnight,' a comedy, 4to., 1633. 'A Shoemaker a Gentleman,' a comedy, 4to., 1638. The Witch of Edmonton, a tragedy, once ascribed to Robert Ford but now known to be Thomas Dekker, John Ford, &c., 4to., 1658. 'The Birth of Merlin,' 4to., 1662. Shakspere is said to have aided him in this play. The titles of the other plays may be found in Witt's 'Bibliotheca Britannica,' and the 'Catalogue of the Library of the British Museum.' Rowley is a somewhat unpolished writer, hardly deserving a less obscure fate than he has met with. Hazlitt, 'Lectures on the Dramatic Literature of the age of Elizabeth,' says of him, 'Rowley appears to have excelled in describing a certain amiable quietness of disposition and manner of walking, which, carried to a paradoxical excess, as in the comedy of the 'Woman never vexed,' which is written, in many parts, with a pleasing simplicity and naïveté equal to the novelty of the conception.' (15.)

Several of his plays are printed in Dodsley's collection. He is the author of a rare tract, noticed with the 'British Bibliographer,' iv., entitled, 'A Search for Money; or, the lamentable complaint for the loss of the wandering king Monseignieur d'Argenson.' I know not what treatise the ed. is dedicated to all those that lack money, by William Rowley,' London, 1609, 4to.; a composition full of the ribaldry and low wit of his time.

For notices of his life, see a copy of Langbaine's 'Dramatic Poets,' with additions, in the Prose Miscellany, and in some statements in Collier's 'Dramatic History.' Two extracts from his plays are given in Lamb's 'Specimens of English Dramatic Poets.'

ROXANNA was the daughter of Oxyartes, a Bactrian prince, and sister of Alexander (s. cc. 327), on whose conquest of a strong natural fortress in Sogdiana, where Oxyartes had placed his wife and daughters. Roxanna was pronounced by the followers of Alexander to be the handsomest woman they had seen in Asia after the wife of Darius, and her beauty made such an impression on Alexander, that he resolved to share his throne with her. Roxanna, who was with child at the death of Alexander, subsequently bore a son, to whom the name of Alexander was given, and who was acknowledged as partner of Arrianus Philip, called Alexander. Roxanna was also supposed to be pregnant; and accordingly, Roxanna fearing lest Satta's child should become a rival of her own son, invited her and her sister Drytos to Babylon, where they provided for the education of the child. Roxanna and her son subsequently fell into the hands of Cassander, who kept them in close confinement in Macedonia. In the treaty of 311, made between the principal generals of Alexander, it was agreed that Cassander should continue military governor (eparchy) of Europe, till the son of Roxanna came of age. Cassander, however, to remove this obstacle to the throne, put to death the young king and his mother in the following year.

(Dodd Sic, xxii. 103; Dryden, Geschichte der Nachfolger Alexander.)

ROXBURGH. [ROXBURGHSHIRE.]

ROXBURGH, WILLIAM, M.D., a native of Scotland, who proceeded to India in the medical service of the East India Company, and distinguished himself by his attention to the cultivation of medicinal plants. He was stationed at Sambrookstah from the year 1781, where he paid particular attention to the cultivation of pepper. Into the plantations of black pepper he introduced the coffee, cinnamon, nutmeg, annatto, breadfruit tree, sawapwood tree, and mulberry. He also endeavoured to introduce the culture of silk, as well as to improve the manufacture of sugar, and was remarkable throughout for his great attention to economy, including the consideration of the resources of the country. He knew and corresponded with Koenig, a pupil of Linnæus, who first gave an impulse to scientific botany in India. Dr. Roxburgh made large collections of plants in the Carnatic, but he had the misfortune to lose them all, with his books and papers, in an inundation at Anjernore. He however recommended making a fresh collection, and the Council of Directors sent him out a present of botanical books.

In the autumn of 1793, from his great merits, he was removed to Calcutta, where he was appointed superintendent of the botanical garden which had been established by Colonel Kyd. During his residence at Calcutta, from 1793 to 1814, few men have laboured with greater zeal, assiduity, and success, though he had to some extent been harassed by an indifferent health; having been obliged to make three separate voyages for its re-establishment at the Cape of Good Hope, and to Europe, on the latter of which occasions he died, in 1815. On one of these occasions Dr. Carey, the celebrated missionary and Orientalist, took charge of the garden, and published, at Serampore, Dr. Roxburgh's catalogue of the contents of the botanical garden at Calcutta. From Dr. Carey we are to this catalogue we learn that the number of described species then in the garden amounted to 3000, of which 1510 were named and described by Dr. Roxburgh, besides 453 which, though described, had not then been introduced. Roxburgh, in his description of a splendid drawing made of various plants that he discovered; these, to the amount of 2000, were sent to the Court of Directors. At their request, Sir Joseph Banks undertook the general superintendence of the publication of a work in which these drawings were given in their natural size, the text, the descriptive characters, and the figures, in which are now well known as Roxburgh's 'Coromandel Plants,' in 3 vols. fol., with 300 coloured engravings. Dr. Roxburgh's general descriptive work is called 'Flora Bengalensis,' was not published for many years after his death. An English edition commenced, to be published at Serampore, by Dr. Carey, with additions by Dr. Wallich, the first volume in 1820, and the second in 1824. A complete edition, in 3 vols., was published at Calcutta in 1836.

ROXBURGHIA, a genus of plants named in honour of Dr. Roxburgh. The genus was first published in his own 'Coromandel Plants,' and hence a French author has chosen to say that Roxburgh is the only botanist who has named a plant Roxburghia. In fact, Dr. Roxburgh, having been informed him that Dr. Roxburgh's MSS. and drawings, having been sent by him from India to the Court of Directors of the East India Company, were published by them under the superintendence of Sir Joseph Banks, and by himself and Mr. Dryander that genus was named Roxburghia. Being considered peculiar in many points, it was thought by Wallich to be typical of a new order, and called Roxburghiacum, but it is accounted allied to and a tribe of Smilacaceae. The genus is characterised by having an eight-leaved capsule, three perianth leaves, outer leaves broad and spreading, the inner ones elliptical, acuminate, and erect. Anthers four, ovary sessile, capsule one-celled, two-valved, many seeded. There are only two species of the genus, R. acuta in the mountainous parts of the Peninsula; R. viridiflora, discovered in the Chittagong district by Dr. Hamilton, and said to have long trailing stems, sometimes one hundred fathoms in length. The same species seems to be found also in Siam, Cochín-China, and the Moluccas.

ROXBURGHSHIRE, a Scotch county situated on the south-eastern border, is bounded on the north by Berwickshire; on the east and south-east by the English county of Northumberland; on the south by the English county of Cumberland; on the west by Dumfries; and on the north-west by Salkirkshire; and on the north-west by Edinburghshire. Its form is very irregular; the greatest length is from north-north-east to south-south-west, from the banks of the Tweed between Kelso and Coldstream, to the banks of the Liddel east of Jedburgh. Its greatest breadth is 43 miles; Roxburghshire, 43 miles; the greatest breadth at right angles to the length is from the junction of Edinburghshire, Berwickshire, and Roxburghshire, to the Cheviot Hills on the English border. The county is 715 square miles. It is estimated; by Chalmers ('Caledonia,' vol. ii., table facing p. 26), at 696 square miles; by Playfair ('Description of Scotland'), at about 700 square miles; and by M'culloch ('Statistical Account of the British Empire'), at 713 square miles, according to the census of 1791. Lintonshire lies between 55° 5′ and 52° 42′ N. lat., and between 2° 11′ and 3° 8′ W. long.

The population, in 1801, was 33,652; in 1811, 37,230;
in 1831, 40,892; and in 1831, 43,663, showing an increase in the last ten years of about 7 per cent.: there were, in 1831, 61 inhabitants to a square mile. In respect of size it is the thirteenth of the Scottish counties; in respect of amount of population, the sixteenth; and in respect of density of population, the twentieth (Ross and Cromarty being taken as one county). Jedburgh, the shire town, is on the Jed Water, a small brook rising in the Tweed valley and flowing into the Bewcastle Water at the General Post Office, London, by Stamford, Doncaster, Boroughbridge, Durham, and Newcastle, and 45 miles from Edinburgh by Dalkeith and Lauder.

1. ROX. Geology, Hydrography, and Communications.—
The whole surface of the county is undulating; but in the northern and central parts the hills are of less elevation than along the English and Dumfriesshire borders. A range of lofty hills extends from the eastern extremity of the shire, along the west along the border of Northumbria, to which the general designation of Cheviot Hills, properly applicable only to a part of the range, is sometimes given. Arkhope Cairn, Cock Law, Windygate Hill, Blackhall Hill, Muses Law, Fairwood Fell, Carter Fell (2020 feet), and Trenting Craig form part of this range, which separates the basin of the Tweed from the basins of the Coquet and the Tyne. From the head of the Jed Water the range of hills turns westward and runs through the county into Dumfriesshire, separating the basin of the Tweed from that of the Eildon Hills. The Cheviot Hills, grouped over a wild pastoral district drained by the upper waters of the Teviot on the one side and the Liddel on the other. In the separating range are New's Law, Pannan Hill, Crinnich Tor, and West Downhill (2900 feet); the Eildons, Pap Green Hill, Old Coldinghill, Teudhope Hill (1830 feet), Wisp Hill (1830 feet), and Pikitshaw Hill. In the hills of Liddesdale, or Liddelhead (the country drained by the Liddel), are Peel Fell, the Lauriston Hills, White Knowe, Turnpike Hill, Loch Knowe, and the Mellingwood and Mildenhills (about 2000 feet). In the northern part of the county, rising on the south bank of the Tweed near Melrose, are the Eildon Hills (1564 feet); and on the banks of the Teviot near the centre of the county are Ruber's Law (1490 feet) and Knowe Hill (1113 feet) and the Minto Craggs (721 feet) and Minto Kame on the other. The altitudes are from Chalmers's Caledonia; Playfair's Description of Scotland; and the New Statistical Account of Scotland.

1. The eastern part of the county is chiefly occupied by the formations of the red-marl or new red-sandstone group; the western side by the gravewacke rocks; the Cheviot or border hills are chiefly of trap formations; and Liddesdale is occupied by the coal-measurers. The red marl formations consist of the valley of the Teviot as far as a line drawn from the neighbourhood of Lauder in Berwickshire southward to Hobbirk on the Rule, and then east and north-east by Southdean, Old Jedburgh, Onewatt, and New Jedburgh, down to the borders of the county; deposits of red are found beyond this limit. The predominant one is the only rock of this formation is a sandstone, commonly red but sometimes white. It frequently occurs in strata of considerable thickness, and is employed as a good building-stone for which purpose both the red and white varieties are quarried. It more commonly occurs in thin horizontal beds, soft, brittle, and easily decomposing. Some of the beds have been supposed to be of the old red-sandstone formation. A small portion of the Northumbrian red-sandstone extends into the county near the Jed and the Kail waters, and overspreads the whole of Liddesdale. Scarcely any coal is dug in the county, except perhaps a little iff Liddesdale. The western side of the county, from the boundary of the red-sandstone, is occupied by the trap rocks of the trap forming district, separating Teviotdale and Liddesdale, on the southern slope of which hills the coal-measurers rest. From Hobbirk the gravewacke occupies a narrow tract of country extending north-eastward, being covered by the red-sandstone on the north and west, and interrupted by the trap rocks on the south and east. The strata of the gravewacke are generally vertical, occasionally however varying from a vertical position by an angle of 30°. The whole of the district which this rock occupies is hilly; but some of the higher peaks are of trap origin.

The trap and porphyritic formations of the border hills comprehend greenschist, basalt, trap tuff, amygdaloid, and especially a felspar porphyry of reddish-brown colour. In the red-sandstone district trap rocks, in dikes or other modes of occurrence, are frequent. The porphyritic rocks are present in some parts of the county; in Liddesdale it is abundant.

The county belongs entirely to the basin of the Tweed. Liddesdale alone belongs to that of the Eildon. The two rivers rise on the borders of the county, join the Tweed at the junction of the Ettrick Water; it flows eastward, sometimes within and sometimes upon the border, passing Abbotsford, Melrose, St. Boswell's, Mekerston, Kelso, and Sprouston, between which village and the town of Coldstream (Berwickshire) it quite the country. The Teviot, of course which belongs to Roxburghshire may be estimated at 27 or 28 miles.

The principal affluents of the Tweed is the Teviot, which flows through the county in nearly its whole extent, from the north to the south, and empties into the Tweed at Kelso. The Teviot rises in the hills on the south-western border of Dumfriesshire, and with a very direct course to the north-east, past Hawick and Denholm, to Eckford, where it turns northward and joins the Tweed at Kelso; its course is marked by a series of small streams, all of which belong to the Tweed basin. The Ettrick, the Cale, the Leader, the Eden, and other small affluents of the Tweed have part of their course in this county. Liddesdale is drained by the Liddel and the Hermitage, a tributary of the Liddel, with some smaller streams, all of which belong to the Tweed basin. The Cleadoun, the Crun, and the B爾se, Liddel; receive all the other streams of Liddesdale, and joins the Eildon, which falls into the same river as the Eden.

The immediate banks of the Tweed are generally precipitous, and along the sides of the valley, sometimes a mile wide, the banks are adorned with beautiful seats, and 20 or 30 feet in height; all the public roads, and many of its striking beauties are known only to those who are familiar with the district. Everywhere however from the higher grounds, the view of the whole country is of a richly wooded and highly cultivated nature, and all the buildings and other objects on the whole country are exceedingly fine. (New Statistical Account of Scotland.) The whole course of the Teviot is beautiful; it flows in the bottom of a spacious open valley, the sides of which often rise to a considerable height, the trees of the valley, the vast number of dilapidated houses, and the general appearance of the roads through this county. One, through Newcastle, Morpeth, and Wooler, just crosses the north-eastern part through Kelso; another, branching from this at Morpeth, passes through Jedburgh and St. Boswell's; and a third, through Perth and Carstairs, crosses the western side of the county through Dryden and Hawick to Selkirk in the adjoining county of Selkirk. A road from Hawick follows the valley of the Teviot, and then of the Tweed, through Kelso to Berwick.
The highest parts of the trap district afford the finest sheep pasture in the county.

About one-third of the country is under tillage; of the remainder a small part is moor-land, and another small portion woodland; but by far the greater part is occupied by sheep walks. It is supposed that the quantity of arable land has increased one-third within the last forty years. At the commencement of the present century, the arable land, except in the immediate vicinity of the rivers, was scattered in small, detached parcels, which had been allowed to become neglected. But the great improvements which have taken place since that period by the introduction of the drill turnip husbandry; the use of lime, bone dust, and other foreign manures; a better system of draining, and the intermixture of the feeding and grain crops, have been attended to, have improved the productiveness of the soil, as well as induced the extension of cultivation. On the larger farms, the enclosures generally contain from twenty to forty acres; the fences on the older farms are usually quick hedges with trees interspersed, but in the newer farms they are commonly dry stone dykes or walls. A very common rotation is as follows:

1st year, turnips or potatoes; 2nd, barley, oats, or wheat; 3rd, grass; 4th, oats. Sometimes this 'four-year shift' is exchanged for one of five years, by giving two successive years to grass, and then using the land three times peas or beans, drilled, as substitutes for potatoes or turnips. The number of sheep is supposed to have increased one-third since the beginning of the century; and considerable attention has been shown of late to the improvement of the breed. The favourite breeds of sheep are the Cheviot for the hill pastures, and the Leicester or long-woolled for the lower grounds. A cross between these two is found to answer very well. The most common sort of stock is the Teesdale or short-woolled, but the Ayrshire and the Highland kyloe and also kept; and the small farmers and married farm-servants have sometimes a mixed breed of milch cows, produced by crossing the Teesdale with the Ayrshire, or the Galloway with the Highland.

Of cattle, as the border hills heath is still found, but the quantity of it has been diminished by the extinction of sheep-feeding. Some parts, where the soil is wet, are covered with coarse bent grass, which is used occasionally as fodder for cattle or sheep.

During the potato famine, an attempt was made to introduce the cultivation of tobacco. The first trial was made in Melrose parish, and was successful even beyond expectation. The profit was very great, and the cultivation was beginning to extend, when it was put down by Act of Parliament. Tobacco is now rather in a dry light soil than manured. (Beauties of Scotland.)

Swine are reared by cottagers, farm servants, tradesmen, and others, in considerable number; but they are not kept to any extent by the farmers. The pork is cured at Berwick, and sold in London. The people speak much the same classes of names as pigs. There are some very productive orchards in the neighbourhood of Jedburgh, Kelso, and Melrose.

The rents of farms have increased during the present century from 30 to 50 per cent, and in some cases even more. Tillage-farms average from 400 to 600 acres; sheep-farms from 1000 to 3000; and farms partly arable and partly pastoral, from 600 to 1400. Leases are usually for fourteen or twenty-one years. The chief landowners are the dukes of Roxburgh and Buccleugh, the marquises of Lothian and Tweeddale, the earl of Minto, and the families of Kerr, Scot, Elliot, Douglas, Pringle, Rutherford, Don, &c. Many of the farmers are enterprising and intelligent; and improved methods of cultivation are extending among them, though by no means so rapidly as is desirable. Farm servants very commonly reside in little cottages grouped together so as to form a hamlet in the neighbourhood of the farm-house and offices. Of these cottages, such as have been built since the principal street was laid out, and more similar buildings were previously made; but the older ones are wretched hovels, worse than the sheds or houses appropriated to the cattle.

Divisions, Towns, &c.—The county is divided into four districts, Jedburgh, Kelso, Roxburgh, and Melrose, in the north-west part of the county (except Castletown parish, which is in the south), containing six parishes and part of another (Galashiels, with Lindean, chiefly in Selkirkshire); Hawick district, in the west, containing four parishes and part of three others (Ashkirk, Roberton, and Selkirk, and partly in Selkirkshire); Jedburgh district, central, containing eight parishes; and Kelso district, including eleven parishes and part of a twelfth (Stitchell, partly in Berwickshire), which constitute the eastern portion of the county, making in all twenty-nine parishes wholly, and five partly in Roxburghshire. Of the five parishes which are only partly in this county, Stitchell, Roberton, and Ashkirk may be considered as belonging to Roxburghshire, the greater part of their population being within it. The principal market-towns, namely, Jedburgh (the shire town, also a royal burgh), Kelso, Hawick, Melrose, and Castletown.

Jedburgh (colloquially Jeddart or Jethart) is on the Jed Water, which flows into the Teviot. The parish consists of the town and a detached part of the village, situated near the centre of the county, the other on the Northumberland border: the whole area is about 38 square miles; and the population, in 1831, was 5647, of whom 3617 were in the town. The name of the parish was antiently written Gedworth. Jedworth, Jedwood, and Jedburgh: the first syllable, Ged, or Ged, the name of the stream on which the town stands, has been supposed to embody the element of the name Yadeni (Ταϊδηνος in the Greek geographers), by which the nation who inhabited this part of Britain was called. The town of Jedburgh stood in antient times for its woodland fastnesses, its castles and fortified dwellings, and the magnificence of its ecclesiastical establishments.

At Old Jedworth, four miles from the town, are the sites of the ruins of a chapel, with its graveyard; and on the south side of the present town are the more prominent remains of Jedburgh Abbey. This abbey (of canons regular, imported from Beauvais in France) appears to have been founded in the first half of the twelfth century, and the church was the burial-place of the house from the time of its foundation to have been much earlier. It suffered much during the wars with the English, was pillaged and burned by the earl of Surrey at the storming of Jedburgh in 1523, and was finally injured by the earl of Hertford ( afterwards duke of Somerset) in A.D. 1545. The church alone remains: it is 230 feet long. The choir is much dilapidated, and the south transept has disappeared; but the nave, north transept, and central tower, 100 feet high, are in better preservation. The western part has been fitted up and is used as the parish kirk. The western end is a lofty gable, with a beautiful Norman door; and there is another beautiful Norman door, which once was the entrance to the cloisters. The architecture appears to be Norman, intersected with Early English. On the south side of the choir is a chapel, formerly used for the grammar-school. Foundations of the monastic buildings are found extending to a considerable distance from the church, and the burial-ground is very spacious.

The town stands on a narrow valley on the left bank of the Jed. It consists of several streets, converging in the market-place in the centre of the town. There are several houses on the right bank of the river, forming a kind of suburb. There are three bridges to the Jed over one or two small streams running into it, all in or near the town. The principal streets are sufficiently spacious; and though the houses have generally an air of antiquity, many of them are very good; and in the outskirts of the town are many pleasant villas. The county hall is near the market-place; and close to the southern end of the town, on an elevated site, is the county prison (including a gaol, bridewell, and debtors' prison, with a house for the governor), on a better construction than the general plan of it occurring among them. Whence the castle and the ancient castle of Jedburgh, it has retained the name of the Castle. There are three dissenting places of worship, two of them tolerably spacious. The dissenting interest is strong in and about Jedburgh.

The principal manufactures of the town are of woollens, such as blankets, flannels, tartans, shawls, shepherds' plaidings, hosiery, lamb's-wool yarn, and carpets: these branches give employment to between three and four hundred persons. There are iron and brass foundries and very busy printing presses. There are quarries of red and white sandstone in the parish and several corn-mills. Bread is made for the supply of the surrounding villages, and a great quantity is sent into the north of England. There are two main markets, on Monday and Saturday; the Tuesday market is well attended corn-
market. There is a monthly cattle-market, and there are four horse and cattle fairs held in the year, besides a large show of the Yarrow race at Rink, in the second part of the parish. There is a post-office, and there is communication by coach daily with Edinburgh and Newcastle, and twice or three times a week with Hawick and Kelso.

Jedburgh is the seat of a presbytery, of the circuit court of the Justice of the Peace, and of Sheriff, and Small-Debt Courts. The corporate body of the burgh consists of a provost, four bailies, dean of guild, and eighteen councillors, four of whom are chosen from the deacons of the eight incorporated trades. The royal charter of incorporation extended out of the burgh; it was somewhat enlarged for parliamentary purposes by the Reform Act. The burgh unites with Haddington, North Berwick, Dunbar, and Lauderdale to return a member. The business of the burgh courts is depositing. In this instance they have the management of part of the county prison.

There were, in 1834, fourteen day or evening schools in the parish, attended by 950 scholars, about one in six of the population of these; 170 were attending the parochial school, with which the English school had been united. There are several excellent public libraries, one of them comprehending a valuable and extensive collection of books. There are two public reading-rooms and a reading society. There are a dispensary (for which the marquis of Lothian, in the year 1831, founded a commodious building at his expense), a bathing-place, and other accommodations, a savings-bank, and some religious and charitable societies.

The neighbourhood is celebrated for the growth of apples and peaches, which it is the excellence of the soil, and the care and intelligence of the monks of a former age. There are traces of a Roman camp, and of some other ancient camps, of a Roman road, and some remains of the castles and towers of the middle ages, especially of Yarrow and Furnibister Castle on the Jed, about two miles above Jedburgh, the ancient seat of the King's ancestors of the marquis of Lothian.

Kelso is 11 miles north-north-east of Jedburgh, on the north bank of the Tweed, which receives the Teviot just opposite to the town, and is said to contain 440 feet wide, the Teviot 200 feet. The parish had, in 1831, a population of 4939, about one-tenth agricultural: it comprehends what antiently constituted three parishes, or parts of three parishes, and includes a portion of the antient burgh of Roxburgh, with the ruins of Roxburgh Castle, for some time the residence of the Scottish kings, and before which James II. of Scotland was killed, A.D. 1460. Kelso was famous for its abbey of Tironensia (a class of Benedictines) established by King David in the 11th century. The abbey was repeatedly burnt or otherwise much injured, especially in the English invasions of 1533 and 1545, led by Lord Surrey and the Earl of Hertford (afterwards duke of Somerset) respectively. The town, which was one of the principal in Scotland more than a century ago, has acquired greater importance from the foundation of the abbey, and rose rapidly after the decay of Roxburgh; but it was nearly destroyed in Hertford's invasion in 1543.

The town consists of several streets converging in an open square, and extends for about half a mile along the river Tweed, to which the principal street is parallel. The old houses, with gables to the street, have very generally given way to more modern buildings of freestone, roofed with slate, giving to the town a very handsome appearance, which is improved by the picturesque scenery of the surrounding country.

The ruins of the Kelso Abbey church are of mingled architecture: the predominant character however is Norman, or celtic, and it is ornamented, with some English intermixed. The building was in the form of a cross 99 feet long (the nave being shorter than the choir), with a transept 71 feet long and 23 feet broad, with a central tower 91 feet high. The ruins are considerable, and have been in the last century subjected to various additions made to them in order to adapt the nave to the purpose of modern church, for which it was used until late in the last century.

There are no modern churches: the one lately erected on the north side of the town is one of the most chaste and beautiful on the border; it is in the Elizabethan style, with a tower 70 feet high. There are five places of worship for dissenters. There is a bridge over the Tweed 494 feet long, with five elliptical arches of 72 feet span; the piers are 14 feet wide: it was designed by the late Mr. Rennie.

The manufactures of Kelso are not important; leather, linens, stockings, hats, woollen cloth, and tobacco are manufactured; but all these branches give employment to not more than 150 men. There are four branch banks and two smaller institutions. There is a daily market, a weekly market, and a monthly cattle market, besides five yearly fairs, including that of St. James, one of the best attended on the border. Professional men are tolerably numerous. There are races at Kelso; but rural sports of various kinds are much practised in the neighbourhood.

Kelso is a burgh of barony with a peculiar constitution; the baron bailie has jurisdiction in small matters; civil and criminal. There is a small prison or lock-up, and a very efficient police of the town. The police of the town is inefficient, especially as the population has been deteriorated by an influx of gipsies from the neighbouring parish of Yetholm, and by the settlement of some Irish. There is a good deal of petty crime.

There is a post-office, and communication is maintained by coaches with Newcastle and Edinburgh daily, and with Berwick, Jedburgh, and Hawick twice or three times a week.

There were, in 1834, ten day-schools, two of them parochial, maintained at a moderate rate, and having English and a grammar school, three supported by private charity, and five private schools. The number of scholars, in 1836, was 664; it had been diminishing for the previous three or four years. There were the Sunday schools, in 1834, 10 with 150 students, 5000, 2000, and 1500 volumes respectively; and several other libraries, a book-club, a Physical and Antiquarian Society, and two news-rooms. Two newspapers are published in the town.

There is a dispensary, with a house for receiving patients furnished with beds, &c.; and a savings-bank. Pauperism has much increased at Kelso.

Hawick is about 10 miles south-west of Jedburgh, on the right or south-east bank of the Teviot, at the junction of the Struther and Teviot. It is one of the chief towns of the county. The town contains 24 square miles, and had in 1831, a population of 4970. Hawick suffered much in the border warfare of former days; and both in the town and the rural parts of the parish are several old stock lodges whose strength is shown by flints designed for fortifications. Among these, on the left bank of the Teviot, three miles above Hawick, is Branxholm, rebuilt by Scott of Buccleuch, its owner, after being almost entirely destroyed by the English under the orders of King Charles I. in the 17th century, and been so altered and repaired as to have lost much of its antient appearance, but it is of interest as occupying the site of the Branxholm, or Branksome, of Sir Walter Scott's 'Lady of the Last Minstrel.' The town consists chiefly of one long spacious street, and a few small streets of about the same width, enclosed by stone bridges. There are two bridges over the Struther, one of them very antient. There are in the whole parish eight bridges. The streets are well paved, and lighted with gas. The general appearance of the town has been much altered of late years by the laying out of new streets and the substitution of better dwelling-houses and shops for those previously existing. The parish-church was built in the middle of the last century; it is destitute of architectural beauty, but in a good situation. There are four dissenting meeting-houses, a town-hall, and a suite of rooms used occasionally for public meetings.

The manufactures are chiefly of woollen yarns, flannels, and other woollen under-clothing, plaiding, shawls, tartans, &c., and of woollen stockings, which are very much in demand, and woolen worsted hosiery. In these branches, in 1834, 1536 workpeople were employed in and round the town; and the annual consumption of wool was estimated at 108,000 pounds, was 11 extensive factories, 1209 stock-frames, and 1260 weaving-rooms. There are 200 to 250 or more hand-loom weavers, and 12000 in the country. A large proportion of the work is done in some workshops. Machinery, candles, and shoes were also manufactured, and the tanning of leather and the dressing of sheepskins were also carried on. There is a post-office. Mails to and from London and Edinburgh, by way of Carlisle, pass through the town; there are post-roads to Edinburgh three times a week, and to Jedburgh and Kelso twice or three times. There is a weekly market on Thursday, and there are four yearly fairs for horses, cattle, sheep, and hiring servants, generally well attended.
There were in the parish, in 1839, a parochial school with a small additional endowment; a second parochial school at the village of Newmill; and ten private schools; besides twenty-four Sabbath schools in the latter part of the system, connected with the establishment, and four Sabbath-schools managed by dissenters. The number of children in the day-schools was 862, viz. 427 boys and 375 girls; there is scarcely any person a native of the parish who is not able to read and write. The number of children in the schools is 358. The parishes are served by 1200 volumes, three juvenile libraries, and a school of arts. There are a savings-bank, and several religious and charitable institutions. The police of the town is very inefficient; petty thefts, embezzlements, and petty assaults are frequent. Parish rates are payable at Michael near it. The castle is a ruin for the last half a century. Hawick is a burgh of barony; civil causes in any extent and criminal cases of minor description are tried before the burgh justices. There is a wretched prison of only one room.

Melrose is on the south bank of the Tweed, 11 miles north-west from Jedburgh. The parish has an area of 45 square miles, and had, in 1831, a population of 4339, rather less than one-third agricultural. This parish appears to have been the seat of a religious community in the time of the Saxons. It is supposed that the name of the parish is derived from the name of the saints. The church was built when the Scots obtained the district from the Northumbrian Saxons. Some monks afterwards made it the place of their permanent residence; and, in A.D. 1136, David I. of Scotland erected it into an abbey, and there was a monastery. There are some remains of the old abbey, now a site surrounded by the Tweed, three miles to the east of the ruins of the latter abbey. These ruins are well known from the description in Sir Walter Scott's 'Lay of the Last Minstrel.'

The original Saxon monastery was on a site near the Tweed, three miles to the east of the ruins of the latter abbey. There are some remains of the site, partly in the form of a cross; the length of the nave and choir was 238 feet, the breadth 79 feet; the length of the choir alone about 50 feet; the length of the transept was 130 feet, the breadth 44 feet. The walls of the nave, choir, and transept are standing, and part of the central tower. There are several traces of the cloisters and of the monastic buildings. The beauty and finish of the architectural decorations, and the majestic appearance of the ruins, altogether render Melrose an object of great attraction. There are a few antiquities in the parish. The church of an ancient cross in the centre of the village is surmounted by the crest of the Earl of Haddington; there is a large barrow on the Eildon Hills, and a stone with an ancient Latin inscription, evidently Roman, has been found.

The town of Melrose consists of a central triangular space with streets diverging from it, and contains about 700 inhabitants, chiefly retail shopkeepers, handicraftsmen, or labourers, with their families. The place has an air of antiquity; it is the site of an old castle and burgesses; a church, a grammar school, with inscriptions derived from Catholic times. Some good modern houses have been built. The church is on an eminence a short distance west of the town; it is a plain modern building with a spire. There are two stone bridges over the Tweed, the other part of the central tower. There is a suspension-bridge for foot-passengers and single horses. There are two dissenting meeting-houses, one in the town. There is a small prison or lock-up-house, consisting of a single cell, secure, dry, and tolerably well ventilated.

There is no manufacture but that of woolens. Some of the establishments connected with the manufacturing district of Galashiels extend into the western part of the parish. The linen and cotton manufactures, which flourished for awhile, have become extinct, and the fisheries have dwindled. The parish is subject to burgh rates, and has a subscription spirit and will. The farms are large, and the farm buildings commodious and substantial. There are three yearly fairs for cattle and sheep. There is a post-office, but no coaches through the town. The Edinburgh and Jedburgh road passes through.

There are several schools in the parish; the parochial school, with 79 or 80 scholars, being in Melrose itself, the others in the surrounding villages and hamlets. Education is generally diffuse. There are 15 grammar schools, with 400 scholars in Melrose, and there are small religious libraries in the surrounding villages. There are a savings-bank, three friendly societies, and two missionary societies. Melrose is a burgh of barony, but the powers conferred by the charter have never been exercised. The superior of the burgh (the duke of Buccleuch) nominates a baron bailee, whose deputy exercises a jurisdiction in trilling matters as a magistrate. Abbotsford, the residence of the late Sir Walter Scott, is in the parish of Melrose, two or three miles west of the town.

Castleton is in the southern part of the county. The parish is the most extensive in the south of Scotland, and comprehends a large part of Liddesdale. It is separated from the rest of the county by a range of hills, the ramifications of which, separated by narrow valleys, extend over the latter part of the border, and it is a part of the Newcastleton or Liddesdale basin, nearly 100 feet square. The walls are entire, and have been lately put into complete repair. The town of Castletown consists of two long streets parallel to each other, lined with neat new houses, on the right bank of the Liddel, and contains a population of above 1000. The town commenced in 1793, and has superseded the old village of Castletown (so called from a border fortress now demolished) higher up the vale. There is a weekly market established in the last two or three years, two yearly sheep-fairs, and a fair to the feast of the Purification of the Virgin on February lst. The town is a mile from the castle of the Hermitage with the Liddel, above a mile from the town, and will contain 700 or 800 people. There is a dissenting meeting-house in the parish. There are four parochial schools, and two or three private schools, and a public subscription library. No public conveyance passes through any part of the parish.

The village of Yetholm, in the eastern part of the county, is remarkable as the usual abode of a gipsy colony, of whom 'Black Jack' is the head. The boundary is given on pp. 154-161. St. Boswell's, near Melrose, is celebrated for a great sheep-fair, the greatest in the county, held in July.

Divisions for Ecclesiastical and Legal Purposes.—The three-four parishes wholly or partly in Roxburghshire, nine in the north-east are in the presbytery of Kelso, nine along the north-western border are in the presbytery of Selkirk, one in the north (Smallsbal or Smallholm) is in the presbytery of Lauderm, and one on the south (Castletown) is in the presbytery of Jedburgh. There are four parochial and four private schools in the presbytery of Jedburgh. The presbyteries of Kelso, Selkirk, Lauder, and Jedburgh are in the synod of Merse and Teviotdale; the presbytery of Langholm is in the synod of Dumfries.

The circuit court of justice and the sheriff-courts are held at Jedburgh, where the county goal is. There are six prisons in the county, viz.: the burgh and county prison at Jedburgh, and a small lock-up-house; and small prisons or jail-ups at Hawick, Melrose, and Newcastleton. 'There appears to be a good deal of crime in this county in proportion to the population. The offences consist chiefly of thefts (particularly sheep-stealing and embezzlement) and assaults. The offenders as a class are given to intemperance in drink. These and others in the same rank of life in education and intelligence. Many of the younger offenders have learned no honest means of getting a livelihood; and, as might be expected, their parents are themselves either positively bad, or at least very negligent of their children. The offenders are chiefly committed by resident inhabitants; many however are by strangers. The police of Roxburghshire has been lately organised and greatly improved; but the procurator-fiscal is of opinion that about one-third part even of crimes which are brought to the police at the sheriff are absent from the court, and many are not committed following any clue being obtained to the parties concerned, or without sufficient evidence obtained being warranted to a prosecution.' (Inspectors of Prisons, Third Report.)

The county returns one member to parliament. Jedburgh is the principal place of election. The same burgh is united for the return of a member with Haddington, North Berwick, Dunbar, and Lauder. The constituency of the county amount in 1834 to 1847, that of the burgh district in 1834-5 to 601.

History and Antiquities.—In the earliest period of authentic history the county seems to have been comprehended in the territories of two ancient British nations, the Caledoni and the Scoti. These two nations, at different times, merged into one Celtic nation, the Caledonians in the west, and the Scoti in the east. Of these Celtic nations the caens or barrows or tumuli, and other sepulchral antiquities which have been found, are supposed Vol. XX. - 2 D
to rely. Druidical stones, some of them arranged in circles, are found; and the Eildon Hills and other eminences are crowned with forts. On the conquest of this part of the island by the Romans, the country was comparatively peaceful. Valentinian and Roman roads were carried across it; and Roman stations established within it. Some of those stations were formed by occupying the ancient forts or hill-camps of the natives, and strengthening and adapting them by Roman skill and labour. The camp on the腊rth in the Stirling family was occupied by the Romans, and piths may be traced by their existing remains, and there are traces of Roman roads. One, which was a continuation of Watling-street, may be traced from the northumbrian border across the county near Jedburgh and Melrose; and on the site of the Roman station near Melrose there are traces of ancient, vessels of iron, lead, and brass, and other Roman antiquities have been discovered. The Trintomium of Ptolemy and Richard of Cirencester is fixed by some antiquaries at the camp on the Eildens near Melrose; but Chalmers places Trintomium at Birrenwark Hill in Annandale, Dumfriesshire, and makes the Eildens camp to be the Ad Fines of Richard of Cirencester, which others fix at Tweed Green. Gadames, mentioned by Richard, is fixed by some at Hawick. (See Map of Ancient Britain furnished by the Society for the Diffusion of Useful Knowledge.)

On the departure of the Romans this county was exposed to the attacks of the Picts, who founded the northumbrian kingdom. The natives struggled long and gallantly, and the Scots of that part of the country, the Consummation of the Catril, a vast ditch at least twenty-six feet broad, with a rampart eight or ten feet high on each side of it, formed of the earth thrown out of the ditch, extending from near Galashiels in Selkirkshire to Peel Fell on the border of Roxburghshire. In the civil wars of 1414 and 1588, eighteen are in Roxburghshire. But the Angles gained ground, and before the end of the sixth century occupied Tewitsdale, which became part of the kingdom of Northumbria, [Roxburghshire.] In the twelfth century, the county was reconstituted by the Anglo-Saxons to the king of Scotland, together with the rest of the Scott-territory comprehended under the general name of Lothian. From this time the county was gradually strengthened by castles and towers, many of which have been built on the site of which several of the older fortresses of the period are no longer existent. Jedburgh Castle was erected at the time of David I., in the earlier part of the twelfth century, and is the earliest in the county of which any distinct account can be given. Roxburgh Castle was erected by the Duke of Roxburgh, in the reign of David I., and is the oldest in the county. The county is within the diocese of Dunblane, and has a bishop, and a dean, and a provost of the minster. It is in the bishopric of Edinburgh; and of Kirkwall, or Holy Cross, in Bowden parish, the remains are very scanty. Of Delphinston Tower, in Oxnam parish, and Minto Tower, in Minto parish, there are rather more remains, also of Goldielands Castle near Hawick; but none of these for particular notice. The ecclesiastical ruins, Kelso, Jedburgh, and Melrose abbots, have been noticed already. There are remarkable caves at Jedburgh, Roxburgh, and Anerum, which appear to have been used as habitations, probably as temporary retreats during the time of the Picts and Scots, of which have been brought into notice by the 'Ministry of the Scottish Border,' and the poems of Sir Walter Scott.

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they were constituted a body corporate under the title of 'The Incorporated Society of Artists.' The way was thus paved for the institution of the Royal Academy; but its immediate cause was a schism which took place in the 'Society' soon after the incorporation was procured. The, whose 'Annals of Painting' furnish the best accounts of the state of art at this period,' unfortunately they were scarcely collected when discussions arose which, in the course of three years, caused an irreparable breach, and in that year terminated the existence of the Institution. The event he attributes 'to the loose and unguarded manner in which the charter was composed: for it did not provide against the admission of those who were distinguished neither by their talents as artists nor their good conduct as members. In his estimate of its members, one hundred and forty-one, of whom a large portion were artists of very inferior merits. It was now seen,' says another writer well acquainted with the facts, 'that no society of this kind could be lasting, unless it were more limited in its numbers and select in the choice of its members, and that it could have no national dignity without the awed and immediate patronage of the sovereign.' Accordingly the principal artists withdrew, and endeavoured to obtain the protection and patronage of the King. W. Chambers, F. R. W. and R. West were the three memorial signed by twenty-two artists, the purport of which was to show the probability that with his royal sanction and encouragement, and by means of an annual exhibition of their productions in the following year, a separate fund might be raised for the support of a gratuitous national school of art. The memorial stated, 'The two principal objects which we have in view are the establishment of a well-regulated school or academy of design, and an annual exhibition open to all artists, the property of the academy and the proceeds of which would be applied to the encouragement of the arts. The profits arising from the last of these institutions will fully answer all the expenses of the first; we even flatter ourselves that they will be more than necessary for that purpose, and that we shall be enabled annually to distribute some premiums for the most meritorious examples of the youthful artists. We have in September last received the plan of a constitution was drawn up by Mr. Chambers, and laid before the king, which he approved, and signed on the 10th of December, 1768. Thus was founded 'The Royal Academy of Arts in London, for the purpose of publishing and improving the arts of painting, sculpture, and architecture.'

The artists who signed this memorial were: Benjamin West, Francesco Zuccarelli, Nathaniel Dance, Richard Wilson, George Michael Moser, Samuel Weld, J. Reynolds, Joshua Reynolds, John Cipriani, William Cooper, Joseph Adam Kauffman, Charles Cotton, Francesco Bartolozzi, Francis Cotes, Edward Penny, George Barratt, Paul Sandby, Richard Yeо, Mary Moser, Augustino Carlini, William Chambers, Joseph Wilson, Francis Grose, John Routh, John Banks, Mason Chamberlin, John Gwynn, Thomas Gainsborough, Dominick Serres, Peter Toms, Nathaniel Hone, Joshua Reynolds, John Richards, Thomas Sandby, George Dance, Francis Hayman, William Hoare of Bath, and Johann Tisch, whom artists themselves thirty-six members. The number forty was not completed till 1769 — by the addition of Edward Burch, Richard Cosway, Joseph Nollekens, and James Barry. Their first meeting was held on the 4th of December, when the following officers were elected, viz.: J. Reynolds, President; G. M. Moser, Keeper; F. M. Newton, Secretary; E. Penny, Professor of Painting; T. Sandby, Professor of Architecture; J. Wall, Professor of Perspective; Dr. William Hunter, Professor of Anatomy. The king appointed William Chambers Treasurer.

This list of the founders of the Royal Academy evidently includes the great mass of talent existing at that period in London.

The other academies of Europe which have been established for the advancement of the fine arts and the promotion of public taste, are supported entirely at the expense of their respective governments as national objects, and are usually under the control of some person of distinction. Such is the Royal Academy of Paris, founded just twenty years before. The Royal Academy of London is essentially different from these, inasmuch as it originated in the private munificence of the reigning king, and, since the first years of its existence, has been entirely maintained by the contributions of artists themselves unaided by any national grant or public subscription.

The king's adoption of the artists was immediately followed by the most liberal and effectual support. He caused apartments for the schools to be fitted up in his own palace of Somerset House, supplied the Society with rooms in Pall Mall for their apartments, and for several years made up every deficiency in their expenditure from his own purse, with true and considerate benevolence he allowed them at the same time to reserve a hundred pounds a year to form a fund for necessitous members or their widows, and twice increased the national relief fund the artists in distress, whether they were members of the Society or not.

George III. constituted himself the head of the Academy, and showed a personal interest in its success; he gave frequent audiences to its officers, confirmed its proceedings by his official sanction, and took personal interest in the concerns as if it were part of his household. When Old Somerset House was purchased by the nation as a site for a number of public offices, the king took care to reserve a portion of the new building for his Academy.

In 1726 the plans of a new site were submitted to the approval of the president and council, and the apartments devoted to this purpose were fitted up with a degree of magnificence worthy of a royal palace, the talents of many of the principal members having been employed in its decorations. In 1770, in the interval between the death of the Royal Academy obtained possession of their new residence, by an order from the Treasury to the surveyor-general of the works, and their first exhibition in Somerset House took place. This friendly superintendence of its affairs and anxious desire to promote the growth and utility of the Society continued till the year 1800, when the health of the king unfortunately became so much impaired as to prevent any further interviews between the two princes. But the king's confidence and kind interest in the Academy were acquired stability, and though its acts for some time remained unconfirmed, it continued to exercise its functions; and when the government was placed in the hands of the Prince Regent, he took the Academy under his protection, and continued to show the same interest in it. On his accessions to the throne in 1820, the position of the Academy had become somewhat changed. A gradual augmentation in the receipts of the annual exhibitions, aided by a judicious economy, had enabled the members to support the schools on an increased scale of expenditure, and to provide for the continuance of the establishment from its own resources, without the assistance of the king. On the death of George III., the Academy solicited his successor to honour them with the same boon which had been received from his predecessor. George IV. readily consented to his becoming the 'Royal Academy,' and, in furtherance of the views of its founder, placed himself at the head of the institution, and thenceforward gave the sanction of his signature to such of their acts as were submitted to him. Though the Society did not derive any pecuniary assistance from George IV., they were on many occasions indebted to his munificent patronage. He honoured the president with a distinctive badge, a gold medal and chain, to be worn on all public occasions. Here, he contributed, with a magnificent lamp for their principal room, and greatly forwarded the utility of the schools by giving them a large and highly valuable collection of casts from the finest antiquities, which were procured from Rome by the intervention of Canova.

On the death of George IV., his successor, William IV., immediately extended his patronage to the Royal Academy. He entered cordially into the views of his royal father, regarding the officers and their promotion, and attended with great kindness to their wishes on all occasions.

In 1834, a proposal having been made by Lord Grey and the existing ministry to transfer the establishment from Somerset House to Trafalgar Square, where an edifice was proposed to be raised which would be large enough for a national gallery of paintings, and at the same time offer better accommodations to the Royal Academy, the king was appealed to on the subject. At first he seemed rather adverse to the removal of the Society from apartments which he had considered to be his own property, but was finally disposed of by the society and the provisions made for the Royal Academy. The government then determined not to interfere with the disposal of the property the academy had purchased for a site in the Strand had built at a very moderate cost, and the site was sold to the society at a nominal price.
Plans of the new building were accordingly laid before the president and council, and the accommodation of the Academy was considered as far, we may suppose, as circumstances would permit, but it appears that some inconveniences of a very serious kind could not be overcome. The apartments were put into their possession in 1836, in a very unfitted state, and wholly devoid of such decoration as it appears have been expected in an academy of the arts. The removal has attended with great expense to the Society, and in many respects they have been disappointed in their expectation of improved accommodation.

The Royal Academy consists of forty academicians, painters, sculptors, and architects. There is a second order of members, styled associates, twenty in number, from whom alone the vacancies that occur among the academicians are supplied. The body of academicians elect, but the approbation and signature of Her Majesty are necessary to make this election valid.

There are also six associate engravers. Associates are elected by the academicians from a list of exhibitors, who declare themselves candidates for this honour. There is a treasurer and a librarian. A by-law of the Academy requires that they shall be academicians. These offices are filled by Her Majesty's nomination. There are also two curators and a clerk. These offices are filled by election, with the approbation of Her Majesty.

There are four professors, academicians, elected by the general assembly, and approved by the queen, who read lectures on painting, sculpture, architecture, and perspective. There is a president, also elected by the academicians, with the approbation of Her Majesty.

There are three schools: a school for study from casts from celebrated works of antiquity; a school for study from life; and a school for painting selected from the care and direction of the keeper; and the other two are under the care of visitors, annually appointed.

The council consists of nine members, including the president, and has the management of all the concerns of the Society. All bye-laws of the Academy must originate in the council, and have the approbation of the general assembly, and the sanction of Her Majesty's signature to give them effect.

The president, council, and visitors are annually elected, and approved by Her Majesty's signature.

There are also several honorary members of the Royal Academy, namely, a professor of ancient literature, a professor of ancient history, a chaplain of high rank in the church, and a secretary for foreign correspondence, elected by the general assembly and approved by the queen.

Among the honorary members are the names of Samuel Johnson, Goldsmith, Franklin the translator of Sophocles, Gibbon, Mitford the historian of Greece, Barrett, Bennett Langton, Dr. C. Burney, Walter Scott, and others.

All persons are admissible as students of the Academy. Nothing but indication of talent and a respectable character are required from them. Their names remain unknown till judgment is passed on the specimen of their work in the school, and when admitted they receive a gratuitous education from the best masters.

All painters, sculptors, or architects, whose works show sufficient merit, are allowed to exhibit with the Academy, and, being admitted exhibitors, they are immediately eligible as associates. Many young artists whose great abilities have promised to contribute to the credit and support of the institution, have been chosen associates, and soon afterwards academicians; and it may be said, that the active and enterprising government of the Academy has passed in rotation to all the academicians, and half the council retires, and is renewed annually.

The operations of the Academy are continued in regular sessions throughout the year, excepting vacations of a month in September and a fortnight in Christmas. Unfortunately the necessity of giving up the only room fit for an exhibit year to the annual exhibition of sculpture, renders the cessation of that school during the exhibition still unavoidable.

The schools of drawing, painting, and modelling are opened daily from ten to three and from three to eight, under the direction of the keeper and visitors. A practical course of lectures on perspective is given during the spring. The lectures on anatomy are delivered before the Christmas recess; those on painting, sculpture, and architecture, are given twice a week, from January to the end of March. The library is open three weeks a month.

Prizes are annually given to encourage meritorious students, and those who have gained the biennial gold medal have from time to time an opportunity of being sent abroad to study for a year in France, at their own expense, and without the expense of the finest pictures from the royal collections, in the Dulwich Gallery, and from all the principal collections of the metropolis, which are during the greater part of the year placed before the students. For the furtherance of this object the Academy have purchased the finest copy existing of Leonardo da Vinci's" (left column continued).
little or no attention. About two thousand students have been reared under the tuition and auspices of the Royal Academy. Among these the well-known names of Banks, Flaxman, Nollekens, Deare, Bacon, Rossi, in sculpture; Soane, J. Wyatt, Wyattville, in architecture; Northcote, Opie, Hoppner, Lawrence, Westall, Stothard, the Hilts, are conspicuous. A number of these artists are entitled to be ranked with the best of any period of art, and others gave proof of powers which, if they had been employed in national works, might have raised English art to a still higher elevation. This list is not short, and there are few public transactions which if honestly conducted include in the enumeration the names of living artists. The creation of so large a number of well-trained students has tended to diffuse a love for the arts throughout the country, and given rise to institutions for their cultivation in many parts of the empire. The public taste has been improved, and those branches of our manufacturing industry which require the aid of the art of design, have been indirectly encouraged by the establishment of the Royal Academy.

Among the benefits derived from the institution of the Royal Academy may be mentioned the various lectures and discourses which have been delivered there. The discourses of Reynolds are highly appreciated both at home and abroad; and the lectures of Fuseli, Flaxman, and other philosophers have established the theories of their respective arts on a sure basis.

The attention which the Royal Academy has uniformly shown to unfortunate artists in general, and the liberal assistance they have bestowed on Jerram, whose name is not without a claim to be ranked with those of Goldsmith, Johnson, and Spence, has not been forgotten. It appeared in evidence before a committee of the House of Commons, in 1836, that the gross sum that they have expended in pensions to distressed members amounted to 11,106l., and the donations to artists, not members, and their families, to 3,670l. In general, the Academy has combined a prudent degree of economy in the management of their funds, both for the purpose of providing against casualties and for the gradual improvement of the establishment. This is shown by the fact that they have already laid out 240,000l. in carrying out the objects for which they were associated, and have still reserved for exigencies a sum of 47,000l. stock.

It will appear from what has been stated, that the Royal Academy owes its corporate existence entirely to the crown, and is neither supported nor aided by any public funds. It has also been shown in what manner it has become entitled to accommodation in the National Gallery. Though the exertions of the Academy have been directed to a public object—the improvement of the taste and judgment of the body interested for literary or scientific purposes; as the Astronomical Society for instance, and others, which support themselves by their own funds. Accordingly it is not easy to see on what grounds the House of Commons claim that the Academy is entering into the province of real estate and general management of the Academy. The committee of the House of Commons on Arts and Manufactures, in 1836, did however inquire into the affairs of the Academy, and the printed evidence reported by the committee shows that every information was readily given to them. The result of the inquiry was in every way creditable to the institution, and the administration was proved to be strictly conformable to the purposes for which the Academy was instituted.

In the year 1834 the House of Commons had addressed the king, requesting him to direct the Royal Academy to furnish them with certain returns explanatory of the constitution of the body and its proceedings. This was the first attempt to withdraw the Royal Academy from its immediate connection with the crown and to bring it under the control of the House of Commons. On this occasion the Academy, having first asked the permission of the king, William IV., gave the House all the information they desired. But in 1839 an order was made by the House to furnish the House with similar returns in continuation, as well as with the particulars of their domestic expenditure. These returns were not made, and a petition was presented to the House, in which the position, as mentioned in the last paragraph, was fully and clearly explained. The petition produced its effect, and the order was rescinded.

We have purposely abstained from any notice of the various attacks made on the Royal Academy. Its constitution and administration are now so well known, that it is not very difficult to form a right judgment of what is said either for or against it. Those who find fault with its constitution, should show how it can be improved, and those who would deny that it has done service to the arts, must be prepared to dispute the truth of a large part of the petition just referred to. The administration of the finances of this body deserves unqualified praise. It has itself produced all the funds necessary for its support, and by a rare combination of liberality and economy it has expended large sums on proper objects, and yet is far from being poor. True to the principle which the wise can be said.

ROYAL EXCHANGE. Although there is no such building actually existing at present, we insert here some account of the one destroyed by fire in 1838, which was the second structure—the original one having met with a similar fate in the Great Fire of 1666. The new edifice, which was a brick building, was erected by Sir Thomas Gresham, for the accommodation of the merchants, entirely at his own expense. [GRESHAM.] Notwithstanding the general confusion and trouble occasioned by the tumultuous conflagration, the new Exchange was commenced at the end of the following year, and was so far advanced in 1669, as to be publicly opened for business, on September 28: a rather curious circumstance, when it is considered that more than three hundred years have since passed. That the last fire, and the future Exchange can hardly be said as yet (March, 1841) to be actually begun.

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ROYAL SOCIETY (of London), consists of a number of persons associated together for the purpose of promoting experimental and physical science. At its formation the more particular object of the members was to assist each other in extending their knowledge of natural and experimental philosophy.

Societies for the cultivation or advancement of particular branches of human knowledge existed, both on the Continent and in this country, before the end of the sixteenth century. In Italy, the Florentine Academy and the Accademia della Crusca had been founded with the view of improving the language. In France had its Académie des Sciences, and the Antiquarian Society in England was founded in 1572. With the exception of the persons connected with these institutions, who engaged in the pursuit of letters, the fine arts, and antiquities, the learned world was in that and the preceding ages chiefly occupied with scholastic philosophy. But the discoveries of Galileo in astronomy and mechanics having opened a field for research, those sciences, men of learning began to turn to pursuits which, while they seemed to constitute a worthy exercise of human intellect, promised to lead to results of great practical utility.

England appears to have led the way to the formation of a body of men who sought by scientific research and investigation to extend philosophy, as it was called; for Dr. Wallis, in an account of his own life, relates that in 1645, which must therefore have been while the civil war was raging in the country, several persons who then resided in London, at Dr. Wallis's instance, met together to form a body; and it is suggested that these gentlemen met and deliberated amongst themselves into a club, in which, purposely excluding politics and theology, they agreed to communicate to each other the results of their researches in chemistry, medicine, geometry, astronomy, mechanics, magnetism, navigation, and experimental philosophy. Amongst the first met for this worthy purpose, were Dr. Wilkins, Wallis, Goddard, Ent, and Glisson, and Messrs. Haak and Forster (the professor of astronomy at Gresham College); and the place of their meeting was generally at Dr. Wallis's lodgings in Gresham College, which, on account of its nearness, was open at least to be exposed to the weather. Every edifice of the kind erected within the last century is covered in: the Royal Exchange, Dublin, the Bourse at Paris, the Exchange at Hamburg, that at New York (since destroyed by fire), and the Birza or Exchange at St. Petersburg.

Though small, the first of these is singularly elegant in its plan, the interior forming a rotunda within a square, having a circular peristyle of twelve Corinthian columns supporting the central part. In the plan of Gresham College, some account of the Bourse in that capital we refer to Paris. The Birza at St. Petersburg, on the contrary, calls for some notice here: it is an insulated edifice surrounded by a Doric peristyle, forming nine intercolumns at each end and central part. The length of the colonnade is carried up rather higher than these last, there are no pediments over the fronts or ends, though the ends of the colonnade terminate in a pediment outline, and have a large semicircular arch serving to light the interior or salla, which has also a lantern in the centre of its semicylindrical roof.

We here subjoin the dimensions of the late Royal Exchange, with those of the intended structure, &c.

Old Royal Exchange. Extreme external dimensions 210 by 175 feet. Interior quadrangle 155 by 118 feet, or 18,270 square feet. Open area of quadrangle 99 by 76 feet, or 7,225 square feet.

New Royal Exchange. (By Mr. Tite.) Extreme length 560 feet, to west, including portico, 393 feet; breadth at east end 175 feet; interior quadrangle 170 by 113 feet, or 19,210 square feet; open area of quadrangle 114 by 57 feet, or 6,393 square feet.


We are prone toreceive our opinion from Ralph, who is generally quoted as an authority on the buildings of London, is evident, for he says that the quadrangle is "laid out in a very good style, and finished with great propriety of design, and proportion, and is admired in its details, as it is also in its execution." He notices the tents, statues, pillars, circular windows, entablature, pediments, and balustrades, all in correct proportion and arrangement.
as 1640, the meetings were revived; and on the 28th of November in that year, the members came to a resolution that they would assemble during term-time in Mr. Rooke's chambers at Gresham College, and during the vacation at Mr. Balle's chambers in the Temple. It was further resolved that the members on assembly, that out of them there for promoting physico-mathematical learning, similar to the voluntary associations of men for other branches of knowledge in foreign countries. At this time a series of resolutions relating to the objects proposed by the society were one to the society, but for this last resolution he was to —It was agreed that records should be made of all the works of nature and art of which any account could be obtained; so that the present age and posterity might be able to mark the errors which have been strengthened by long prescription, to restore truths which have long been neglected, and to extend the use of those already known; thus making the way easier to those which are yet unknown. It was also resolved to admit men of different religions, professions, and nations, in order that the knowledge of nature might be freed from the prejudices of sects, and a bias in favour of any particular branch of learning, and that all mankind might as much as possible be engaged in the pursuit of philosophy, which it was proposed to reform, not by theories and counter-theories, but by practice and experience. It was further resolved that the society should not be a school where some might teach and others be taught, but rather a sort of laboratory where all persons might operate independently of one another. Lastly, it was resolved that each member of the society should always be present on the first of each month, and that he would constantly attend the Society's meetings, if not prevented by illness or some indispensable business; that he should pay ten shillings on his admission, and that he should subscribe one shilling weekly while he continued to be a member of the society, but for this last resolution he was to be freed if he chose to withdraw. At the same time Dr. Wilkins was chosen chairman, Mr. Balle, treasurer, and Dr. Croome, registrar. It was agreed to meet every Wednesday, from 9 to 6 o'clock in the afternoon.

The object of the society was to enable the members to accomplish the avocations of which it was instituted, and particularly to direct the expenses of the philosophical experiments which it was proposed to make. The intention was, that persons should be sent to travel abroad, for the purposes of collecting information, while others should remain in London, and present the results of their researches at the weekly meetings. It was determined that the members should be formed into committees for the consideration of the objects proposed, that each be represented by a person of particular talent, and that the performance of the latter should be assigned to persons who, by their particular talents, were best qualified for the duty. Some of the members also were to be appointed to examine all works on the subject of the society, and the president should transmit to the members any experiments which might be proposed as a guide in making inquiries concerning the phenomena of the atmosphere and the currents of the sea, and in performing experiments on light, magnetism, &c. It was proposed to bring the results of the researches into one common stock, and to confine them in public registers for the benefit of future generations, without regard to any order in the arrangement; it being considered, that if subjects of a like nature were brought together, persons might be tempted too early to form general conclusions, and to force the phenomena of the atmosphere and of the sea into any philosophy. (Dr. Sprat, History of the Royal Society.)

Such were the plan and constitution of the infant Society, which was destined, in its maturity, to hold so distinguished a place in the annals of science. Its first recorded step, which was to establish a common book, was taken in 1661, when, at the next weekly meeting, to perform an experiment on the vibrations of pendulums, and Lord Brouncker to bring in a series of instructions for conducting some experiments relating to the temperature, moisture, &c. It is said that the performance of the experiment was intended to procure. A week afterwards it was resolved that persons desiring to be admitted should be recommended by some member, and that the election should take place by ballot. No one before the society was to be admitted without a scrutiny; and the number of members was to be limited to fifty-five, of whom twenty-one were to be a quorum for elections and nine for other matters. It was agreed also that the fellows of the Royal College of Physicians and the professors of mathematics and natural philosophy in both universities should, if they desired, be admitted as supernumeraries on paying the fees and lending their assistance when convenient. The restriction respecting the number of members was however soon afterwards taken off; and, at last, it was determined that two members were to be admitted at the same evening, and that, at the second following meeting, though the practice respecting the interval between the application and the admission seemed to have been very variable. The president or chairman held his post some time, some months, some years, but generally for a month, and he was occasionally re-elected. Two persons were appointed to superintend the arrangements for performing the proposed experiments, and one of the members acted as a reporter at the meetings. An amanuensis for copying minutes, and an operator under the superintendents, were engaged as servants, and received salaries.

In that age, the constitution and qualities of material bodies being very imperfectly known, suggestions founded on ill-observed phenomena, and the marvellous relations of chimerical travellers, were then thought deserving of consideration from the bare possibility that they might lead to the discovery of useful truths; and this circumstance may serve to account for the apparently absurd inquiries and experiments which appear in the notices of the Society's early years. Thus, in 1661, Mr. Brouncker described the name of the place in Brazil where there was said to have been a kind of wood which attracts fishes; he was also desired to inquire into the truth of the circumstance mentioned in the reports of his travels in Africa. In 1662, he made a voyage towards the wind. And in the same year, the opinion that a spider could not get out of a space enclosed within a circle formed of powdered unicorn's horn was actually made the subject of an experiment. The philosopher will however meet these early occupations of the Society when he meditates on the works of a Newton and a Davy, which are also recorded in the pages of its history.

The Society having presented an address to the king (Charles II.) on his restoration, his majesty expressed much approbation of the society's conduct, and promised to support it with his influence. And, in 1662, by the concurrence, it is said, of Lord Clarendon, the chancellor, Sir G. Palmer, the attorney-general, and Sir Heneage Finch, the solicitor-general, he granted a charter, by which the members of the society were incorporated into a society consisting of a president, council, and fellows, under the name of the Royal Society. In this they were declared capable of holding lands, tenements, &c. in perpetuity or reversion, and in fee simple or fee tail, and this selection of the number of councilors and of the year was to continue always the same, and that ten of the council should, at the same time, be replaced by ten others chosen from among the fellows. (Birch, History of the Royal Society, vol. I.) This charter being found not sufficiently explicit, in the following year another was obtained, in which the president and fellows are designated the President of the Council and the Fellows of the Royal Society of London for promoting natural philosophy; and in which, after declaring that the Society might hold lands, &c., there is added 'Statuto de insinuacione in manuorum et postulacione obtinandi.' (Birch, ut sup.) Between 1661 and 1664, the king made several visits to the Society, and on those occasions experiments were exhibited, for the preparation of which committees of the members were appointed. In 1662 his majesty ordered the Society to keep a book, and in 1664 he signed himself, in the Charter, its founder; at the same time the duke of York (afterwards James II.) signed himself a fellow. The Royal Society of London may now be said to have been deliberately formed, and it may be considered the oldest of its kind in Europe, if we except the Academy of the Lycée at Rome. The Académie Française, which, in 1635, had been established by Richelieu, had for its object only the improvement of the French language; and though, in 1657, a number of learned men, among whom were Descartes, Gassendi, and Roberval, were accustomed to assemble at the apartments of Père Mersenne in Paris, for the purpose of making philosophical experiments, and of reading the solutions of such mathematical problems as, according to the general practice of that age, had been proposed
to them, yet it was not till 1666 that Louis XIV., at the suggestion of M. Colbert, founded what was then called the Royal Society. It was the natural sequel to a series of similar institutions which had engaged the attention of the Royal Society. To the latter therefore belongs the honour of having preceded the former in time, and probably that of having in some measure led to its formation. It must also be considered as having been a more popular one, and for purposes similar to those which have since been formed in the British Isles as well as on the Continent.

It is observed by Hume, that its patent was all that the Society obtained from the king, and that its members received no salary, nor were allowed to claim any special privileges from him by his example alone, not by his bounty; and the historian contrasts the conduct of the English king with that of his contemporary Louis XIV., who fell short of Charles in genius and knowledge, while he exceeded him in liberality. There may be truth in this, but it ought not to be remembered that, in 1667, the Society received from the crown a free gift of what was then called Chelsea College, which it afterwards sold for its benefit.

From the time of the charter being granted, the business of the Society assumed importance, and in 1664 Mr. Hooke was appointed curator, with a salary of 80l. per annum. The west gallery of Gresham College was appointed as a repository for the instruments which were under his charge, and for a museum of natural curiosities which had been collected. This was the affair of Sir Hans Sloane, who also settled on Mr. Hooke 80l. per annum, in consideration of his delivering a course of lectures on the History of Nature and Art, under the regulation of the Society; and the latter, besides making pressing application of the same, was appointed to be one of the committee for the purpose of considering the different subjects of which it was cognizant. These were mechanics, astronomy and optics, anatomy, chemistry, agriculture, the history of trade, natural phenomena; and there was, besides, a committee of correspondence. The Royal Society early received many tokens of approbation from foreign nations, as well as from the nobility and the learned in this country. It corresponded frequently with the scientific men in France, and it was invited by Prince Leopold, the Grand-Duke of Tuscany, to establish a mutual communication with the philosophers of Florence. The Germans published in their books favourable testimonial of its labours, and foreigners of distinction often attended its weekly meetings.

The first portion, or number, of the 'Philosophical Transactions,' as the work which the Society published was designated, appeared on Monday, March 6, 1665. It contained sixteen quarto pages, with an introduction by the secretary of the society, Dr. Whedon, who was the first editor; and it was intended that one such number should be published on the first Monday of every month. After the fifth number came out (June, 1665), the public meetings of the members were discontinued on account of the plague which at that time threatened Oxford, and only three or four of the ordinary members met at Mr. Boyle's, at Oxford, to Oldenburg, who remained in London, that several of the members were then in the former city, and that they met and made experiments at his lodgings. From these experiments and the communications made by some of the members, there were formed three more numbers of the 'Transactions'; these were published at Oxford; but the ninth and all the succeeding numbers came out in London. The title of the work was changed in 1679 to that of 'Philosophical Collections;' when Dr. Hooke became the editor; but the former title was restored in January, 1683, with No. 143, which was published by Dr. Plot, who was then the secretary.

The council met again in Gresham College, in February, 1666, but the public meetings of the Society did not take place till June in that year. In the same year the great fire, which laid nearly all London in ashes, compelled the authorities of the city to take possession of the rooms hitherto occupied by the Society, the latter gratefully accepted the offer of the city, and was in Arundel House, and not there for the first time in January, 1667. The munificent owner of the mansion, Mr. Henry Howard of Norfolk (afterwards earl marshal of England), at the same time presented the Society with the library which had been purchased by him at the sale of Lord Thomas Fitz-Alan, and which had formerly belonged to Matthew Corvinus, king of Hungary. This valuable library, consisting of several thousand printed volumes and numerous manuscripts, thus became the property of the Society, which immediately took measures to put it under the care of its own officers, and it has been subsequently greatly increased by donations and purchases. At the close of 1667, the Society moved into the mansion-house on the hospitality of the noble family to whom the mansion belonged, the Society proposed (November, 1667) to raise, by subscription among its members, money to build a college for itself; but the project collapsed in May of 1668. In October, 1674, at the invitation of the Gresham professors, the Society returned to its former apartments in that college, which had now the name of the Royal Exchange. The west gallery was cleared out for the Society as a repository, and the long gallery as a room for the reception of the books, which had till then remained at Arundel House.

Soon after this time the prosperity of the Society seems to have suffered some diminution. In 1667, when Dr. Sprat's 'History' was published, there were nearly 200 members; in 1673, it appeared that the number was only 146, and of these, 79 were persons who had long neglected to pay their subscriptions. This great number of defaulter gave much uneasiness to those who wished well to the Society; and the latter, besides making pressing application of the same, was appointed to be one of the committee for the purpose of enforcing payment by legal processes. It does not appear that this last measure was ever put in practice, and the council adopted a more effectual means of counteracting the evil by impressing it on itself to take upon itself the duty of delivering lectures on philosophical subjects, and in providing a number of good experiments. The first lecture, in pursuance of this plan, appears to have been delivered in 1674, by Sir William Petty, and it was ordered to be printed. The present its (and Professor's) also proposed, in 1668, that a silver medal, worth about twenty shillings, should be given to any fellow, not a curator, who should make before the Society any particularly meritorious experiment.

In the name LordScreens, one of the earliest members, left by her will, in 1706, a sum of money for the purpose of founding a lecture for the advancement of natural knowledge, to be read before the Royal Society; this did not however come into operation till 1738, when the first lecture was delivered by Dr. D. For this sum, also offered, in 1668, that a silver medal, worth about twenty shillings, should be given to any fellow, not a curator, who should make before the Society any particularly meritorious experiment.

In the infancy of the Society due attention to the characters of the members was considered necessary. It was agreed not to have been always given; and, in consequence, many joined who neither paid the fees nor contributed any information at the meetings, and, at the same time, the number of those who were excused the payments was found to exceed the number of subscribers. To remedy these evils, in 1662, the president, Sir Christopher Wren, brought in a draught of a statute in which it was provided that any person proposing a candidate for admission should give his name to some member of the council; at the next s or at some following meeting of the council, it was to be considered whether the proposed candidate was likely to be useful to the Society or not; if the members were satisfied on this head, the candidate was to be formally proposed at the next meeting, and afterwards balloted for. On the election day no member present, if he voted for or against the election of the candidate, was to be permitted to be excused on the former grounds, is to be found the name of Newton. This great man, who was elected in January, 1672, though he was not admitted till February 1675 (probably on account of his residence being at Cambridge), cannot certainly be considered as one whose income did not enable him to make an annual payment of fifty-two shillings.

It was proposed, in October, 1674, to refuse to strangers the permission, which had been granted, to be present.
sent at the meetings of the Society, from an opinion that members might be unwilling to bring forward their communications in the presence of such persons. And at the same time it was proposed that the members should bind themselves not to divulge what passed in their meetings, it being thought prejudicial to the interests of the Society that the particulars of the experiments and communications should be made known before they appeared in the printed 'Transactions.' We learn that, on one occasion only, a lady was permitted to be present in the sitting of the gentlemen. This was in 1667, when the duchess of Newcastle, having expressed a wish to that effect, it was agreed to invite her grace, and some experiments, which had been prepared for that purpose, were then performed.

In 1667 Dr. Sprat (afterwards bishop of Rochester) published the first edition of his 'History of the Royal Society; and in that work, while the object of the Society is distinctly declared to be the promotion of philosophy by experiment and by the observation of natural phenomena, an effort is made to remove the misapprehensions respecting the tendency of its proceedings, which appear to have been generally entertained. It was objected that the members of the Society neglected the wiser and more discursive aspects of philosophy, and that in discussing questions of mere chance and judgment; and that, by admitting among them men of all countries and all religions, they endangered the stability of the established church. It was urged moreover that a philological bend on the part of the Society was likely to lead to an overthrow of the Christian religion, and that a stab in the heart of the Deity existed. Among these bigots were Henry Stubbe, a physician, at Warwick, and the Rev. Robert Gosse, of Somersetshire; both these persons wrote pamphlets attacking the Society. But, in the end, the men of science espoused the cause of toleration, and the consequences were that it united the sects, and cultivated the curiosity of the public, and it may be said that most of the discoveries by which the face of science has been changed have been made known to the world through the papers published in the volumes of its 'Transactions.' In proof of this we may refer to Mr. Hooke's discovery of mechanical motions, in which the subjects of the papers are reduced under the heads of natural history, mathematics, mechanical philosophy, and chemistry, besides some miscellaneous matters; also to the volumes of the 'Transactions' which have been published since 1698, and which are a monument of the work of generations, and which contain, among others of great value, the papers of Sir Humphry Davy, with those of Faraday, Young, Kater, and Wollaston.

It has been said above that the 'Philosophical Transactions' were at first published in weekly numbers; these were afterwards collected into volumes, and, from the commencement in 1665 to the year 1800, the work consisted of 90 volumes. From that time a volume has come out annually, and to the present day (1841) 134 volumes have been published. It appears that, till the 47th volume was published, the printing of the Transactions was entirely the act of the several secretaries. The Society never interest itself further in that matter than by occasionally recommending the improvement of the work. The publication, when from any circumstances it appeared to be suspended. But in 1752 a committee was appointed to consider the papers which were read before the Society, and to select such as should be judged most proper to appear in the future transactions; and this practice has ever since been followed. The Society however constantly declares that it never, as a body, gives its opinion on any subject, whether of nature or art, which comes before it; the facts and reasons stated in their papers resting entirely on the credit and judgment of their readers. In literary recomendation, they have been liberal. The Society has been distinguished by their discoveries in pure science or in philosophy. The first occasion on which the Society became possessed of the means of so rewarding men was in 1699. The sum of 400l. was received from the estate of Sir Godfrey Copley, one of its members; this gentleman, at his death in 1709, left 100l., the interest of which, or five pounds, was to be given annually to the person who, in the course of the preceding year, had written the best paper on any subject relating to experimental philosophy. The donation has since been increased to a liberal form of a gold medal, and it is awarded indifferently either to foreigners or Englishmen, for the sake of encouraging an honourable competition among the philosophers of all countries.

In 1728 Sir Benjamin Thomson (Count Rumford) presented to the Society 1000l. in the 3 per cent. stock, for the purpose of forming, with the interest for two years (60l.), a
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biennial prize to be given for the most important discovery or the most useful improvement made during the two preceding years on heat or on light. The prize is given in the form of a gold and a silver medal, both of which are struck in the same year. During several of the biennial periods no opportuni-
ty occurred of awarding the prize, and at these times the interest was added to the principal sum. The interest of this additional sum is always given with the two medals; and the first who received the prize was Count Rumford himself. The second medal was awarded to the late Sir Leslie (1804).

In 1828 his Majesty George IV., for the purpose of further promoting the objects and progress of science, made to the Society an annual grant of 100 guineas in order to establish two prize medals, which are to be presented to a candidate who has distinguished himself most in important discoveries in science or art; and in 1826 the medals were awarded to Mr. John Dalton and Mr. James Ivory.

On delivering to a gentleman the medal which had been awarded to him for his discoveries in science, Sir John Pringle, who held the office of president from 1772 to 1778, made it a rule to deliver a speech, in which, after touching on the history of that branch of philosophy to which the discovery of which the candidate had distinguished himself was the first of these speeches was made on presenting to Dr. Priestley the gold medal for his paper entitled 'Observations on the different kinds of Air,' which had been read before the society in March of the year 1772. The other speeches were delivered by the same president on similar occasions; and the six speeches are considered elegant compositions, as well as learned and critical dissertations. This liberal prac-
tice, by which the value of the testimonies of the reviewer is so much increased, and it is also becoming customary, at every anniversary meeting, to notice, in an appropriate speech, the principal circumstances in the life of any distinguished member who may have died during the year; and the council, at the suggestion of the late Sir John Pringle, who awarded the royal medals to Mr. Dalton of Manchester and to Mr. Ivory, the President, Sir Humphry Davy, took occasion to state that the first was for the development of the chemical theory of definite proportions, commonly called the atomic theory, and for various other labours in chemical and phyc-

ical science. He further observed that Dalton's discovery had laid the foundation for future researches respecting the sublime and transcendental part of corporeal action; and he compared the merits of the discoverer, in this respect, to those of Newton and Leibnitz in physics. The council also noted the fact that the second medal was awarded to Mr. Ivory for his papers on the laws regulating the forms of planets, and on astronomical refractions, and for other mathematical investigations of importance. After this review, Sir John added some high compliments to Mr. Ivory for his papers on the mathematical sciences of which science are the most interested pursuit of objects of science which have immediate popularity. One of the Copley medals had been on the preceding year awarded to M. Arago and another to Mr. Lardner for a paper on such a kind that the President, Sir John Pringle, who occupied the chair of the council of the existing council, and of ten fellows who are not so. These are nominated to the chair of the society's estates, the policies of insur-
ance, &c. The secretaries attend all meetings of the Society, the council, and the committees of papers; on such occasions, when the council has taken the chair, the secretaries record the resolutions passed at the meeting, and afterwards takes minutes of the business and orders of the present meeting; these are to be entered by the assistant-secretary in the books to which they refer. There are the charge (and direction of the committee of papers and writing belonging to the society. The library attends at the library every Monday and Thursday, from 11 A.M. to 4 P.M. for the accommodation of such fellows as come to read the books and MSS. The ordinary meetings of the society are held once a week, from November till the end of Trinity term, at half-
past 8 A.M. in the apartments.
In the introduction to Dr. Thomson's 'History of the Royal Society,' there is given a list of all the presidents, from Lord Bruncker, who was appointed in 1663, to Sir Joseph Banks, who was elected in 1778, and who held the chair till his death (1820). The succeeding presidents were—
Sir Humphry Davy, elected in 1820.
Mr. Davies Gilbert, 1827.
H. R. H. the Duke of Sussex, 1830.
The Marquis of Northampton (who continues) 1838.
Sir John Herschel. 1840.
Mr. Condie, Mr. Brande, Sir John Herschel, Mr. Children, Major Sabine, Dr. Rogers, and Mr. Christie; the two last named of whom are the present Secretaries. Mr. Daniell is the present Foreign Secretary.
During many years the Royal Society may be said to have been the depository of nearly all the science of the country; but that science became at length too extensive to be adequately cultivated by one body of men, and then separate and independent societies formed themselves, each having a view the promotion of one particular branch of the philosophy of nature or one branch of the arts. The labours already accomplished by those associations are such, that the society itself, with the religious retribution of religious affairs of her children; and the high place which she continues to hold, in the promotion of the sciences generally, cannot fail to inspire the societies themselves with reverence for the body from whence they diverged.

ROYALTY

The French words roi and royaume correspond to the Latin words rex and regnum; and from royal has been formed royalité (now royauté); whence has been borrowed the English word royalty. The corresponding Latin word is regalia, which occurs in the Latin of the middle ages. (Ducange, in v.)

Royalty properly denotes the condition or status of a person of royal rank, such as a king or queen, or reigning princes or duke, or any of their kindred. (Kings.) The possession of the royal status or condition does not indicate that the possessor of it is invested with any determinate political powers; and therefore royalty is not equivalent to monarchy or sovereignty. A royal person is not necessarily a royal prince, but may consist of sovereigns, who possess the entire sovereign power. The powers possessed by persons of royal dignity have been very different in different times and places; and have varied from the performance of some merely honorary functions to the exercise of the entire sovereignty.

The kings (rex, reus) of the Romans were not a properly a governing class of nobles. (See Müller, Hist. of Liter. of Greece, ch. 4, § 1.) Thus Telemaeus says that there are many kings in Ithaca, both old and young, besides himself (Od. i. 394); and Alcinoos says that Kirules over the Phaecians, with twelve other kings (Od. viii. 390). As popular institutions were developed in Greece, the office of king became, in several states, merely honorary, and was particularly connected with the performance of certain functions of a religious character. At Athens, the king of Athens (aron báthonea) was an annual officer, who had the superintendence of religious affairs; his wife was called, during the year of office, báthonea, or queen. (Compare Hermann, Gr. Ant., § 56.) Rome likewise retained, after the expulsion of the last vestiges of royal power, many of the old sacrifices (rex sacrificialis), who performed the sacred rites which had formerly been performed by the kings. In like manner the Teutonic kings were only the chiefs of the military and sacerdotal aristocracy of the tribe, and did not possess the entire political power; 'nee est reus in Germania liberator potestas,' says Tacitus, Germ., 7. See Grimm, Deutscher Rechtsalterthumer, p. 229-65. In more modern times, the kings of England, France (since 1615), Holland, Belgium, Bavaria, Saxony, Wurttemberg, Spain, and Portugal (since the late revolutions) have possessed only a share of the sovereign power.

On the other hand many kings have possessed the entire sovereign power, and have therefore been monarchs properly so called. Such were the kings of the empire of Asia, and the kings of France and Spain in the seventeenth and eighteenth centuries, and such are the kings of Prussia.

From the preceding observations it results that the name of king or the possession of the royal status does not determine the full extent of the political power which a king would possess the entire political power; but that king is a title of honour which may be borne by persons having very different amounts and sorts of political power. 'Titles of office,' says Mr. Bentham, 'are aggrandizements without connection, which can be given to any person on account of the number of his clothes or his complexion, or on account of the number of his children, or on account of the number of the elements of the state.'

In popular discourse royalty is made equivalent to monarchy or sovereignty; and a king is called monarch or sovereign without any reference to the fact whether he possesses the entire sovereign power or only a part of it. The princedom causes the same effect to be produced in monarchical states. The confusion is attended with important consequences both in speculative and practical politics.

It may be added, that the attribute of royalty is sometimes transferred even to animals, and is applied to species of animals, in order to denote pre-eminence. Thus the principal bee in the hive is called the queen-bee (Bzz., vol. iv., p. 151) called the king-bee by the Romans: Virg., Georg., i., 68, 75, 93, 106, 212; the lion is known (particularly in Africa) by the name of king and styled the royal tiger. (Tiger) Compare Sovereignty.
ROYDSIA, an Indian genus of plants allied to the natural family of Caricaceae, named by Dr. Roxburgh in compliment to Sir J. Royds, one of the judges of the supreme court of Bengal, whom he describes as an eminent benefactor to the science of botany. The genus consists of a single species indigenous in the forests of Sihet, where, with a strong, glossy, evergreen, lanceolate, blue-green, smooth, and entire, pale yellow leaves, the flowers are found in great abundance, and not without stipules. The sepals are six, large, and yellow. Nut oblong, single-celled and three-valved. Seeds solitary, conformable to the nut. The plant is figured in Roxburgh's "Coromandel Plants," p. 289, and is well suited to the bathhouses of this country.

ROYE, [Somn.]

ROYLEA, a Himalayan genus of plants, of the natural family of Labiatae and tribe Balteotomae, named by Dr. Wallich in compliment to Dr. Royle, author of the "Illustrations of the Flora of the Himalayan Mountains and of Cashmire," who first observed it on the Sirmore Mountains. The plant forms a handsome shrub, with many branches and an abundance of pale green glaucous leaves. It is characterized by having the calyx 10-nerved, oblong, and semi-quinquenée; corolla shorter than the calyx, two-lipped, lips unequal; stamens 4, didynamous, ascending under the upper lip; anthers biocular; style bifid.

R. elegans, the only species known, is called puturosus by the natives of the mountains, where it is indigenous, and is employed by them as a febrifuge. It is suited to the shrubbery of this country.

ROYSTON. [Hertfordshire]

ROY, the CROW, the London English name for the Hooded Crow, Corvus corone, Linnaeus.

Description.—Male.—Head and the whole body fine grey ash colour; throat, wings, and rounded tail black with browned reflections; bill and feet black; iris brown. Length about 22 inches.

Female.—Less than the male; the black on the throat not so extensive in front as it is in him; reflections of the wings and tail less vivid; and the grey of the body more confused with rusty hue.

The young assume the colour of their parents at an early period.

This is the Mulaccia, Munaccia, Cornacchia, and Corvo palumbino of the Italians; Cornellius sauvage and Cornelle melode on the French roads; Graw and Grawe, and Nebel krahe of the Germans; and Brungy hear-dum of the ancient Britons.

Habits, Food, &c.—The sea-shore and the banks of tidal rivers are the favourite haunts of this species, though they are frequently found far inland, and animal substances are preferred by them as food. Sand-worms, shell-fish, crustaceans, and other animal matters left by the retiring tide seem to be most welcome to them. They appear to be both knowing and affectionate. Mr. Selby repeatedly observed one of these birds to seize up to a considerable height in the air with a cockle or muscle in its bill, and then drop it upon the rock in order to obtain the included fish. Pennant tells a painful story of its affection. 'One,' says he, 'which had been shot and hung by its legs on a tree adjacent to the nest, was discovered by its companion on returning from forage. It perched over the dead body and surveyed it attentively, as if in expectation of its revival; at length, on a windy day, the corpse being put in motion, the survivor, determined for it, descended, fluttering round for a certain time, endeavouring to release its mate and uttering a melancholy scream; at last, finding its efforts to be in vain, it retired without ever returning to its usual haunts.'

The same author however gives the species a very bad character for mischief, worse even than that of the Carrion Crow, and says that they pick out the eyes of lambs, and even of horses when boggled; whence they are proscribed in many places, and a price set upon their heads. He adds that for want of other food they will eat cranberries and other mountain berries.

The nest is generally built in trees; but in their absence, among rocks and deep chasms in hill sides. Mr. Salmon, who found it in the last-mentioned localities in Orkney, describes the outside of the nest as composed of withered heather and large roots or stalks, and the lining as being of wool and hair: the three young in one nest which he looked into, were of the same colour as the parent's. The eggs, four or five in number, are greenish mottled with dark brown.

The Hooded Crow is said to be more docile in learning to speak than the Carrion Crow. In the "Portraits d'Oiseaux," the following quatrain appears under a very fair cut of this species:

"Ceste Corneille est dite émamontole,
Qui se montre en hyère, au secours.
En sa mère, elle conçoit son œuf,
Comme un menteur: doute elle est apprise.

Geographical Distribution.—Extensive. In Europe it is widely spread. Denmark, Sweden, Norway, Germany, Holland, our own islands, Italy (where it is permanent according to the Prince of Cannis), and France possess it. It is found at Iceland, in Russia, and Siberia, but not beyond the Lena. It is common in Smyrna, according to Mr. Stirkland. The Greek Archipelago generally possesses it, and it occurs in the countries between the Black and the Caspian seas. Latham states that it is very common in some parts of India. Sonnerat saw it in the Philippine Islands. Ten-minck states that it swarms in Carinthia and Croatia, and that it is very common in Japan.

In the southern parts of this island the Hooded Crow is a winter visitor, arriving about the time of the appearance of the Woodcocks, and departing northward in April. There are instances on record of these birds breeding as far south as King's Lynn in Norfolk. In the north and west of Scotland, the Hebrides, and the Orkney and Shetland Islands the species is permanent throughout the year. The English visitors are supposed to come from Sweden, Norway, and other countries to the north-east. In the north of Ireland this crow is indigenous. In the Feroe Islands it breeds in considerable numbers.

Corvus corone.

Varieties.—Sometimes entirely white; at others entirely black or blackish.

Hybrids.

There are several instances on record of a fertile union between the Carrion Crow (Corvus corone) and the Hooded Crow.

Mr. Williamson says, 'The Hooded Crow has been known to breed near Scarborough on two or three occasions. In one instance a female Hooded Crow was observed to rear with a Carrion Crow on a large tree at Hooke, whereas they succeeded in rearing their young. The Carrion Crow was shot by the gamekeeper, but the following year the Hooded Crow returned with a new mate of the same colour, as the former one to her nest. The Carrion and young Crows were again all... the old female by her vigilance occupied all the efforts to destroy her...
and a third time returned with a fresh mate; she was not however, taken, but was shot, and is now preserved in the Scarborough Museum. Mr. Selby has noticed such a union at Foxberry. (Address to the Berkshire Naturalists' Club, 1834.) The same ornithologist mentions that Sir W. Jardine observed a similar pairing in Dumfriesshire. Temminck also observes that a mixed breed between the Hooded Crow and Crow somnias occurs in the northern countries, where the latter is common.

"For four successive years," says a correspondent in the Reel Naturalist, "I had opportunities of witnessing the pairing of the Carrion Crow and the Hooded Crow in some large beech-trees which surround my house in Forfarshire. They never occupied the old nest, nor did they always build their nest on the same tree; nor was I positively certain that it was the same individuals who returned every year to these trees, though it is probable they were, for they were never more than four or five years old. Knowing the predacious propensities of the Carrion Crow on hen's eggs, young ducks, and even Turkey poults, I would have shot them had they been a pair of Carrion Crows; but I was anxious to mark the result of what appeared to me at the time to be a remarkable union. June 16th, May 11th, at Rome, at Manuta, and at Mantua, in the latter, the eggs were of the same date. The same incubation, and carefulness exhibited, I should say that the Hooded Crow was the female, though the Carrion Crow did frequently sit upon the eggs. After the young of the first year took wing, I perceived that the one was a third smaller than the other; for Philip III. of Spain had the same habit of maintaining in the young which were hatched every year as long as he remained in the country. I shot the first young pair, and ascertained that the Hooded one was the female, and the Carrion was the male, which confirmed me in the notion of the sexes of the previous union. After young and old were unmolested by me; but notwithstanding the increase of number every year after the first, only one pair came annually to build on these beech- trees. The pair of the Hooded Crow now in the British Museum, Great Britain, the pairing of a male Hooded Crow with a female Carrion Crow at Arochar on Loch Long is remarkable. Their nest, which was like that of a Carrion Crow, was built in the fork of a tall pine, and the union lasted for three or four years.

RUBERGONIUS are external agents which cause redness of the part to which they are applied. If long continued, they may, according to their nature, produce inflammation and some of its consequences. In such circumstances, the companion of Rubens' and Van Dyck's, the Genoese, Mr. P. P. Rubens, B.R.A., of Antwerp. It is however a degree of action short of which entitles them to these appellations which is now comontemplated. Thus friction with the hand or warm clothes often relieves spasmodic or neuralgic pains; and a hot poultice or warm fomentation is a most beneficial application for deep seated parts. Embrocations, when of a stimulating kind, act as rubefacients: and blisters kept in contact with the surface for a short time only, cause redness of the part, and some remote secondary effects of a very beneficial kind. Many cases of fever in the sinking stage may be recovered by a succession of flying blisters, as these temporary applications are termed, placed on different parts of the body, particularly over parts where the skin is thin. Their action may be expedited by previously rubbing the part with proof spirit or oil of turpentine, or by using a portion of linen steeped in the acetum cantharidis instead of the common blister. By diligent employment of such means many valuable lives may be saved. (See Dr. Graves, in Johnson's Dictionary, p. 51.)

RUBENS, Peter Paul. The most celebrated painter of the Flemish school, was born at Cologne, on the 9th of June, 1577. His father, John Rubens, who was one of the becaris of Antwerp, had taken refuge at Cologne with his family, in consequence of the disturbances prevailing in the Netherlands at that time. He died, in the year 1587. His widow shortly afterwards took advantage of the restoration of Flanders to the Roman Catholic faith by the victories of the Duke of Parma, and returned to Antwerp. In his 16th year Peter Paul Rubens was placed as a page in the household of the Countess of Lalaing, but the life did not suit him, and he soon returned home. At his own desire he became the pupil, first of Tobias Verhaeget, a landscape painter, and then of Adrian van Veenen. His next master was Otho van Veen, or, as he is commonly called, Otho Venius, court painter to the Infanta Isabella and the Archduke Albert. In the year 1600, when Rubens was 23 years old, he was at Mantua, and must have visited Italy. He was already thoroughly conversant with all the technical and general knowledge which would enable him to reap the full benefit from such a journey, and he had executed some considerable pictures. He proceeded first to Venice, and returned to Mantua. In his letters from the Archduke Albert secured him the favour of the Duke Vincenzio Gonzaga. At his court Rubens accepted the place of gentleman of the chamber, and availed himself of the opportunity thus afforded him of studying the pictures of Giulio Romano and the other works of art belonging to the family of Gonzaga. In 1601 he went to Rome for a short time, and after returning to Mantua, visited Venice, and devoted himself to the study of the pictures of Titian and Paul Venetius. The works of these two masters probably exercised the strongest influence in the full development of his natural genius for colour. The Archduke Albert commissioned Rubens to paint three pictures for the church of Santa Croce in Gerona; and he returned thither for that purpose, and with the object of copying some celebrated pictures for the Duke of Mantua, and he probably visited Florence in his way back. In 1605 the Duke Vincenzio Gonzaga sent him on a special mission to Spain with a present for Philip III. The king received him with great cordiality, and after painting a large number of portraits of persons connected with the court of Madrid, he returned to Mantua. He paid a third visit to Rome, where he was joined by his elder brother Philip, and in 1607 went through Mantua to Genoa. In the vicinity of the city he fell ill, and a great number of his pictures still remain there. In 1608 he received news of his mother's illness, and returned immediately to Antwerp, where however he arrived too late to save her life.

The wishes of Albert and Isabella induced Rubens to abandon his project of returning to Italy; and in 1609 he married his first wife, Elizabeth Brant, and settled at Antwerp. The beautiful picture in the Munich gallery, representing himself and his wife seated in a garden, was probably painted shortly after his marriage. The outline is more precise and the style more true and honest than in most of his works. The best account of his characteristic merits is to be found in a note of Mrs. Jameson's to Dr. Wanger's Rubens, p. 451. In 1607 Rubens was commissioned to paint the series of pictures now in the Louvre which represent the principal events in the life of Maria de' Medici. He went to Paris, and received his instructions for the works, but the pictures themselves were executed at Antwerp, for the greater part of his numerous pupils. In fact, as they were placed in the Luxembourg in 1625, it was physically impossible that he should have painted them himself. The original sketches, now in the Munich gallery, are far superior to the finished pictures. During his last residence at Paris, Rubens became acquainted with the Duke of Buckingham, who purchased his collection of statues and other works of art for 60,000 florins, or according to De Fiesis, for 100,000. In 1626 Rubens lost his wife, and he shortly afterwards made a journey, in which he visited the principal Dutch painters of that time.

Rubens had been highly esteemed by the Archduke Albert, and after the death of that prince he continued in his favour of his works. From the sieges of Breda, in company with Spinola, in 1625, she visited Rubens's house; and in 1627, when Charles I. declared war against France, Rubens was entrusted with some negotiations with that country. In the autumn of the same year he was dispatched to Madrid. During his stay in Spain he executed several fine pictures, and gained the favour of Philip IV. and the Count-Duke of Olivarez. In 1629 Rubens was sent by the Infanta, as ambassador to England, and succeeded as a diplomatist, and his merits in procuring Charles's acquiescence in the peace were recognised by the court of Spain. Whilst in England, he stood high in the favour of Charles I., whose feeling for the fine arts seems to have been of the strongest kind. The allegory of War and Peace,
now in the National Gallery, was painted as a suitable present to the king, on the occasion of these negotiations. After the breaking up of Charles’s matchless collection, this picture was transferred to Genoa, but was purchased during the French revolution from the Doria family, and thus restored to his country. The collection was, however, higher in Rubens than in England, but painted at Antwerp at a later period. For the latter work he is said to have received 3000l. In 1631 Rubens married his second wife, Helena Fourman, a beautiful girl of sixteen. Her portrait often shows her in a prescribed dress. He was again employed on commission to Holland in 1633; and in December of that year, his patroness, the Infanta Isabella, died.

Rubens’s fame now stood very high, and the commissions he received could only be executed by the aid of his numerous assistants. In his lifetime the fame subsisted, but not out in the hands, which disabled him from painting with ease on a large scale. At the request of the authorities of Antwerp, he executed sketches for the decoration of the arches to be erected on the entry of the Cardinal Infant, Don Ferdinand, the new ruler of the Low Countries, on 1440 the disease under which he had suffered caused his death. He expired in the 63rd year of his age, and was buried in the church of St. James at Antwerp.

Rubens’s personal appearance was prosaic, and his manner as much as to say he was generally beloved. Towards other artists he acted with the greatest generosity, and he is said to have relieved the poverty of Vandyck by purchasing all the pictures which that artist had in his study.

His own character and merits as a painter have been the subject of much controversy, and will probably always furnish matter for discussion.

In all questions of literature and art, we are never satisfied with our own preconceived ideas, and comparing things which are in themselves utterly dissimilar. The source of pleasure from works of art is obscure, and the nature of the pleasure itself is little capable of definition, but men think to obtain greater precision, and to arrive at the reason why they are pleased, by the comparison. To what extent we may succeed, but in general such comparisons have a tendency to narrow our field of enjoyment, and to lead us to dogmatise on what cannot be reduced to fixed rules. A man may derive greater satisfaction from the works of Pe- rugino and Fra Anguisciola, than from those of Rubens or Teniers; he may feel the beauty of the Parthenon more than that of Strasburg cathedral; but he is not therefore justified in saying that Rubens was a bad painter, or that the Egyptian was an indifferent architect.

The principal sources of pleasure in painting appear to be form, composition, colour, and the highest of all, the expression of human character and action. The subdivisions of this branch are of course infinite, and composing the form, colour feelings, and the rest are more properly a portion of our animal nature. In those parts of his art which act immediately on the senses, Rubens was without doubt a great master. He understood the perfect management of light and shade, of composition, and of colour. If his merits are disputed, it is with reference to the subjects which he painted and to his mode of treating them, not to his technical skill. Before his visit to Italy he had acquired an individual character as an artist. This was the result of detached imitations, but, whilst he carefully studied the great masters at Venice and elsewhere, his vigorous genus assimilated and appropriated to itself all that it took up or borrowed. The excess of individuality of expression contains the narrower sense of the word. That peculiarity of feeling too did not dwell on the forms which are best fitted for expressing the tranquil and devotional sentiments which prevail in early Christian art, but still, such as it was, it was equalled in the genius of a great man. He succeeded in painting in its power of expressing form, and equals it in that of portraying fixed character; but painting only can express the tumult and energy of human action in full power and motion. This Rubens excelled, and it is surely not the least excellence. We are ready to grant that his Madonnas are, for the most part, clumsy and undignified; that their forms are unfitted for the being whom they represent; and that exaggeration sometimes distorts scenes where quiet and holy feelings would be more in place. Notwithstanding all this, the stronger human passions and actions have an intense interest for mankind. The anima, energy and the sensual characteristics of men are a part of that complex whole which we call human nature, although they are not the most elevated part. If art is to represent man as he is, these elements cannot be wholly overlooked.

Rubens was a profound student of Greek and Roman comedy, and Greek sculpture embodied them in its forms and satyrs. An acute sense of beauty indeed generally softened the more disgusting features, and we might wish that Rubens had been oftener touched with similar scruples. We must take it in our stride, and bear with the share of excellence, and with all the incomparable energy and heartiness which animates his best works. In them there is none of that idle filling up of vacant corners, or that insertion of cold academic figures wholly unconcerned with the scenes in which they are placed, and treated by other masters. If we look at Rubens’s Village Fête, in the Louvre, the ring of peasants wheel round in the dance with a drunken merriment which seems in actual motion before us. The smaller picture of the Last Judgment, in Munich, is just as wonderful for this quality of movement, as for its glorious colour and execution. His Battle of the Amazons, in the same collection, conveys, in a most wonderful degree, the struggle and energy of a combat. Action and life he never failed to represent, and one has done before or since, than this alone, in our opinion, entitles him to a place in the very foremost rank of artists.

In landscape, Rubens’s facility of execution and gorgeous colour effects, his marvellous ability in portraits are equally celebrated. The picture commonly referred to as the chef d’œuvre of Rubens is the Descent from the Cross, at Antwerp. The best of his works are in the Munich galley (principally derived from the Düsseldorf collection) and at Berlin and Vienna. Many fine pictures by him remain in Spain, and many of course at Antwerp.

His principal pupils were Vandyck, Jordens, Van Thulden, Krayer, Diepenbeck, and Quellin, but most of them did not equal the master. They rivalled the art of Rubens in catching his fire and energy. The engravers of his school, such as Pontius and Bolswert, succeeded admirably in conveying the general character of those pictures which it would seem most difficult to translate into mere black and white. They may conclude by saying that Rubens, that much-admired man of genius, is considered the greatest of his country which has rarely if ever been accomplished for any other land. At the time of John and Hubert van Eyck, the school of Flanders had obtained the highest pitch of excellence. Those artists were not content with the strictest limits of nature to the finest technical skill and the most successful delineation of character and feeling. At a later period this excellence had vanished, and given way to the crude and affected imitation of the Italian masters. But it is precisely in this period that the South, the second time placed the Low Countries in the first rank, and by his own genius restored to them a reputation different indeed in kind, but perhaps equal in degree to that which they had formerly enjoyed.

(Peter Paul Rubens, his Life and Genius, translated from the German of Dr. Waagen, by Robert R. Noël, edited by Mrs. Jameson, London, 1840, whence the greater part of the information contained in this article is taken; Edinburgh Review, No. 146.)
cheaper, it is much used for the same purposes. It is employed by dyers and calico-printers as a red and scarlet dye. It has also the singular property of turning red the botes and secretions of fowls and other animals fed on it.

R. cardifolia (Munjista), the Munjist of India, a native of Nepal, & c., possesses very similar properties, and is much used for similar purposes. The root is used as a substitute for that of R. tinctorium; it is also known as commerce under the name of East Indian madder, and is also employed in medicine. Like madder, munjist was probably known from very early times, as rodem is given as the colour of very poor persons on Malmesbury Med. R. chilenus and R. Rebun, both natives of South America, are also esteemed there as dyes.

RUB'ICON. [Cæsar, C. J.]

RUB'ICUND. [Money.]

UBRIC (from the Latin ruber, red), a name given to the titles of chapters in certain ancient law-books; and more especially to the rules and directions laid down in our Liury for regulating the order of the service. These, in both instances, were formerly written or printed, as the case might be, for distinct use in red characters, and have retained the name though now printed in black.

RUBUS (the Latin rubus, a bramble), a genus of plants belonging to the natural order Rosaceam, and to the section Partes to which the suborder Rosaceam proper. This genus, like that of Rosa, is very extensive, and is of importance amongst botanists. Some writers on the British Flora have described upwards of twenty-five species, whilst others have reduced them to four or five, or even two.

The early cultivated, and one genus from Hooker's 'British Flora' has been drawn up by Mr. Borrer, who has investigated the British species with more success than any other botanist:

*Shrub-like plants or herbs, with perennial roots. The leaves of some species have the form of the stem is upright, or merely curved at the top; but the greater number is either prostrate, or, as is more generally the case, assurgent, arching, and decurved; and the ends of the shoot and of the side branches, if it produce any, unless produced by circumstances from reaching the ground, take root in the latter part of the year. In the winter the shoot is partially destroyed, the part next to the original root surviving to produce flowering branches during the ensuing summer, and usually dying after the fruit is ripe. The shoots are not prostrate, but are upright, or are more or less erect, and the leaves are either simple, or compound. The leaves are generally large, and the leaf-stalks more than those of the stem. In some species the inflorescence is remarkable, but in general the petals are very small, and afford no good distinction, nor can the arms of the calyx or the form of the segment be determined. The petals are all delicate and crumpled, and in several species very small. The fruit is a drupe, and is generally referred to as the fruit, but they are rarely discriminative. In examining the figure of the leaves, the central leaflet is to be regarded; the lateral ones are always smaller and of a narrower proportion. In several species the leaflets are occasionally in pairs. In others, and are found the next season subventing flowering branches. The leaves of some branches are of less determinate figure; the number of their leaflets reduced as they approach the inflorescence, and the leaflets are generally known by its principal petiole; the petiole is fleshy and then simple bracteal, formed by the coalescence of the stipules. These last are usually long and narrow, entire, or sometimes toothed or jagged, and issue from the end, for the most part, a little above its base. They form the axis of the and Nect. to the R. coryliata, which he admits as a genuine species.

Rubus spectabilis, Showy Bramble, is one of the hand-
serrated leaves, downy beneath; flowers of an agreeable purplish colour, on terminal peduncles. It is an elegant shrub, growing to the height of four or five feet. It flowers in April and May, and has a large dark-yellow fruit, of an acid and aromatic taste. In April thought from the banks of the Columbia river, in North America, by Mr. Douglas, in 1827, and is very deserving of cultivation.

**Rubus fruticosus.** Shrubby Bramble, or Common Blackberry, is one of the most common species of the genus. It has a lax stem, rather than the compact, bearing prickles. 3-5 leaves, each on a second pedicle; rose-coloured or white flowers arranged on a panicle; reflexed sepals, almost without prickles; purplish black fruit. It is a native of almost all Europe, in hedges, thickets, and woods, and is tolerably admitted varieties of this species, and some botanists make many more. The fruit of this species and its varieties are well known as blackberries, or bumbleberries, and also scald berries, from their supposed power of giving scald-head to children. Wherever they grow, they are picked by the children of the district on account of their agreeable acid flavour. Sometimes they are employed in making an inferior wine, and also for the distillation of a spirit. They are frequently used by the people of the district for making a muscat of Toulon is coloured by their juice. Medical properties have been attributed to them, but they are not now used. Both the fruit and leaves are employed in the arts, for colouring and dying. The *R. fruticosus* is a good plant for planting orchards, and from its spreading habit, it is useful in planting forest trees. The shoots are used by thatchers for binding their straw, and also for making beehives. It is sometimes cultivated in order to produce a picturesque effect in gardening.

One of the most decorative plants of the genus is the *R. arcticus*, the Arctic Bramble. It has three glabrous obtusely-serrated leaves, no runners, stem bearing only one flower, and without prickles, the petals notched. It is a native of North America, in the woods of Canada, and the Alleghenies. It grows to the height of four or five feet, and is called *Rubus arcticus* on account of the fragrance of its foliage. Its stem is very thick, the last, is the *Rubus odorus*, the Sweet-scented Bramble. Its flowers from May to October. Its flowers are white, succeeded by large red berries.

**Rubus campestris**, the Cobnut Bramble, is known by its distinctive flowers, simple-lobed leaves, and herbarious single-flowered stem without prickles. It grows in great abundance on the Scotch Highlands, and, under the name of reebuck-berrys and knot-berries, the fruit is gathered in great quantities by the inhabitants of those districts. They have an agreeable flavour, and form a useful article of diet, where they grow in sufficient number to be worth gathering. This plant is one of the smallest of the genus, never growing more than eight or ten inches high. It is the badge of the Duke of Fife.

Further information on the genus Rubus is contained in Hooker's 'British Flora'; Lindley's 'Synopsis of the British Flora'; Don's 'Miller's Dictionary'; Weile and Nees's 'Rubi Germanici'; and Loudon's 'Arboretum.'

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**Rudder. [Shir.]**

**Ruddiman, Thomas,** was born in October, 1674, at Raggel, in the parish of Boyndie and county of Banff, Scotland. He was instructed in Latin in the parish school, and at fourteen years old, he made a rapid progress. At the age of sixteen he obtained, at King's College, Aberdeen, the first exhibition or bursary of the year, on account of his superior knowledge of Latin. Here he studied four years, and then took his degree of master of arts, at which time he left town, and entered the University of Edinburgh. After this he engaged himself as tutor in a private family, and in the course of another year he became schoolmaster of the parish of Lawrence Kirk. He remained here three years and a half, and then, having the usual equipment of students for the degree of master of arts, he lectured in theology, mathematics, and rhetoric. He was appointed assistant-keeper of the advocates' library at Edinburgh. In this office, though he had good opportunities of becoming known, and of reading and teaching for his further improvement, yet his pecuniary advantages were so small that he was obliged, in 1707, to commence auctioneer. In the same year he published an edition of Volusenum's 'Dialogue on Tranquility of Mind,' with a Life of Volusenum, by Wilson, prefixed. In 1709 he published Johnston's Latin 'Poetical paraphrase of Solomon's Song' and Johnston's 'Poetical paraphrase of the Psalms.' In 1713 he was next invited by the magistrates of Dundee to be rector of the grammar-school there, but he declined the offer. In 1713 his friend Dr. Pitearine died, and Ruddiman, being still an auctioneer, managed the sale of his library. In 1714 he was purchasing a large manuscript for the use of the University. In 1714 he published his 'Rudiments of the Latin Tongue,' a book which is well known, and is still used in most of the schools in Scotland. In 1715 he published an edition of Buchanan's works, in two volumes, folio, and in the same year he commenced printer, in partnership with a brother who had been brought up to the business; and some years afterwards he was appointed printer to the University of Edinburgh. He published, in 1725, the first part of his 'Grammaticum Latinum Institutiones,' which treat of etymology, and the second part, in 1730. He also wrote a copious treatise on prosody, but published only an abridgement of it. After this time he was made principal keeper of the advocates' library. In 1739 he published Anderson's 'Diplomata et Numismata Scotiae,' during the latter part of which he was much in controversy with different persons. However in 1751 he found time to put forth an edition of Livy, in four vols. 12mo., which Dr. Harwood pronounces one of the most accurate editions ever published. About this time he resided in the post of Keeper of the advocates' library, and was succeeded by David Hume.

Ruddiman died at Edinburgh, January 19, 1757, in the eighty-third year of his age. He was an author or editor of many works, which are printed in his name, and among them 'The Caledonian Mercury,' from which he is said to have derived more profit than reputation. A Life of Ruddiman was published by Mr. George Chalmers, 1794, 8vo.

(Chalmers's Biographical Dictionary; Biographie Universelle.)

**Rugby.**

**Rudge, Roger,** was born at Leicester, August 9, 1751. He was the second son of Rogers Rudge, Esq., of Westcote, a member of a respectable family, of which notices may be found in Nicholls's 'Leicestershire.' This gentleman was receiver-general for the county, and as such came to London to pay the identical money that he received into the Exchequer. At this time the House of Commons, in its prosecution of the Stamp Act, succeeded in obtaining the right of inspecting the money. This fact, in the opinion of the House of Commons, suggests the possibility that the primitive mode of transacting business may have contributed in some degree to direct the mind of his son to the subject of money transactions. The subject of this article was educated at Merton College, Oxford, where he was somerset, Fellow, and by which he was presented, in 1793, to the vicarage of Maidon and Chesham, two small adjoining parishes in Berks, which are always held together, if not legally united. He took the degrees of B.A., 1771; M.A., 1772; and B.D., 1782; and was chaplain in the same name, and by her three sons, none of whom survived him, and two daughters.

Rudge's attention appears to have been early directed to the study of finance. In 1779 he published a pamphlet, entitled 'A Proposal for reforming the ancient Constitution of the Mint, so far as related to the expense of Coinage: together with a plan for
the improvement of Money, and for increasing the difficulty of Counterfeiting.' In 1812 he issued proposals for his great work, which was published in 1817, in four quarto volumes, under the name of the 'Annals of the Coinage of Britain and its dependencies, from the earliest period of authentic history to the end of the fifteenth year of his present Majesty King George III.' The whole of the first edition being sold within six months, it was shortly followed by another. He did not live to see the third edition, which was brought out in the middle of the year 1819; the additional matter being also printed in the form of a supplement to the first edition.

This important work, on the compilation of which Mr. Rudge bestowed no ordinary amount of laborious research, constituted his monastic life, and cost his country, the constitution of the Mint, the process of coinage, and the numerous and often ineffectual measures adopted to prevent the deterioration and counterfeiting of the money. It also embraces a vast ground, and is illustrated by a series of more than a hundred plates, including those previously published as tables of English gold and silver coins, by Martin Folke, Esq., which were lent by him for the work.

Viewed simply as a historical work, Rudge's 'Annals of the Coinage' is a book of great value and interest, embracing as it does the result of the author's diligent investigation; but had he lived to see the third edition, it would have called for much attention; but the work had another object, which may be explained by an extract from the author's preface. He observes, 'Had these materials been collected for no other purpose than the amusement of antiquarian curiosity, I should have spared my readers much time. But this work is given to the world with a higher and more important view. Its object is to show, from the experience of ages, the iniquity of punishment, however severe, to prevent the commission of the crime of counterfeiting the money; and, without making this point to remain so powerful, and the execution of it so easy. The long succession of penal statutes, and the innumerable lives which have been forfeited to them, seem to prove that the system is radically defective, and that the crime of such a nature, as to require an act met with the utmost energy to the execution of it. Rudge considered his theory to be supported by the great re-coining of 1816 and 1817, at which time the weight of the coins was so far diminished as to remove the temptation to melting them down, which had hitherto been necessary to make coinage a matter of profit to the Mint; and, inasmuch as the public never had the least notion that the real coins and the counterfeits were ready for delivery almost at the same instant.

A new edition of this important work, extended to the commence- ment of the reign of George IV., and containing the first edition of Mr. Rudge, was issued in 1820, and is edited by J. Y. Akerman, Esq., sided by other numismatists; and, while the text of Rudge is preserved unaltered, it is enriched with many additional notes and tables, and upwards of forty new plates.

Mr. Rudge communicated many papers on coins, &c. to the 'Gentleman's Magazine,' and memoirs on the trial of the priests and the office of curate (which were, in fact, little more than chapters of his larger work, perhaps put forth in that form to excite interest on the subject) to the 17th and 18th volumes of the 'Archaeology of the Society of Antiquaries, of which he was a fellow. He was also an honorary member of the Antiquarian Society of Newcastle-upon-Tyne. He died at Maldon, on the 16th of February, 1830, in his 64th year.

RUDOLPH OF HABSBURG [Habsburg, House of.] [Kleine Kaiserzeit.]

RUDOLPHUS, Schumacher's name for the Monoceros of the Monocerotidae, vol. v., p. 426.

RUDOLSTADT [Schwartzburg.]

RUE'LLIA, a genus of plants of the natural family of Acanthaceae, which was so named by Linnaeus in compliment to J. Ruel, physician of Francis I, who wrote commentaries on the works of that famous philosopher. The genus, as formerly constituted, embraced a vast number of Indian species, which are now distributed among various other genera, as Adesmum, Hygrophila, Dyschoriste, Cleistanthus, Pelargidium, Calophrerne, Butusma, Strobi- lechum, Aconitum, Episcia, Asystasia, Leptotechis, and Asclepa. The genus is distributed through the tropical parts of Asia, including the tropical and subtropical parts of New Holland. It includes many highly ornamental plants, as are also those which have now been excluded from it; all are easily cultivated, and often to be seen in our hot-houses. Some of the species which have now been removed to other genera are to be considered as having been introduced from the sides of the Himalayan Mountains; of these the most remarkable is Aeschmanthera, formerly Ruellia gossypina, which has its stems covered with a thick coating of white tomentum, which probably enables it to withstand a greater degree of cold than the other species.

RUFUS, also called TORANUS, a priest of Aquileia, and, according to some writers, a native of that place, was born about the middle of the fourth century. He embraced a life of poverty, and died first in a monastery at Aquileia, where he devoted himself to the study of the Scriptures and the Greek and Latin fathers. During this time he became acquainted with St. Jerome, who for a long time most sincerely attached to him. Rufinus subsequently visited Egypt, where he formed the friendship of St. Melania, who was celebrated in the church for her works of charity and love. He afterwards went to Palestine, where he encountered the opposition of the Arians, who banished him to the most desolate part of the country. He was ransomed, however by his friend Jerome, and retired to Jerusalem, where he built a monastery on Mount Olivet, and lived for many years. During his stay at Jerusalem he translated some of Origen's works, by which he offended his host, Jerome, who attacked him in his writings. To this work Rufinus replied, in which he maintained his own orthodoxy and defended himself by appealing to the example of Jerome, who had formerly praised and also translated some of Origen's works. This controversy excited a great stir at the time, and was of high reputation and had many partisans. The Western church however was generally opposed to Rufinus, and on his return to Aquileia he was censured by Anastasius, the bishop of Rome, to appear before him; and on his not doing so, his writings were interdicted, and a reprimand was sent to Aquileia by the bishop of Rome. Rufinus retired to Sicily, where he died about the year 410.

Rufinus translated into Latin the works of Josephus; the 'Ecclesiastical History' of Eusebius, to which he added two books, and the 'Life of St. Andrew'; and compiled the books of the Recognitions attributed to Clement, several of Origen's works, with the first book of Pampphilus's 'Apology for Origen, the 'Orations' of St. Gregory Nazianzen, the ascetical rules of St. Basil, and a few other smaller treatises of the Greek fathers. The translations of Rufinus are rather paraphrases than strict and literal versions. Besides these translations, Rufinus wrote two books in reply to St. Jerome, which have been already mentioned; an 'Apology for Maximus'; an 'Explanation of the Blessing,' a 'Commentary upon Hosea, Joel, and Amos'; and an 'Explanation of the Apostle's Creed,' a work which is considered by modern theologians of considerable importance, as it contains a complete catalogue of the books of the Old and New Testaments.

The opinion of Du Pin upon the literary and theological merits of Rufinus is just and impartial: 'It must be acknowledged that Rufinus, though very ill used by St. Jerome, was one of the ablest men of his time. Perhaps he had not so much learning as St. Jerome, but his temper was better and less violent. He doth not write such good Latin, but his style is more even. It cannot be denied that the Latin church is indebted to him for the knowledge of the most considerable among the Greek, authors. Rufinus was a man of peculiar study, and the history church, though he was accused of divers errors, yet he was convicted of none, and he justified himself sufficiently from the reproachful objections made against him.'

The works of Rufinus were published by Sonnini, in one volume folio, Paris, 1850.


RUFUS, or RUPHUS (Pusces), commonly called Rufus Ephesus, from the place of his birth, is said by Abulafia (Hist. Dynast., p. 59) to have lived in the time of Plato, about four hundred years before Christ. Juvenal in his 1st Sat. tells the physician to Cynosura, who died c. 30 (Chil., vol. ii., p. 1). But Sprengel (Hist. de la Méd. et des plus modernes, p. 90) gives us no other information in his place in the 22nd edition.
the reign of Trajan, about the beginning of the second century after Christ. He is sometimes confounded with Menius Rufus, the inventor of several compound medicines, who however must have lived long before the reign of Trajan, as he is quoted by Andromachus (Galen, De Compom. Medicin. sec. 800, 8vo., cap. i., p. 219, and other, who wrote archaic to the emperor Nero. Nothing is known of the events of his life, except that he wrote several works, of which the titles are preserved by Galen and Suidas, and three are still extant.

The first consists of three or four books, entitled φιλοσοφια των ανθρωπων μοριων, 'De Appellationibus Partium Corporis Humani,' which are chiefly valuable for the information they impart concerning the state of anatomical science before the time of Galen. His principal object in this work was to give a general idea of anatomy, and particularly to prevent the medical students of his time from making mistakes in reading the antient authors, who do not always call the same parts of the body by the same name. From what Rufus says in this book (p. 35), we find that all the anatomical demonstrations were made upon beasts, (Compare Theophrastus, 'De Corp. Hum. Fabr.,' lib. v., cap. ii., who says, 'Choose an ape for dissection, if you have one; if not, take a bear; and if you have not a bear, take an ape, for you can get it.' He considered the spleen to be absolutely useless in the same book, that the nerves now called recurrent were then quite recently discovered. 'The antients,' said Rufus (p. 42), called the arteries of the neck ενεφρεα, or ενεφρες, because they call that place present, where they became sleepy and lost its voice; but in our age it has been discovered that this accident does not proceed from pressing upon these arteries, but upon the nerves contiguous to them.' He shows that the nerves proceeded from the brain, and he divided them into two classes, those of sensibility and those of motion (p. 36), though, like Celsius (De Medic., lib. vii., cap. 18, p. 413, ed. Argent.), he reckons (p. 41) (compare p. 43) among them the cremaster muscle. (Julius Pollux, himself a contemporary of Galen, gives also the names of the corresponding muscles which we have the bone-mast., lib. ii., cap. 5, p. 252.) According to Sprengel (Hist. de la Med.), he was the first to describe, though very imperfectly, the commissure of the optic nerves and the isthmus of the lamina cribrosa, and the fibres which receive from that part of the brain, (p. 54.) He gives also, the description of the crystalline lens by the term μελικαννυλετη, lenticular membrane. (p. 37.) He considered the heart to be the seat of life, and noticed that the heart is bigger and thicker than the right. (p. 37.) This work was first published in Greek, and then translated, by J. P. Crassus, with Aretæus, Venet, 1552, 4to.

The next work of his that remains is a valuable little treatise, τηρο των εν σφυροι ενεντων, 'De Renunat Vi et pedalium,' which he hereafter mentions, but there is nothing that requires particular notice here. The third is a fragment, τηρο των αγορασυφων, 'De Medicamentis Purgantibus.'

These three works were first published in Greek, by J. Couplet, Paris, 1554. There is an edition by Clinch, Greek and Latin, Lond., 1726, 4to., which is not of much value. The most complete is that by Matthi. Mosqu, 1560, 8vo., Græce, in which he has supplied, from a manuscript at Moscou, several fragments that had never before been published. A Latin version of this last work is inserted in 'Medicinae Principiis,' by H. Stephena, Paris, 1567, fol. Some Greek fragments are to be found in the fourth volume (pp. 199-200) of the collection of 'Classici Auctores & Vaticini Codicis Graecii,' published by Angelo Mai, Rome, 1851. C. G. Kuehne, in his 'Græc. Purgant. Fragm. & Cod. Paris. descrip.' and F. Osann wrote a dissertation, 'De Loco Ruii Ephe. Med. ap. Orbisbus serrato, sive de Peste Lib.,' Giss, 1833. There are a great many extracts preserved by Orbisius and Autius and among the rest the formula for a composition celebrated medicine called Hieria (Orbias, Symple. lib. iii. pp. 131, 132, 133), which appears to have been in use among the antients, for what may be called patent medicines, as Autius has inserted in his collection (Tetrab. i., serm. 3, cap. 114) the formula of one called Hieria. Of this, Autius, Archigenes,' Hieria Archigenica,' Haller is inclined to attribute to Rufus (Bib. Biblioth. Botan.

* There are in fact only three books, as the second is a sort of alter praxis, or later edition of the first. tom. i. p. 168) an anonymous fragment of one hundred and ninety Greek hexameter verses, τηρον Βοραπου, 'De Viribus Herbarum,' which was first published in the Aldine edition of Dioscorides, Venet., 1518, 4to., p. 231, &c., and which is inserted by Fabricius, with Greek scholia and a Latin translation. It is contained in the fourth book of the 'De Compom. Medicin. sec. Loca.' lib. i., cap. xi., tom. ii., pp. 629-661 (old edit.). Fabricius and others have also been of the same opinion. Hermann, on botanical grounds (Orphica, Lips., 1803, 8vo., pp. 717, 750, 761, &c.), determines the writer to have lived some time between Ma- nelitho, the author of the 'Deplantarum,' and Nonius, the author of the 'Dionysiacs:' but this date is sufficiently vague. Rufus certainly composed a poem in Greek hexameters, τηρον Βοραπου, in four books, which are mentioned by Galen (De Facult. Simplic. Medic. lib. vi., Praefat., tom. ii. p. 796, ed. Græco-Lat. ab Orbe. exib. 'De Compom. Medic. sec. Loca. lib. i., cap. x., tom. ii., p. 425); but this is supposed by Chouant (Handbuch der praktischen Medizin. 8vo., Leipzig, 1828) to have been quite a different work from the fragment now spoke of, chiefly on the ground that Memo, the physician as Rufus would not have written anything so full in popular superstitions and absurdities. The fragment treatises of thirteen different plants in as many chapters, in which, says Haller, 'Medicarum virium adeo farrago verarum et
gymnasium of Königsberg (Collegium Fridericianum, or Friederichs-Collège). Here he commenced his acquaintance with the classical writers of antiquity, and conceived that love for them which distinguished his whole life. He also made great progress in the fine arts, particularly in music and drawing. After finishing his studies at the gymnasium, it was the wish of his parents that he should become a student of theology; but this was contrary to his own inclination, and he obtained permission to go to Göttingen, where he entered in 1764, but this was only a temporary stay. M. Gesner. On his journey thither he passed through Wittenberg, and the kindness and hospitable reception which he experienced in the houses of two distinguished professors, Hamburger and Ritter, induced him to stay at Wittenberg, where he remained for many years, and applied most indefatigably to the study of ancient literature, history, and jurisprudence. On the occasion of taking his degree, he published his inaugural dissertation, "De Gallia Latina," in a university, and raised the greatest expectations of the young scholar, Ernesti, who happened to be at Wittenberg at the time, advised Ruhnken to go to Leyden, and finish his studies under the auspices of the great Hemsterhuis. This advice coincided with Ruhnken's own wishes, and he went out in 1767, and in his letters of introduction, he went to Leyden. To Hemsterhuis he had no introduction, but he nevertheless, immediately after his arrival, paid a visit to this renowned scholar, who received him with the utmost kindness. Ruhnken now became an intimate friend of Hemsterhuis, and was elected his private secretary, and was placed in his immediate service. Ruhnken had from his first acquaintance with him discovered the great abilities of his pupil, and was anxious to keep him at Leyden; but as there was at the time no prospect of a professorship becoming vacant in the university, he proposed to him the Eppische Post, with the title of "Vice duum Viro rum Tib. Hemsterhui si et D. Ruhnkeni," Besides his editing of the Lexicon of Timaeus, Ruhnken wrote, in 1754, a commentary on the title in the Digest and Code, "De Postulando, sive de Advocatis et Procuratoribus." He also edited the "Critica Sacra," with notes and emendations, Leyden, 1766, fol.; Rutilius Lupus, "De Figura Sententiarum et Elocutionis," Leyden, 1768 (a new edition of this work was published at Leipzig in 1851 by Frotscher); Vitruvius Patris, "De Architectura," 4 vols. Ley den, 1774 (a separate edition of Ruhnken's work was published at Hanover, in 1815, by C漉dius); Homer, Hymnus in Cererem, 'with a Latin translation and commentary, 1780 (a second edition appeared in 1782, in which the discourses and "Elogium Hemsterhui si" was reprinted in Touqué's edition of Longinus). Besides these editions of ancient authors by Ruhnken himself, he communicated to Ernesti his remarks on Callimachus (Leipzig, 1761), and on Xenophon's "Memorabilia" (Leipzig, 1773), and to Schweighauser those on Polibius and Appian. Besides his three original compositions already mentioned (viz. on "Galla Placidia Augusta," "De Graecia Art. et Doctr. Inventor," and the "Elogium Hemsterhui si"), Ruhnken wrote "Epistolae Criticas: prima in Homeriarum Hym nunum," etc., and "Apollonium Rhoëtium" (Leyden, 1751); "Oratio de Doctore Umbraham," 1765, 4to; "Dissertatio de Vita et Scriptis Longini," 1766, 4to. (reprinted in Touqué's edition of Longinus). The discourses and the "Elogium Hemsterhui si" were reprinted in 1769, in 2 vols. under the title "Ruhnkenii Opuscula Oratoria, Philologica, Critica, nunc primun conjunctim edita." A new edition, with some additional dissertations, was edited by Bergmann, in 2 vols., Ley den, 1823. Some of the most able scholars, with his learned friends have likewise been published. J. A. H. Tittmann has edited "Ruhnkenii, Valckenarii, et aliorum ad J. A. Ernesti Epistolae; accedit Ruhnkenii Observationes in Callimachum," 4to, Leipzig, 1814. Mahne has edited "Ruhnkenii et Valckenarii Epistolae mutuae; Viesingen, 1832, and "Ruhnkenii Epistolae ad Diversos," Viesingen, 1834.
RULE, RULE. In a mechanical sense these words are both used for a straight piece of wood, brass, or ivory, from which a straight line is drawn on paper by guiding a pen or pencil along the edge. These rules or rulers are convenient for the laying down of scales, on which point see Scale, Rule.

The word rule, in its more common sense, means a set of directions for the attainment of any required object, and various rules will be found in this work, scattered under one or more subjects. A rule is generally a concise statement of the steps by which an object is to be obtained; it does not speak of the rule of addition, or the rule of subtraction, but simply of addition or subtraction. In some isolated cases the word rule is most usually retained, as in the rule of three [Three, Rule of] and the rule of false position [False Position].

A rule differs from an algebraical formula only in the language employed; both the former and the latter indicate processes to the mind. The rule describes its data at length, and requires many more signs than the formula, which however is much more intelligible than the rule, as soon as its symbols are well understood. For example, when it is known that a, b, c are the units in the sides of a right-angled triangle, the formula for determining c is—

\[ c = \sqrt{a^2 + b^2} \]

the rule is—To find the hypotenuse of a right-angled triangle, multiply the number of units in each side by itself, add the products, and extract the square root of the sum: this square root is the number of units in the hypotenuse required. It is perhaps desirable to state that this particular rule might have been expressed more briefly, but the practice of abbreviating the language of rules is almost sure to destroy the sort of advantage which, in one point of view, the possess over a formula. A rule should embody a description of the case in which it is to be used; it should also point out the step at which it is gained, and everything necessary to describe the result. It should even specify the case in which the rule is to be used; or that in which it becomes necessary rather than a mere other; and should be so complete in itself, that any reader of that class whom the book is addressed might learn all it teaches (that is, everything but the demonstration) by reading only what comes between the word Rule and the full stop at the end of it. Thus, though we have described the preceding rule in words which some persons may think too many, we should say that they are not too many for the student who is somewhat of a mathematician, and too few for the beginner. For the latter we should state as follows:—To find the hypotenuse of a right-angled triangle, multiply the two sides by themselves, and extract the square root of the sum: this square root is the number of units in the hypotenuse as were used in the expression of the sides.

If however many rules are to be learned, it would in all probability be found more easy to learn the symbols of algebra, that is, to learn to read an algebraic expression, and to use formulae, than to recur frequently to rules.

RULE OF THREE. [Three, Rule of] RULE (in Law) is an order of one of the three superior courts of Common Law. Rules are either general or particular.

General rules are such orders relating to matters of practice as are laid down and promulgated by the court for the more efficient conduct of the business of the court. General rules are not limited to the consideration of what the court will do, or require to be done, in all matters falling within the terms of the rule, and they resemble in some respects the Roman edict. The power of issuing rules for regulating the practice of each court is conferred on the judges of the court. By a recent and very important act of parliament (3 & 4 Will. IV., c. 42), the judges were authorised five years from the date of its (1833) to make rules of a more comprehensive nature, and for the purpose of promoting the ease and facility of pleading in civil actions. These rules, after being laid before both houses of parliament within certain times mentioned in the act, were to have 'the like force and effect as if the provisions contained therein had been expressly enacted by parliament.' In exercise of this authority the judges have 'hastened,' as they have been described, 'to have promulgated, which have introduced very material changes in the mode of pleading. [PLEADING.] (Stephens on Reading; Chitty on Reading; Syston on the New Rules.)

Formerly each court of common law issued its own general rules, without much consideration as to what was the practice in other courts. Of late the object has been to assimilate the practice in all the courts of common law. Rules not general are such as are confined to the particular case in reference to which they have been granted. Of these, some, which are said to be 'of course,' are drawn up by the proper officers on the authority of the mere signature of counsel, without any formal application to the court; or if such applications are necessary, either for the allowance by the master, &c., without any signature by counsel; others require to be handed in as well as signed by counsel. Rules which are not of course, are granted on the application, or, as it is technically termed, 'the motion,' either of the party personally interested or of his counsel, the time of the motion is required to be particularised, the facts necessary to support it must be stated in an affidavit by competent witnesses. After the motion is heard, the court either grants or refuses the rule. A rule, when granted, may, according to the circumstances, be either 'to show cause,' or it may be 'absolute in the first instance.' The term 'rule to show cause,' also called 'a rule nisi,' means that unless the party against whom it has been obtained will satisfactorily explain the cause to the court, the conditional, will become absolute. After a rule nisi has been obtained, it is drawn up in form by the proper officer, and served by the party obtaining it upon the party against whom it has been obtained, and notice is given to him to appear and show cause why the rule should not be granted. The party obtaining the rule may do this either by showing that the facts already disclosed do not justify the granting of the application, or he may contradict those facts by further affidavits. The counsel who obtained the rule is then heard in reply. If the court is satisfied that the grant of the application, or in any other matter connected with it, or in respect of matters not pending before the court, as for a criminal information, a mandamus, &c.

A copy of a rule obtained from the proper officer is legal proof of the existence of such a rule. (Todd's Practice; Archbold's Practice.)

RULE in SHELLEY'S CASE. [REMAINDER.] RUM, a spirit distilled from the sugar-cane, that is, from cane-juice, or the scumming of the jucee from the boiling of the sugar-cane; given the name of 'dunder,' the lees of former distillations. (Edwards on West Indies, vol. ii., p. 279.) As the entire juice of the cane is not necessary for making rum, the distillation is carried on for the formation of such constituents as the nature of the juice requires, and the rum so produced is made from the uncrystallized syrup called molasses. [Molasses.] The proportion of molasses made in crystallizing a cwt. of sugar varies from 50 to 90 gallons, and depends both upon the climate and the season, being lowest in the Leeward Islands, which have a dry climate, and highest in Demerara and Trinidad, and it is in the latter that in fine sessions the proportion reaches 90 gallons per cwt. Nearly one gallon of proof rum may be made from one gallon of molasses. The value of the raw material for a gallon of rum has recently been as low as 1. 10d. in the West Indies; the cost of distillation averages about 6d. per gallon; and for an additional 6d. for freight and other charge the spirit may be brought into the English market. The rum is sold in the United States under the duty of 92 per gallon. This is 1s. 6d. higher than the tax on English spirits, the distillers of the latter claiming to be protected on account of the corn-laws raising the raw material above its natural price. On the other hand rum is produced by heavy duties on foreign spirits, and rum the produce of the West Indies has hitherto been protected against East India rum by a different rate, the duty on the latter being 15s. per gallon.

The rum consumed in the United Kingdom is the produce of the West Indies, and to a great extent of the island of Jamaica, which is of a superior quality. For many years the home demand has not taken off the whole supply, and the surplus, which consists chiefly of the Leeward islands rum, has been exported. The consumption of rum in this country is long declining, and the imports and exports have both fallen off. In 1839 the number of gallons of rum, which duty
was paid in England was 2,733,363; Scotland, 75,337; Ireland, 15,569: total, 3,019,866 gallons. In 1848 the quantity consumed was 2,910,668 gallons. In 1852 there were 3,551,966 gallons of rum in bond; 3,585,886 gallons in 1836; 3,737,227 gallons in 1838; and 3,007,563 in 1839, of which rather more than one-half was bonded in London, and the remainder in the outside ports. The proportion of rum consumed is now less than one-tenth of the total consumption of spirits in the United Kingdom, but in 1820 the proportion was about one-fifth. British spirits are said to be extensively sold for rum, the flavour being imitated by the rectifier.

At the present time, Wm. J. Bill, introduced by the Government, has passed through the Commons, the object of which is to equalize the duty on East and West India rum by reducing the former. Rum made from the date or palm-tree, as well as from the sugar-cane, will be included in this measure, but not if made from any other material. The equilization of the duties on East and West India sugar, by 6 Wm. IV. c. 26, rendered it expedient to give a practical equality to all the products of the sugar-cane, without which the cultivation of sugar-plantations in India could not have been so profitably extended, as the molasses would have been comparatively wasted. The Government measure equalizes the import duty on rum in the colonies as well as in the United Kingdom. Great improvement in East India rum has been, as stated before, attributed to corolla, or high-quality Barbados.

In December, 1836, the Lords of the Admiralty rescinded an order which confined the navy contracts to West India rum. The imports of East India rum in 1837 amounted to 97,761 gallons; in 1838, to 45,213 gallons; in 1839, to 117,280 gallons; and in 1848, to 197,851 gallons.

1. Average quantities of rum annually imported from the West Indies, and Demerara and Berbice, from 1821 to 1838 inclusive, for periods of six years each:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Imported</th>
<th>Watered</th>
<th>Demerara and Berbice</th>
<th>Barbados</th>
<th>British America</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1821-1825</td>
<td>65,559</td>
<td>22,454</td>
<td>23,570</td>
<td>20,394</td>
<td>54,744</td>
<td>22,454</td>
</tr>
<tr>
<td>1826-1830</td>
<td>69,723</td>
<td>24,008</td>
<td>27,570</td>
<td>20,394</td>
<td>54,744</td>
<td>24,008</td>
</tr>
<tr>
<td>1831-1835</td>
<td>70,300</td>
<td>24,372</td>
<td>27,570</td>
<td>20,394</td>
<td>54,744</td>
<td>24,372</td>
</tr>
<tr>
<td>1836-1840</td>
<td>72,000</td>
<td>25,000</td>
<td>27,570</td>
<td>20,394</td>
<td>54,744</td>
<td>25,000</td>
</tr>
</tbody>
</table>

Total 306,600

2. Average quantities of rum annually imported into the United Kingdom, re-exported, consumed, and used as ships' stores and provisions, in the two years, from 1827 to 1839 inclusive:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Imported</th>
<th>Exports</th>
<th>Consumed</th>
<th>Ships' Stores</th>
<th>Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1837-38</td>
<td>1,152,000</td>
<td>90,000</td>
<td>27,570</td>
<td>20,394</td>
<td>54,744</td>
</tr>
<tr>
<td>1839-40</td>
<td>1,152,000</td>
<td>90,000</td>
<td>27,570</td>
<td>20,394</td>
<td>54,744</td>
</tr>
</tbody>
</table>

Total 2,304,000

3. Quantities of rum imported into the United Kingdom, distinguishing the imports from the British West Indies, also the quantities consumed and re-exported, in each year from 1823 to 1839:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Imported</th>
<th>Consumed</th>
<th>Re-exported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1833</td>
<td>5,146,677</td>
<td>5,109,975</td>
<td>3,492,133</td>
</tr>
<tr>
<td>1834</td>
<td>5,368,289</td>
<td>4,112,399</td>
<td>3,345,177</td>
</tr>
<tr>
<td>1835</td>
<td>4,986,888</td>
<td>4,185,766</td>
<td>3,216,784</td>
</tr>
<tr>
<td>1836</td>
<td>4,993,949</td>
<td>4,968,166</td>
<td>3,241,749</td>
</tr>
<tr>
<td>1837</td>
<td>4,613,093</td>
<td>4,418,350</td>
<td>3,184,255</td>
</tr>
<tr>
<td>1838</td>
<td>4,912,227</td>
<td>4,461,212</td>
<td>3,135,651</td>
</tr>
<tr>
<td>1839</td>
<td>5,477,689</td>
<td>4,921,821</td>
<td>3,263,263</td>
</tr>
</tbody>
</table>

In addition to the above, the quantity of rum delivered for the use of the navy and for ship's stores averaged 743,395 gallons annually, all of which (with the exception of 3978 gallons in 1836, and 6,936 gallons in 1839, from the East India Company) was taken into the navy contracts was the produce of the West Indies.

The duty on rum averaged 1,593,685l. for the years 1831-2-3; for the years 1834-5-6 it amounted to 1,399,925l.; and for 1837-8 it was 1,372,540l. In 1840 the gross receipt was 1,154,544l.

The exports of rum are chiefly to Germany, Prussia, Holland, Italy, and the Australian colonies. RUM. Island. (Arkylshires).

RUMEX, the generic name of a group of plants, from rumex, a sort of spike, spear, or halberd, which the shape of its leaves resembles. It belongs to the natural order Polygonacae. Most of the species of this genus are well known as troublesome weeds to the agriculturist, under the name of docks and sorrels. Some of them have been used in medicine, but their incomplete flowers and inellegant appearance have caused their almost entire neglect in the garden. The essential characters of the genus are: Calyx with six sepals, the outer three slightly coherent, the inner ones enlarged after flowering; stamina six; styles three, reflexed; stigmata three and cleft; fruit a three-nerved nut, with a lateral embryo and superior radicle. In the descriptions of this genus botanists, the three inner sepals are often described as petals more or less corolla-like, but it is known of the general structure of the order Polygonacae to refer it to the apetalous or incomplete subclass of Exogones, and thus to consider the flower of Rumex as destitute of corolla. Rumex is nearly allied to Rheum, but may be distinguished from it by its having more sepals, not having wings, and by the embryo of the seed being lateral, not central as in Rheum. The wings that are observed upon some of the species of Rumex are produced by the calyx.

The species of Rumex that have been chiefly used in medicine are the R. acetosa and Hydrolycation. R. acetosus, common Sorrel, is known by its granular valves, dienceous flowers, oblong awl-shaped leaves, with converging (often notched) base. It is indigenous in Europe and Asia, and it is also common in meadows and grassy pastures throughout Europe, from Lapland to Greece. It flowers early in June. R. hydrolycation, Great Water-Dock, is distinguished from other species, and the foregoing, by the following character. Sepals petiolate, entire, the nearly heart-shaped; lanceolate leaves acute at each end; almost leafless wiry. It is found growing in marsh-land ditches, stagnant waters, and the margins of great rivers throughout Europe, as well as in North America from Virginia to Georgia, and in Virginia. It is by far the largest and most conspicuous of our indigenous docks; flowering from July to August. This seems to have been the plant known under the name of Herba Brinhamica to Pliny (xv., c. 5), Galen, and others, and which was employed, on account of its containing this plant, in several great diseases in which those remedies are indicated (Martinius, De vera Antiquorum Herba Brinhamica, A.Mst., 1681.) Rufmond, Benjamin, Count, was born at Woburn, New England, in 1792. His family name was Thompson. By his marriage he was raised above the necessity of acting as a teacher, in which capacity he had employed himself, and when the Revolution commenced he was a major of militia, and for his services to the king's cause obtained an appointment in the Foreign Office. During the contest he returned to New York, and raised a regiment of dragoons, of which he was appointed colonel. In 1784 he returned to England, was knighted, and is said for some time to have acted as one of the under-secretaries of state. It was subsequently, while in the service of Bavaria, that he prosecuted his most useful labours; amongst which were plans for the suppression of mendicity and for relieving poverty and elevating the poor, besides various civil and military reforms, for which several orders of knighthood were conferred upon him, and he was made a lieutenant-general and created a count. Towards the close of the century he once more came to England, and devoted his time to experiments on the nature and economical application of that genus of drugs by the name of the National Institution. In 1809 he went to reside at Paris, and married the widow of Lavosier, the chemist, but soon afterwards separated from her. He then retired to Auteuil, a village near Paris, and having a handsome pension from the king of Bavaria, devoted his time to rural pursuits and to chemistry and natural philosophy. He died in August, 1814.
The plans of Count Rumford for improving the arts and conveniences of domestic life have rendered his name well known in England. An account of these will be found in his 'Essays, Political, Economical, and Philosophical.' Several of these essays were published separately, and effected much good at a time when theamelioration of the condition of the poor was attracting great attention. His views are enlightened as well as benevolent, and on the whole he appears to have been in advance of his time. Two volumes of these essays were published, one in 1798, and a third in 1802. In the latter year also was published a volume of 'Papers on Natural Philosophy and Mechanics.' Some of these had been read before the Royal Society, in whose 'Transactions' they are also preserved.

RUM-ILL, a large division of European Turkey, which comprehends the central part of it, namely, the countries of Albania, Macedonia, Thessaly, and part of Epirus. It is bounded on the north by the eyalies of Slustria and of Bosnia; on the east partly by the province of Gallipoli, which belongs to the eyalies of Jazeray, and partly by the Aeguran Sea; on the south by the kingdom of Greece, and on the west by the Adriatic. Rum-ill is an eyal, or a province, under a pasha, who, above all other pashas of Europe, and who has under him the following livas or pashaliks:—1, Monastir, which is in general the residence of the beglerbeg himself; this province includes the western and southern parts of Macedonia [Thessalonica]; 3, Giustendil, which embraces the northern part of Macedonia, as far as the sources of the Strumon. It has some rich copper-mines and some copper-works. 4, Uskub, which corresponds to the ancient Paeonia. The borders of this pashalik extend as far as the borders of Epirus, and include the former Roman province of Macedonia Superior. 7, Scutari, or Skodra, in North Albania. 8, Ochrida, south-east of Scutari. 9, Avlona, in Central Albania. 10, Yanina, or Ioannina. 11, Delvinë, along the southern coast of Albania, opposite Corfu. 12, Trikali, which embraces the whole of ancient Thessaly.

A general description of the whole region is given under TURKEY. For particular accounts of its great divisions, see ALBANIA, MACEDONIA, and THESSALY.

The first of these characters, the observer of the great French zoologist, is the possession of inci- or teeth in the lower jaw only, and these are nearly always in number. They are replaced above by a carious ram (buret). Between the incisors and the molars is a wide space, where are found, in one or two genera only, or one or two canines. The molars, nearly always six in number on each side of the upper and lower jaws, are large, crowded together, and marked by transverse constrictions, the convexity of which is turned inwards in the upper and outwards in the lower teeth. The four feet are terminated by two toes and two hoofs, which oppose to each other a flattened surface, so that they have no apparent connection with the great toe. The toes are altogether a single hoof, and the concave side is the root of the hoof, which they return into the mouth after a previous deglutition, a power which is the result of the structure of their stomach, four of which they always have. Of these stomachs the three first are so disposed that the aliment can enter at the will of the animal into any one of the three, because the omasus terminates at the point of communication. The first stomach or paunch (rumin, poulus, magnum venter, ingluvies—la pois de the French) is much the largest in the adult animal, but not so in the recently born calf or lamb. It is divided outwardly into two bag-like appendages at its extremity, and is slightly separated into parts by a thin pult, with a sliding valve. It is at first provided with an chorion, or a rudimentary hard parietal papilla. Here are received the masses of herbage rudely broken up by the first mastication, and here it is (though they sometimes, but seldom, occur in the second) that the meadow concretions of a globular or elongated, but rounded, figure are generally found. These concretions are composed of three sorts of substances—of hairs, of the fibrous parts of plants, or of stony matter. The first of these are formed, particularly as the cow, by the animal's own hair, or that of another one. The ox licked off and gradually accumulated in the stomach. Sometimes these are hairy externally, but generally they are covered with a dark polished coat. The lamellae found in the Chamosa consist of vegetable macerated flures. The stony concretions have received the name of calcines.

The herbage in the state above noticed is transmitted into the second stomach, honey-comb bag, bonnet, or uve, as it is called by the French. The whole surface of which is furnished with laminae somewhat resembling the cells of bees: this, which is small and globular, may be considered as an appendage of the first stomach or paunch, but is distinguished from that by the elegantly arranged polyhedral surfaces which form the internal coat of its internal coat. Here the herbage is arrested, imbibed, and compressed into small masses or balls, which are then returned successively into the mouth for remastication. During this operation, the animals remain in a state of repose.

'Some remasticating' how.

Until all the herbage swallowed has undergone the action of the teeth a second time, the aliment thus remasticated is transmitted into the third stomach. The latter is the magnum venter manus plus (manyplies)—echinum, conelore, conoplium, oesolium, paullus—feuillets of the French). This stomach is distinguished from the second, both by its form, which has been fancied to resemble a hedgehog rolled up (whence the name echinum), and its internal structure, the longitudinal laminae of its walls resembling in some degree the leaves of a book (whence the name feuillet). These numerous and broad duplicatures of its internal coat be long to the animal. The stomach or paunch, of an elongated pyriform shape, and with an internal villous coat similar to that of the human stomach, with long longitudinal wrinkles. This last is so divided, the true organ of digestion, analogous to the simple stomach of ordinary animals.

We will now proceed to inquire how this complicated machine is connected together, and how it acts.

Blumenbach observes that the third stomachs are connected by a kind of arch; and this groove-like continuation of the oesophagus, in a very remarkable manner, enters the latter tube enters just where the paunch and the second and third stomachs approach each other; it is then continued with the groove, which ends in the third stomach. The groove is the place where the stomach has been split; whence these quadrupeds obtain the name of animals with divided or bifurcate hoofs, &c.

Behind the hoof there are sometimes two small processes or knobs, which are the horns. The two outer bones of the metacarpus and the metatarsus are united into a single one, the cannon bone, but in some species there are also vestiges of the lateral metatarsians and metacarpians. The name Ruminantia indicates the singular faculty possessed by these animals of masticating their food, which they return into the mouth after a previous deglutition, a power which is the result of the structure of their stomachs, four of which they always have. Of these
swallowed, when the grooves are shut, and the morsel of food, after this second mastication, is thereby conducted directly into the third stomach. During this time which it probably stays in this situation between the folds of the intestinal coat, it is still further prepared for digestion, which process is completed in the fourth or true digestive stomach. (Lawrence's Blumenbach.) In notes to the same work it is stated that the shutting of the grooves when the food is again swallowed after rumination supposes a power of voluntary movement. In fact, this part, and indeed, the whole or the will in the whole affair of rumination is inconsiderable. It is not confined to any particular time, since the animal can delay it according to circumstances when the paunch is quite full. It has been expressly stated of some men, which is the same with the ox, that this has also been observed of others; and one of them had the power of doing it or leaving it alone according to circumstances.

Whilst the Ruminants remain at the teat and live upon nothing but milk, the fourth stomach is the largest of all. The rumen is filled to overflowing at this stage, and an enormous volume in proportion, it receives supplies of herbage.

The intestinal canal of these animals is very long, but little enlarged or accreted in the great intestines. The description of the entire organ is given in a former section. It divides into two cavities, the right and left, the latter of which is smaller. In the museum of the Royal College of Surgeons the following preparations in the physiological series will be found highly illustrative of the function of the machinery above noticed.—No. 552 consists of the stomach and small intestines; the preparation of this portion of the cavity is well preserved. The greater portions of the four cavities of the stomach of a calf. The description of these two preparations will be found in the article Ox [vol. xvii., p. 75]. No. 557 is the stomach of a goat (Capra Hircus, Linnaeus), the contents of which have been removed. No. 558 is a small portion of the rumen of a sheep (Ovis Aries, Linnaeus), the villi are flattened and dilated towards the extremity. No. 559 and 560 consist of the entire reticulum of a calf (Bos taurus, Linnaeus). No. 561 is a small portion of the rumen of a reindeer (Cervus Tornendus, Linnaeus), showing the form of the villi, which are longitudinally plicated. No. 562 is a small portion of the rumen of a sheep. A part of the cuticle with which this cavity is lined is turned down; and the stomach has been injected, to show the vascularization of the subjacent mucous membrane. No. 563 shows a portion of the rumen and reticulum, un.injected, of a sheep, with part of the cuticular lining reflected. No. 564 shows a portion of the reticulum, but only a part of the cuticular lining partially removed. The cells remarkably shallow. No. 565 is a portion of the reticulum of a goat, with the cuticular lining partially reflected. The cells partially divided into smaller cells. The descriptions of Nos. 565, 566, and 567 are illustrated in the illustrations of the different laminae. No. 566 is a portion of the reticulum and pasterium, injected, of a lamb. The latter cavity has been divided transversely, showing the longitudinal disposition of the laminae, and how nearly they occupy the whole cavity. The different sizes and relative proportions are also well shown by this section. Bristles are inserted in the interstices of the different laminae. No. 566 is the remainder of the pasterium and the abomasum of the same stomach. The chief characteristic of the fourth cavity, viz. its vascular villous lining membrane, is well shown in this preparation. This tissue is thrown into large oblique ruge, at what may be termed the cardiac end. The pylorus is protected by a valvular protuberance. In its shape and function this cavity resembles the stomach of carnivorous quadrupeds. No. 566 A is the stomach of a wapiti fawn (Cervus Canadensis, Bras.) six days old. At this period, consisting of milk only, is conveyed directly to the fourth stomach to be digested; as it requires no preparation in the preceding cavities, they are accordingly collapsed, and of comparatively very small size. The descriptions of Nos. 567, 568, and 569, in the article Camil [vol. vi., p. 189]. No. 569 A is a portion of the pasterium and abomasum of a llama, showing the same structure as exists in the camel, but in a somewhat larger scale. The preparation with No. 568 B shows that the laminae characterizing the pasterium are not developed in the flat stomach of the llama. In the ox, the laminae of the pasterium preserve the protuberance in the fasting as in the adult state (No. 555). No. 569 B exhibits a portion of the abomasum and the commencement of the duodenum of a llama. This preparation was made for the purpose of showing the form, position, and structure of the valvular protuberance. It has a longitudinal section, with a gitudinal incision, and seems principally composed of an accumulation of the sub-mucous cellular texture, the cells of which are large, and, being filled with fluid, must render the part elastic. No glandular follicles are perceptible, nor any conspicuous orifices, except the pyloric orifice and the protuberance; yet it has been called glandular. (Home's Comparative Anatomy, i., p. 173.) Duboisen however terms it simply 'bourseuf,' without hinting at its use. Its office seems to be merely mechanical: if pressed on by some means of undetermined form, it will act as a valve between the stomach and intestines, and prevent the passage of such matter into the duodenum; while substances sufficiently comminuted and digested would pass beneath the protuberance, through the semilunar valve, into the duodenal duct. The mesenteric artery forms in consequence only a single series of arches. No. 735 is a portion of the small intestines of a wapiti fawn injected, dried, and put into oil of turpentine. It shows the limited extent of the interstices of the intestines arising from the pasterium, the mesentery, and the mesenteric artery forming in consequence only a single series of arches. No. 735 is a portion of the intestinal canal of a small deer (Moschus), showing similar concentric folds of the colon. This disposition occurs in the Ruminants (Conn., vol. i.).

Pallas describes and figures, in his 'Spicilegia Zoologica,' the third stomach, with its manyplex, of Moschus moschiferus.

The fat of the Ruminants, when cold, after death, becomes larger than that of other animals, and even brittle; it is called tallow and suet (surt of the French). The mamma of this order are situated between the thighs. The general osseous structure may be seen in the articles BISON, DEER, MOSCHIDAE, and Ox. There is a set of recent skeletons of Ruminants in the museum of the College of Surgeons; and among the skulls of oxen, a remarkable pug-nosed variety which is now wild on the pampas of Buenos Ayres.

The forst of the Ruminants is developed by the aid of a placentas, divided into numerous detached lobes or cotyledons, the various forms of which are shown in the preparations, numbered from 3481 to 3528 inclusive, in the physiological series of the Hunterian Collection. The camel tribe however here again deviate from the true Ruminants, having no placentas, and a general villous condition of the chorion, as in the mare.

The genera placed by Linnaeus under his order Prora will be found under that head.

Cuvier makes the Ruminants consist of two divisions:

1st. Those without horns, those with horns.

The 1st division embraces the camels (Camelus, Linnaeus), or the Camels properly so called, and the llamas; and the Chevrotains (Moschus, Linnaeus). 2nd. All the rest of the Ruminants of at least the same prominence, more or less long, projecting from the frontal bones, which is not found in any other family of mammals.

In some these prominences are covered with a case of elastic substance, composed, as it were, of agglutinated hairs, which grows in layers, and during the whole life of the animal. The name horno (cornes) is particularly applied to the substance of this case, which is termed a horno cornes.
The bony prominence or core which this case envelope, grows, like it, during the whole life of the animal, and is never shed. Such are the horns of oxen, sheep, goats, and antelopes. (See the several articles.)

In others the prominences are invested only with a hairy skin, which is continued from that of the head, and is never destroyed during life. These prominences are never shed. Such is the modification of horn possessed by the Giraffe, the sole genus of this subdivision.

Finally, in the great genus Ceratotherium, Linn. [Deer], the prominences covered during a certain period with a hairy or velvety skin resembling that of the head. He makes, have at their base a root of bony tubercles, which, as it increases, compresses and obliterates the nutrient vessels of that skin, which, when the horn is complete, dries and is removed. The naked bony prominence separates in due time from the skull, to which it grew, falls, and the animal becomes defenceless. But new horns soon begin to bud, ordinarily, and while the animal is in the vigour of life, larger than the preceding ones, and destined to fall in their turn. These horns, purely osseous and subjected to periodical changes, are termed by the French bois, and are known in England by the name of antlers.

Mr. G. R. Gray makes his fifth order consist of the Ungulata of Ray (Bruta, Pecora, and Bovidae, Linn.). Of this order, his first family, Bovidae, comprises the whole of the ruminating animals since the appearance of his work,* which should be carefully studied by every zoologist, is so followed closely by Mr. Swainson, that the arrangement of the latter is in fact, with slight change of position, the arrangement of the former. Mr. Swainson indeed places the Camels as the ruminating form among the Solipeds; but still they stand between the Camelopards and the Horses. He makes the Bovidae, or Oxen, the typical family; but adopts the names given by the Colonel to that and the other families, with the exception of the Antilocopidae, which are equal to the Capridae of Smith; Mr. Swainson making the Antelopes the typical form.

Mr. Swainson's fourth order, Ungulata, is divided into the following five tribes: Pachydermes, AnoITHERES, Edentata, and Solipeds.

The Ruminants are thus arranged:-

1. Solipeds. - Horns sheathing; form gracile, slender.

Fam. Antilocopidae. (Sw. - Capridae, Smith.)

Gen. - Dicranocerus, Sm.; Aegocerus, Sm.; Oryx, Sm.; Gazella; Sm.; Embia, Sm.; Redunca, Sm.; Tragulus, Sm.; Raphicerus, Sm.; Tetraconus, Leach; Calophasus, Neotragus, Sm.; Tragelaphus, Sm.; Neomocerus, Sm.; Rupicapra, Ant, Sm.; Aplocerus, Sm.; Capra, Auct.; Ovis, Auct.; Dama, Sm.; Acromos, Sm.; Rusa, Sm.; and Bochatot, Sm.

2. Typical. - Horns sheathing; form heavy, robust.

Fam. Bovidae, Sm.

[Oxf. vol. xvii., p. 89.]

<table>
<thead>
<tr>
<th>Subgenera.</th>
<th>Genus.</th>
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<tr>
<td>1. Alice, Sm. (Subgen. Rangifer, Sm.; Dama, Sm.)</td>
<td>Cerus, Lin.</td>
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<tr>
<td>2. Cerus, Lin. (Subgen. Rusa, Sm.; Azis, Sm.)</td>
<td>Cerus, Lin.</td>
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<tr>
<td>3. Capreolus, Sm. (Subgen. Mazama, Sm.)</td>
<td>Caballus, Sm.</td>
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<tr>
<td>4. Sabo, Sm.</td>
<td>Stilicus, Sm.</td>
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<tr>
<td>5. Stilicus, Sm.</td>
<td>Horns wanting; forelegs shorter than the hinder. Moschus, Lin.</td>
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* See Goldie's "Cuvier,"

The tribe Solipeds, which immediately follows the Camelopards, consists of the genera Camelus, Anelaphus, and Equus. Thus the Camels and Llamas, with which Colocci, Linnaeus, and the following Cuivier, commences the Ruminants, is placed by Mr. Swainson at the conclusion. With the exception of these and a few other modifications, the two arrangements are similar.

Mr. Ogilby, in his interesting paper, written with a view of pointing out the tribes to which the most important should be attached in establishing generic distinctions among the Ruminantia, read before the Zoological Society, in December, 1836, commenced by observing that it has been shown, not only that the theory of all the existing genera characters of the Ruminantia were to be founded on the modifications of dentition, in accordance with the rule as generally applicable to other groups of Mammals, the greater part of the order would necessarily be comprised in a single genus; since the number, form, and arrangement of the teeth being the same in all, except the Camels and Llamas, these organs consequently afford no grounds of definite or general distinctions. Hence, Mr. Ogilby observes, naturalists have resorted to other principles in regulating the distribution of existing animals, and the form, curvature, and the direction of the horns, selected to this purpose at a period when an extremely limited knowledge of species permitted the practical application of such arbitrary and artificial characters without any very glaring violation of the natural affinities of the species. He adopts the system of zoology of this department of mammalogy. But still, he remarks, forms a solitary but honorable exception; for he has introduced the consideration of the size of the horns for forming the genera Antilocapra, Capra, and Bos: his labours however are disregarded by subsequent writers, or his principles are applied to the genus Antilocapra. "It is obvious," continued Mr. Ogilby, "that as the knowledge of new forms and genera is on the increase, the species cannot be more comprehensively divided. But it is a little regrettable that a rule above mentioned, founded as it is upon purely arbitrary characters which have no necessary relation to the habits and economy, or even to the general external form of the animals themselves, should eventually involve a confusion in the classification, and insecurities which have been founded upon its application; and such has long been an acknowledged effect. The genus Antilocapra in particular has become a kind of zoological refuge for the destinatia, and forms an incongruous assemblage of all the hollow-horned Ruminantia, without distinctness in the character, which the mere shape of the horns excluded from the genera Bos, Ovis, and Capra; it has thus come to contain nearly as many species as all the rest of the hollow-horned Ruminantia; and of the divisions into genera, so far as the incongruous nature of its materials, that it reports not a single character which will either apply to all its species or little to differentiate it from congeneric genera.

To meet this obvious evil, MM. Lichtenstein, De Blainville, De Quatrefages, and S. H. Miller, have applied Liger's principles to subdivide the artificial genus Antilocapra into something more nearly approaching to natural groups; the reform thus effected however was but partial in its effect; the root of the evil still remained untouched, for some of these eminent zoologists appear to have been sufficiently aware of the extremely arbitrary and artificial character of the principal group itself, which they contented themselves with breaking up into subgenera, one of the actual importance and extensive application of the characters which they employed for the formation of those characters moreover with others of a secondary and less important nature, the benefit which might have been expected from their labours has been in a great measure marred, even the subdivisions which have been made into the so-called genus Antilocapra are less definite and comprehensive than they might otherwise have been.

The truth is however that the presence or absence of horns in either or both sexes, the substantia and nature of these organs, whether solid or concave, permanent or deciduous; the form of the upper lip, whether thin and attenuated, as in the Oxt, or terminating in a broad, heavy, matted muzzle, as in the Ox; and the existence of teeth, and interdigital portions which really influence the habits and economy of ruminating animals, and upon which, consequently, their generic distinctions mainly depend. These, with the assistance, in a very few instances, of such necessary characters as the su
periorbital and maxillary glands, the number of teeth, and the existence of inguinal pores, are sufficient in all cases to define and characterize the genera with the strictest reference to logical precision and zoological simplicity.

Waving the discussion of the value of these characters, or a statement of the reasons which induced him to adopt them in preference to those more generally employed in this department of mammalogy, Mr. Ogilby contents himself with the mere statement that the genera Abscessus, Alces, Bos, Cervus, Capreolus, and Procyon belong to the nude or hornless, the females regulated, in a great measure, the social intercourse of the sexes; that upon the form of the lips and muzzle, the only organs of touch and prehension among the Ruminants, depend the nature of the food and habitat, making the smallest difference in the size of the animal, of which has to do, the existence or non-existence of interdigital glands, the use of which appears to be to lubricate the hoofs, a very extending influence upon the geographical distribution of the species, confining them to the rich savannah and the moist forest, or enabling them to roam over the arid mountain, the parched karoo, and the burning desert.


There is no order of animals that ministers so freely to the wants and comforts of man as the Ruminants. They form the staple food of the cloth and clothing of civilised and generally of savage life. Their milk, their flesh, their wool, their hair, and their horns, and the proportions of these quadrupeds are made available; and many of them are of high utility as beasts of burden.

**Fossil Ruminants.**

Ruminants, Oxen of Decr especially occur, in a fossil state in the tertiary series of South America and most abundantly in the third and fourth divisions of the fresh-water deposits (Pliocene period of Lyell). Bones of the Ox have indeed been found in the second or Mioocene system of deposits, as at Georgestroom in Batavia; but in the Pliocene period the Ruminant remains are to be numerous traced, with extinct species of existing genera of Pachydermata, viz. Elephant, Rhinoceros, Hippopotamus, and Horse, together with the extinct genus Mastodon. The bone-caverns and the cemeteries of these animals in South America, and most abundantly in the southern part of that continent, are the result of a period subsequent to the highest chain of the South American coast, were in the age of our fossil remains extended over its plains.

The discovery of an animal form, now usually considered as peculiar to the Old World, among the purely American forms, such as the extinct fauna of this quarter has hitherto produced, being a fact of great importance, I thought it right to allude to this novel information, which is perhaps too long for the present. I reserve for future an opinion of the importance of the discovery until further inquiries shall have enabled M. Gay to verify or disprove this report.

But not only the number of genera, but also the total amount of species was greater in those days than now. There are now five species (all as before mentioned, belonging to the genus Cervus) that inhabit this district, while I already reckon seven species of the four fossil genera. The great number of species which the genus Cervus now contains within this part of the world does not incline us to doubt the hitherto very far from being complete. The circumstance of these animals living solitary, or at most in small herds, together with their rapidity of flight, secures them from the attacks of predatory beasts, much more than animals that either live in large herds, like the cloven-footed generally, or which are bad runners, like the Tardigrada, and this accounts for our finding their remains so seldom in the caves of wild beasts, in comparison with those of the other classes. Therefore, as the main reason for this difference, the manner of life of the four genera of which it was composed in that former period, only one still continues to exist in this same district, two must be sought for in the higher chain of the antiquity (or perhaps the inhabited part of the Old World), and finally, one has entirely disappeared from the surface of the earth. (Transatl. Magazine of Nat. Hist., New Series, 1840.)

**Ruminination.**

**Ruminants:** Stomach.  
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RUMP, a genus named by Linnæus in honour of George Eberhard Rumph, who was born at Hanau, and went as physician to Amboyna, where he subsequently became chief magistrate and president of the mercantile association, and died there in 1706. He paid great attention to the vegetable productions, especially to those of the Spice Islands. Many of these are figured in his "Herbarium Amboinense," in 696 plates, each with often two plants, published by Burman, in six volumes, from 1741 to 1751, with a supplement, published in 1757. The plants, which seem to be published after him is only known from a figure of Rhoea, published in his "Hortus Malabaricus," vol. iv., t. 11, who describes it as being found in Pararato and other provinces of Malabar. It has not been seen by any modern botanist. It was described in the notations of Terebratula, in 1760, and to the suborder Burserae. It has a tubular triquet calyx, three oblong petals of the corol; stamens three, equal to the petals, and exserted. The ovary is single, three-cornered. Style one. Drupes conic, brown, three-seeded, with the nut three-celled, three-seeded. But Messrs. Wight and Arnott remark, that as each apparent stamen may be composed of several filaments, this doubtful genus would be brought near Byttnericeae. "

RUNG, (Cheshire.)

RUNIC LETTERS is the name given to an ancient alphabet peculiar to the Teutonic nations, especially the Scandinavians and Germans. The time when this alphabet was developed is not only of great importance as regards the study of languages, but it is further of some noteworthiness in the statement of Tacitus (Germ., c. 19; 'literarum secreta viri pariter ac femine ignotae'), who have advanced the opinion that the Runic characters were used by the nations belonging to the confederation of the Christian era, others suppose that they were an invention of a much later age. The alphabet consisted only of sixteen letters, most of which bear a great similarity to the Greek and Roman characters. This similarity seems to support the opinion of Fr. Schlegel (Lectures on Ancient and Modern Literature) and others, that the alphabet was originally introduced among the inhabitants of the coasts of the Baltic by Phoenician merchants, and that, with some modifications, it was kept a secret by their priests, and applied to various magical purposes, so that Tacitus was only right in saying that writing was unknown to the Germans.

The earliest Runic characters are found cut on stones, which were either sepulchral monuments or land marks. Such stones are found in Norway, Sweden, Denmark, Northern Germany, and in some parts of France and Spain, in short in almost all countries where nations of the Teutonic race took up their abodes during the fourth and fifth centuries. All Runic letters have been divided into three great classes: 1. the Northern or Scandinavian; 2. the German (in the limited sense of the word); and 3. the Anglo-Saxon Runes. Grimm is of opinion that the German Runic characters are only a late modification of the Scandinavian Runes, as the Anglo-Saxon are of the German. In Scandinavia however the Runes seem to have been in use longer than in any other country and we find that they were written down to the middle of the fifteenth century, although the common alphabet was known there long before that time. Several Scandinavian MSS. are written in Runic letters, but none of them appear to be older than the thirteenth century, and the most recent were written before the year 1500. A number of stones have been discovered in Sweden and Denmark, very great. The characters consist almost invariably of straight lines, in the shape of little sticks either singly or put together. Such sticks were in early times used by the Germans for the purpose of secret messages. The sticks were shaken up, and from the figures that they formed a kind of divination was derived. Hence the mysterious character of the Runes (Rūna itself signifies secret or riddle; kasten means house, that is, the house of what is to be read). The word Rūna is derived from some of the verb rūna, to hit or scratch; by others from rūna, to whisper.
More questions might be asked; but now, I confess, to little purpose: my conclusion is to desire you to seek your subjection which to determine of my conduct, somewhere beyond the seas; to which end I send you beloth with a pass; and I pray God to make you sensible of your present condition, and give you means to redeem what you have lost; for I shall have no greater joy in a victory that you achieve, than in to see you doing as I would have my being you loving uncle and most faithful friend, G. R.'

'Hereford, September, 1644.'

(Clarendon. State Papers; and Oxford ed. of Clarendon's Hist. Rebel.)

Rupert tendered an account of his conduct before the king at Belvoir Castle, and removed the imputation of disloyalty and treason, but not that of indiscipline. He was unpopular throughout the country, and had the misfortune, says Lord Clarendon, 'to be no better beloved by the king's party than he was by the parliament.' He did not resign his military command; nevertheless the king could not long do without him. He sought the appointment of commander of that portion of the fleet which still adhered to the king, and as there was no other person to whom the king could readily confide the charge, Rupert obtained the post (1648). His services were immediately required on the Irish coast. Lord Ormond and the Royalist party in Ireland needed assistance, and Rupert, in order to give them aid, and prevent the danger from the harrassments of the Parliamentary squadron, blockaded him, until (October, 1649) he resolved to force his way out, which he did, with the loss of two or three ships, and steered for Lisbon. He was assisted by Blake who demanded the surrender of his ship in the name of the Commonwealth, but the king of Portugal, who was in alliance with Charles I., not only protected the king's fleet, but fitted out a squadron to assist Prince Rupert, and so induced Blake to withdraw his fleet.

Rupert now sailed to Castiglione, and there Blake pursued him, and requested that the prince's ships might be given up to him, but the king of Spain, being in amity with England, a refusal was given on similar grounds to those alleged by the king of Portugal. From Castiglione he sailed to Cadiz, where he was warmly received by the English merchants. Informed of this transaction, Blake immediately followed him, and in January, 1651, attacked Rupert's squadron, without reference to the Spanish authorities, burnt and destroyed all but four or five ships, with which the prince escaped to the West Indies, where he supported himself by capturing English and Spanish merchantmen. Prince Maurice, who accompanied his brother, was cast away, and Rupert contrived, with two or three ships, to return to France, where he told them, on behalf of Charles II., to the French government.

On the restoration of Charles II., Rupert left France and returned to England, where he was made a privy counsellor, and received other honours. By this time the imprudence of his youth had diminished, and he judged with more consideration and calmness. When therefore there was a commencement of hostilities with the Dutch, the appointment of Rupert to serve under the Duke of York was looked on without dissatisfaction. During the expedition he acquitted himself with credit, which was in no way diminished when, in the following year, he commanded the British fleet in conjunction with Lord Albemarle. In 1673 he was again charged with the command of the fleet, which was actively engaged with the Dutch; but he found this squadron so ill-equipped, and, what was worse, so weakly manned, that he returned home. The king expressed some coolness at the manner in which he conducted some of his latter engagements. He had spent a large portion of his time, occupied for the most part with mechanical and chemical experiments, with painting and engraving; in the latter he was an able artist, though not the inventor of mezzotint, as has often been erroneously stated. [Mezzotint.]

He died at his house in Spring Gardens, on the 29th of November, 1682. His collection of pictures was sold after his death, and his jewels, which were of considerable value. He had illegitimate children, but was never married.

Rupert was endowed with good natural abilities, had a quick perception, was vigorous, active, and energetic; he could readily change employments and pursuits, acquiring quickly such a knowledge of that which he undertook as to prevent miscarriage. He was impetuous, rash, impatient of control and advice, and wanting in most qualities which Ile it is requisite to have in a great man. His conduct with the king's troops in Yorkshire, at Marston Moor, and at Bristol, and his piracies in the West Indies, have been very justly cenatured. (Clarendon. Hist. Rebel.; Ludlow's Mémoires; White- lock's Mem.; Mémoires de Grammont; Campbell's Lives of the Admirals; Bio. Univ., &c.)

RUPICOLA. RUPICOLIN. Rupicola is also used by M. Fl. de Bellevue to designate a bivalve shell. M. de Blainville divides the Anacita [Pyloriad, vol. xix., p. 143, 143] into three sections--

A. Invalve, regular species.

B. Equivalve, regular species.

C. Equivalve, terebrating species.

Examples, Anacita mydas. [Pyloriad, vol. xix., p. 143.]

RUPICOLIN. Subfamily of Incessorial Birds allied to the Manakins and generally arranged under the family Tyrpidae. Mr. Swainson places both Callypodomna and Rupicola in the subfamily Amphilinae, or Typical Chatterers; and Rupicola, in his arrangement, immediately precedes the subfamily Piprinae, Manakins, which he considers as subtypical. Mr. G. R. Gray (Genera of Birds) places Rupicola and Callypodomna at the head of the Amphilinae, the fourth subfamily of the Amphilidae in his method.

Rupicola, Briss. (Cock of the Rock.)

Generic Character.--Bill moderate, robust, rather vaulted and curved at the point, upper mandible as wide as it is high, compressed at the base and notched at the point, lower mandible shorter, straight, and sharp; nostrils oval, lateral and hidden by the feathers of the elevated crest which covers the head. Feet large, strong, tarsi partially clothed with feathers, feet syndactylic, outer toe connected with the middle toe beyond the first joint, hallux very strong and armed with a crooked nail. Wings short, rounded; fourth and fifth quills longest.


Rupicola aurantiaca.

Description.--Male.—Size about that of a Ring Pigeon (Columba Palumbus), very bright orange-yellow; a crest, which is compressed and elevated, rises from the head with a helmet-like air. An inflated at the summit with brown and bright yellow; there is some white at the bend and on the middle of the wing, which is filiform at the first quill; the tail-feathers are short, reddish-black bordered with yellow; bill and feet rose-yellow.

Female rather smaller and with a less elevated crest; colour entirely dirty bistre-brown.
This is the Pipra Rupicola of Linnæus, Rupicola Caynana of Swainson, Rupicola elegans of Stephens, and Rock Manakin and Cock of the Rock of English ornithologists. 

Locality.—This beautiful bird inhabits Guiana, especially about the rocks which border the small river Oyapock, and is becoming daily more rare.

Habits, &c.—The Cock of the Rock flies swiftly and is a very shy bird. The nest is made of twigs and dry herbage and there the female lays two white eggs about the size of those of a pigeon. The food consists of the smaller wild fruits.

Mr. Swainson considers this bird to be the Risorial type of the Grallae Chatterers. 

Rupicola Peruviana.

Description.—Male.—Bright orange, like the preceding, but the quills and tail-feathers are deep-black and the middle wing-coverts are bright yellow. The crest of a uniform colour, wanting the deeper coloured semicircular line, and not of a helmet-like contour. The tail-feathers are long.

The Peruvian Cock of the Rock was for some time considered to be a mere variety of Rupicola aurantia, but it differs in being of larger size, in colour, in the length of the tail-feathers, in the absence of the filiform wing-feathers, and in the crest, which is not circular as in the preceding species.

This is the Chiasia laco of the Mexicans. 

Locality.—Supposed to be the interior of Peru and Mexico; has been brought to Europe from Lima.

Calypomena, Raffles. (Rupicola, Temm.)

Generic Character.—Bill depressed and wide at the base, curved or hooked at the point, and nearly hidden by the feathers of the erect and compressed crest. Wings large and very broad, first quill shortest, third longest, lesser quills notched at their tips. Tail and feet very short, hind-toe as long as tarsus, outer and middle toe connected up to the second joint.

Example, Calypomena viridis.

Description.—This very singular and beautiful bird is about six inches and a half in length. Its colour is a brilliant green like that of the Parrots. The head is rather large, and its feathers are directed forwards from each side, very shy bird. The tear to conceal the bill, giving the face a very peculiar appearance. A little above and before the eyes, the feathers are of a deep velvet-black at their base, and only tipped with green, but crossed on the coverts by three velvet-black bands: the primary feathers, as well as the whole under side of the wings, are dusky, approaching to black, with the exception of the outer margins of some which are edged with green. The tail is short, rounded, composed of ten feathers, which are green above and black below. The whole of the underparts are green: this colour is lightest on the sides of the neck and round the eyes. The bill is short, wide, much depressed at the base, deeply cleft, and hooked at the point. Nostrils oval, at the base of the bill, and concealed by the filiform feathers that project over them. The eyes are rather large; the irises bluish. Legs bluish-black; a few feathers come down over the upper part of the tarsi. Feet gressorial; outer toe not much shorter than the middle one, with which it is united as far as the last joint. The female does not differ in appearance from the male. (Raffles.) This is the Burung Tumpo Pinang of the Malays. 

Locality.—Singapore and the interior of Sumatra. 

Habits, Food, &c.—Sir Stamford Raffles states that this species is found in the retired parts of forests, and as it is of the colour of the leaves, and perches high, it is not easily procured. He further tells us that the stomach contained nothing but vegetable substances, chiefly wild grains.

Dr. Horsfield observes that the bill greatly resembles that of the genera Rupicola, Pipra, Phalabura, Pardalotus, Platysyncerus, and Pobianus. 'All these birds,' continues Dr. Horsfield, 'have further a natural resemblance in the structure of their feet, which consists in a union of the toes, particularly of the outer and middle toe, existing in different degrees, but perhaps most strongly in Calypomena. The genera above mentioned are arranged, nearly in succession, by the celebrated Temminck, in his extensive order of Grallae Chatterers; it remains therefore difficult to be determined by future inquiries, whether, when more accurately known, they will not be found to constitute a distinct family among the Pasererzis of Cuvier, connecting the family of Dentirostris with that of Syrstyctes.' (Zoological Researches in Java.)

RUPPELLIA, the name given by M. Milne Edwards to a genus of Cancerians (Canceriens Arquats) established on the Cancer tenax of the German zoologist and traveller Rüppell, and considered by M. Edwards of the type of the small group which leads to the genera Orissa and Erithia. 

Generic Character.—Form of the Carapace approximating closely to that of Xantho and Orissa; dorsal buckler slightly curved, and about once a half as wide as it is long. Front much wider than the buccal frame, but not occupying, with the orbits inclusive, half of the transversal diameter of the carapace. Latero-anterior borders of the carapace shorter than its latero-posterior borders, with which they are continued without forming any remarkable angle; they terminate towards the edge of the genital region, and are armed with large but not greatly projecting teeth. The orbits are nearly circular, and are directed upwards and forwards; their lower border is united to the external angle of the front, so as only to leave at this point a minute fissure, and not a considerable space, as in other cancerians. The result of this disposition is, that the external antennæ are completely excluded from the orbits; their basaly joint, which is large and puckered obliquely, reaches, nevertheless, near the external canthus of the eye; it is soldered to the front by its superior border, which is very wide, and which
ries, towards its middle, the movable stem of these appendages, which is extremely small. The internal antennae bend back directly outwards, as in Xantho, &c. The proboscis is canaliculated, as in Ozias, and the third joint of the jaw-feet leaves, between its anterior border, which is very oblique, and the border of the buccal frame, a space which corresponds to the extremity of the different canal of the respiratory apparatus. (M. E.)

M. Milne Edwards remarks that, in the rest of their organization, these Cancerians do not much differ from Xantho and Ozias.

Example, Ruppia tenaz, Cancer tenaz, Rüppell.

Description.—Upper border of the orbit marked by two fissures separated by a small tooth; there is a fissure at its external angle, and two teeth at its lower borders. The carapace is embossed and slightly granuliferous forwards, but smooth and slightly convex backwards. Front armed with six rounded and nearly equidistant teeth: of these the external ones are less projecting than the others, and occupy the angle of the superior border. The inter-anterior borders of the carapace are armed with 4 or 5 flattened teeth, which are very wide but hardly projecting. The anterior border of the third joint of the external jaw-feet is notched in the middle. The anterior feet are stout, and very unequal in the two sexes; the hands are granulous, and the pincers like those of Carpilius. Length about two inches.

(M. E.)

Locality.—The Red Sea.

Two other species, Ruppia annulipes and venosa (locality unknown), are also recorded by M. Milne Edwards, who thinks that Cancer Calypso of Herbst ought perhaps to be referred to this genus, which is placed by M. Edwards between Platanus and Primula.

RUPPIA, a genus of plants belonging to the natural order Alismaceae, known by the common name of Butcher's Broom. The species of this genus are evergreen, and on this account are frequently introduced for winter growth in shrubberies. The genus is known by its diuretic flowers, of which the barrens flowers have a perianth of 6 single leaves, 3-6 anthers with the filaments combined at the base; in the fertile flowers the same perianth, with tubular nectary, single style, fruit superior, 3-celled, cells 2-seeded. One of the species, Ruppius aculeatus, common butcher's broom, is found wild in Britain.

RUSH, the common name of the species of Juncus, a genus of plants belonging to the natural order Juncaceae. This genus is distinguished by its inferior perianth, composed of 6 glamousse leaves; its 3-celled 3-valved capsules, the seed-bearing disseminations of the valves being in their orbicules. The species are numerous, and are found mostly in moist boggy situations, in the colder parts of the world; several are however inhabitants of tropical regions. The Juncus effusus, the soft rush, and the Juncus conglomeratus, the common rush, are used in many parts of the country for thatching into mats, baskets, faggots, &c. The method of cutting and preparing the stalks of them is to fork them up by the roots in the summer, and after letting them lie for a fortnight or three weeks to dry, to burn them. This will however be found only a temporary mode of getting rid of them, unless the ground on which they grew is drained.

RUSH, BENJAMIN, was born in the neighbourhood of Philadelphia, in December, 1745. His ancestors had
followed William Penn to America in 1683. His father and mother, indeed, shared the business of a gunsmith with the occupation of a gunsmith. Losing his father early, he was introduced to the care of an excellent mother for his early education; and he passed five years in the grammar school of his maternal uncle, the Rev. Dr. Finley, afterwards president of the college of Princeton, to which school Mr. Rush was removed at the age of fourteen. Here he became distinguished by his application, his acquirements, and the possession of a fluency of expression for which he was ever after remarkable. At fifteen he obtained the degree of bachelor of arts, and commenced correspondence with Dr. Redman, then an eminent practitioner in Philadelphia. His early attachment to the writings of Hippocrates, as well as his classical acquirements, were evident, with a readiness and determination, by his reading of the works of physicians from Greek to English, a task which Dr. Homick, one of his biographers, justly supposes to have influenced the habits of his mind and the character of his subsequent writings. Even at this early period his diligence and method were such, that his notes of the yellow-fever at that time prevalent in Philadelphia contain records of considerable value. At the age of twenty-one he repaired to Europe, and studied two years at Edinburgh, where Monro, Gregory, Cullen, and Black then held chairs. His inaugural dissertation was read by him in 1768, in the presence of the President of the University, ‘De Coctaione Ciborum in Vientrucilo,’ and contains an account of several experiments made on himself, and some by a student, to prove the acid changes undergone by those substances. The absence of d removable qualities by time in attendance on the London hospitals and lectures, and paying a visit to Paris, Dr. Rush returned to Philadelphia, in the spring of 1769, and commenced the practice of physic, for which he appears to have been eminently qualified not only by the liberal plan of his previous studies, but by his gentleness of disposition and by great humanity. His punctual industry was such, that he is said never to have omitted his duties at the hospital, or those of his practice; even for a short time in the care of ill patients, it is said that his love of order was exemplified by his never being ten minutes behind the time when he was expected. He was very soon elected professor of chemistry; and in 1789 he succeeded Dr. Morgan in the chair of the theory and practice of physic. The College of Philadelphia and the University of Pennsylvania becoming united in 1791, he was appointed professor of the institutes of medicine and clinical practice; and from the year 1795 to the end of his life he held the united chair of the institutes of medicine and clinical practice. His popularity as a lecturer was evidenced by the number and the attachment of his pupils, and the celebrity which his reputation mainly imparted to the medical school of Pennsylvania. For a late period of his life he still expressed the pleasure he had derived from ‘studying, teaching, and practicing medicine.’ But the times in which he lived were too full of events to permit him to pay that undivided attention to medical science which he subsequently regretted to have been impeded by public events. In the Congress of 1776 he held a seat as a representative of the state of Pennsylvania; and he subscribed the declaration of independence. He was appointed physician-general of the military hospital of the marine department in 1777; and chosen a member of the state convention for the adoption of the federal constitution ten years afterwards. A few years later, in 1784, he describes himself as having ‘lately become a mere spectator of all public events;’ from which state of things, however, he did not for any length of time withdraw altogether to medical studies and pursuits: he held however the office of treasurer of the United States Mint during the last fourteen years of his life. On different occasions he received medals from the king of Prussia and the queen of Ermine, for merit in medicine, to which he added in answer to inquiries concerning the yellow-fever; and in 1811 the emperor of Russia sent him a diamond ring as a testimony of respect for his medical character. His useful life was telescoped by that event which made the snow-white ashes of an advanced life a foul and black branch of medical science. By habits of early rising, and a wise economy of time, he was enabled, in the midst of arduous and continual duties, to treasure up to and to communicate an accurate summary of every observation peculiarly stamped with utility; and all his exertions were animated by a philanthropy which caused him to devote one-seventh of his receipts to purposes of charity, and dictated his memorable last injunction to his son, ‘Be indifferent to the poor.’ In the year 1724, when Philadelphia, ravaged by a severe and uncontrollable erysipeliform yellow-fever, his services were so much in requisition that his exertions nearly cost him his life. His house was filled at all hours with applicants for relief, and his carriage used in the streets. The life of medicine is actively engaged in the study and practice of their profession seldom offers much of private interest. Dr. Rush’s life may be said to have been devoted to mankind; and his history is that of his public duties; his house and parlor were in his house, and his wife and daughter, Miss Julia Stockton, daughter of Judge Stockton, who is described as a lady of amiable disposition and cultivated mind. Dr. Rush was survived by nine of thirteen children, the fruits of this marriage.

The number of Dr. Rush’s works is considerable; they include a history of the yellow-fever as it appeared in Philadelphia in 1793, and of other epidemics of different years. One of his latest works was a ‘Treatise upon the Diseases of the Mind.’ His last book is ‘The History of a Case of Hydrophobia, which terrible disease he considered to be principally seated in the blood-vessels. In 1797 he published a ‘Miscellaneous Inquiry upon the Effects of Public Punishments upon Criminals and upon Society,’ to which the late Mr. Rush was a leading commentator. He also edited the works of Sydenham, Cseoborn, Pringle, and Hilary.

The principal papers published at various times by Dr. Rush are collected and comprised in two volumes of ‘Medical Inquiry and Observations.’ The first of these was published at Philadelphia in 1788; the second in 1793. Of these volumes, four editions appear to have been published in four years. Their contents consist of about thirty separate essays, all upon subjects of medicine, except one, which, being the instructions for a student, was not manufactured by the philosopher. A character of the author, and not a few interesting to general readers, to moralists, and to statesmen. The essays ‘On the State of the Medicine among the Indians;’ ‘On the Influence of the Military and Political Events of the American Revolution upon the Human Body;’ ‘On the Influence of Physical Causes upon the Moral Faculty;’ and ‘On the State of the Mind and Body in Old Age,’ are strongly indicative of the observing and reflecting habits of the author. The account of the climate of Philadelphia, from 1776 to 1804, for the benefit of the candidates for emigration, and the ‘Effects of Strong Liquors upon the Human Body,’ contains the strongest original arguments that could be employed by the most zealous advocate of temperance; and in the ‘Inquiry concerning the Causes and Cure of Consumption’ we recognize the doctrines of the gentlemanly origin of that fatal disorder, subsequently supported by Dr. Beddoes, but more recently and more distinctly and ably illustrated by Sir James Clark. The celebrated doctrine of phrenology, and so eloquently expounded by the late Mr. Berkeley, in his ‘Constitutional Origin of many Local Diseases,’ is very peremptorily announced in Dr. Rush’s ‘Inquiry into the Causes and Cure of Sore Legs.’ There are indeed few volumes in medical literature which have been more frequently quoted by medical men than those of Dr. Rush. Large and enlightened views of the causes of disease, minute observations of its phenomena, and sagacious principles of cure, are contained in all the writings of this distinguished physician, combined with indications of his being possessed of all the virtues that could animate and adorn the profe sion to which he belonged.


Rush-bearing, another name in some parts of England for the country wheel. It appears that in ancient times the wheel was used in connection with solemn religious cere mony, wherewith to draw the church, and from that circumstance the festivity itself obtained the name of Rush.
RUSHES are well-known plants which appear in all soils, especially those which are fertile, when the water which cannot be evaporated remains in a stagnant state under the surface. They are very common on most meadowlands; but are not found as they not only occupy the immediate cause of them, or correcting the stagnation of water which invariably reproduced them. The only effective cure for rushy grounds is a complete system of draining. The truth of this assertion is so generally admitted, that it is merely to be stated, and not specially insisted on. Rushes can be effectually under-drained, rushes will generally disappear as by magic. If they are strongly established in the soil, it may take some time before they completely die away, even after the drains are properly placed; but if the land is ploughed and has a propertilage, they will not survive the first year. In rich old meadows, which would not be prudent to plough up, they may be destroyed by mowing them when they are in bloom, and immediately stripping them. It is a common Porter, lately brought up from Eyfield to London, be forthwith delivered to Mr. John Rushworth, to be employed in the service of the parliament in sending messages between this house and the Lord-General.

On a subsequent day it was further resolved that he should be recommended to the committee of the house for excise, and to the treasurers and commissioners, to be employed in some office or place suitable to his condition, and the recommendation of the house, towards a recompense of all the several services he hath done for the kingdom. It is not known however that he derived any substantial benefit from this vote.

In 1643 he took the covenant with most of his party. In 1645, when the command of the parliamentary forces was given to Fairfax, who was now to the Lord General, Rushworth was appointed his secretary; and from this time he was principally with the army, till Fairfax's resignation of his command in 1650. Being at Oxford in Fairfax's suite in 1649, he received from the university the degree of M.A. Having returned to London and taken up his residence in Lincoln's Inn, he was, in 1652, appointed one of the committee for the reform of the common law. The next time we hear of him is as one of the members for Berwick in Cromwell's last parliament, which met in January, 1658; and he again sat for the same in that which restored Charles II., in April, 1660. The overthrow of the Protectorate however was fatal to Rushworth's rising fortunes. We have seen the zeal with which he served the cause of the Commonwealth; and we may fairly assume that the side to which he was heart and soul attached; he had submitted the first volume of his 'Historical Collections,' in manuscript, to Oliver Cromwell; and when it appeared in print it was saluted in a dedication in very high-flown terms to the new Protector Richard. When the book came back, Rushworth withdrew this unlucky dedication; and he also made a most eager attempt to conciliate Charles by presenting to him some of the registers of the Privy Council which had fallen into his hands. Thanks were formally returned to him in the king's books.
ened circumstances. When Sir Orlando Bridgeman was made lord keeper however, in 1677, he appointed Rush- 
worth his secretary; and we find him sitting again for Ber-
wick, both in the parliament which met in March, 1679, and
also in that which met at Oxford in 1681. But after this, it
is all conjecture. He was returned for Wiltshire in 1682,
when he was arrested for debt and sent to the King's Bench 
prison, where he remained till he died, on the 12th of May,
1690. He had latterly taken to drinking to drown cares,
and his health and memory were nearly gone for some time 
before he died.
Rushworth left several daughters, 'virtuous women,' says
Anthony Wood, 'of which one was married to Sir Frank
Vane, of the North.'
The last part of the volume folio, of Rushworth's His-
torical Collections of Private Passages of State, Weighty 
Matters in Law, and Remarkable Proceedings in Parlia-
mant, embraces the space from 1618 to 1629, and was pub-
lished in 1635. It was reprinted clandestinely in 1675, and
also again in 1682. Part second, in two volumes, extending
from 1629 to 1640, appeared in 1680; and that same year
Rushworth also published, in one volume folio, his account 
of the Trial of the Earl of Strafford, which is now consid-
ered as forming the eighth volume of his 'Historical Col-
lections.' The remaining parts of that work were left ready
for the press at his death; and part third, in two volumes,
extending from 1640 to 1645, appeared in 1692; part fourth,
also in two volumes, and coming down to 1648, in 1701.
All the volumes were published, together with the 'War of the
World's Trial,' which was reprinted in 1721. Rushworth's intention, as he states in the preface to his second volume, had been to bring down the work to the dissolution of the Long Parliament in 1653.
On the occasion of this omission, many and industrious com-
piler's labours, and of the value of what he has bequeathed 
to us, there can be no doubt. His collection contains an
immense number of papers and notices now nowhere else 
to be found, and many which never were to be found else-
where. And he may also be admitted that he promised
perfect impartiality with which he sets out, is upon the
whole as well kept as we have any right to expect that it
should be. The book however was loudly cried out against
for its unfairness, its positive falsehoods and inventions, as
well as its omissions and suppressions, by the high church
and Tory party on the appearance of the first volume.
An elaborate exposition of the grounds of these charges (which
however are very unsatisfactorily made out after all) may
be found in the long introduction to Nalson's 'Impartial
Collection of the Great Affairs of State from the beginning
of the Scotch Rebellion in the year 1639,' which indeed
was professably published by his majesty's special com-
mand, in opposition to Rushworth's work, but of which, al-
though so earnestly desired to come down to the death of
Charles I., no more than two volumes ever appeared, the first in
1682, the second in 1683, carrying the history no farther
than to January, 1642.
LORD WILLIAM, was born in Septem-
ber, 1639: his ancestors were early possessed of landed property
in Dorsetshire. We find John Russell in 1221 at the
constable of Corfe Castle, and his descendants subsequently
filling honorable situations: one of them, Sir John Russell,
was Speaker of the House of Commons in the second and
tenth year of Henry VI. A fortunate occurrence raised
this family to wealth and honour: in 1506 Philip, arch-
duke of Austria, having been driven by a storm into the port
of Weymouth, was hospitably entertained by Sir Tho-
mas Tressell, a neighbour of the Russell family. Sir Tho-
samus, knowing that the head of the Russell
family had travelled and was a good linguist, invited him to
meet his unexpected guest. During this visit Mr. Russell
so pleased the archduke that he recommended him to the
king, by whom he was appointed one of the gentlemen
of the Privy Chamber. 'He afterwards attended Henry VIII.
in his expedition in France, and was present at the taking
of Tournai and Tournay.' In 1524 he was knighted by the
king for his service in the expedition to Brittany, and was
created Lord Russell in 1539. The
lands of the abbey at Tavistock and of the dissolved monas-
tery at Woburn were afterwards conferred upon him, and
he became Lord of Bedford. (Life of Lord Russell, by his
descendant Lord John Russell, from whom the principal
part of this article is derived.)
He died in 1555, and was succeeded by Francis, the se-
cond earl, who left no issue. The title now passed to the
only son of Sir William Russell, by name Francis, who is
known among other things for his drainage of the face of
Lincolnshire by the Bedford level. He died in 1641, and
was succeeded by William Russell, who married Lady
Anne Carr, daughter of the earl of Somerset. His son,
Sir Thomas Overbury, committed suicide, having been
condemned to death in the court of King's Bench, for his
friendship with the court. Sir John Russell, the subject of this memoir, was the third. The eldest died an infant, and the second in 1678.
Rushworth was educated at Eton, and later attended
at Augsburg, spent a considerable time in different parts
of the Continent, returned to England at the Restoration, and
was elected member for Tavistock. He married, in 1664,
Rachel Wriothesly, second daughter of the earl of South-
ampton, and widow of Lord Saye and Sele. Lord
Carderun, a woman distinguished for ardent and
tender affection, piety, reflecting, firm, and courageous;
like exemplary in prosperity and adversity, when observed
by multitudes or hidden in retreat, was unhumbled in all respects. He had from his education an inclination to law, and wished the laws could have been made easier to them, or they more pliant to the law. He was a slow man and of
little discourse; but he had a true judgment when he con-
ersed in matters of judgment, and the fear of dishonesty
not defective, but his virtues were so eminent that they
would have more than balanced real defects if any had been
found in the other.' Lord Cavendish, Sir W. Corman,
Colonel Birch, Mr. Fowles, and Mr. Littleton were the
principal members of the party with which he conversed,
and wished by proceeding at first with moderation, gained so
great an influence in the country, that the king suddenly
proposed the parliament, and when it re-assembled, found
his opponents so strong that it was hopeless to attempt
the continuance of the union. Thus the alliance with
France was dissolved, and the troops by which Charles
had wished to make himself absolute were de-
persuaded; the Cabal ministry was broken up, and Becket
seems to have been in their places. The
king's intrigues with France were speedily removed,
and engagements entered into, for the performance of what
he was again to receive a stipulated sum of money.
These intrigues were further opposed by Russell; the coun-
try was at last persuaded to the peace of Westphalia, and
the peace of the king's minister and favourite Lord Becket,
and voted the exclusion of the Duke of York from the suc-
cession to the throne. These were violent measures, but they
were justified by the condition of the country, the king's
baseness, and the fear of despotism and the re-establish-
ment of the Roman Catholic religion. The struggle aug-
ured a second civil war, and had Charles, like his successor, at-
tacked the churches as directly as he did the constitutions,
it would have been a far more signal overthrow of the
church as it was, the foundation of a future revolution was
laid.
Some of the principal Whigs were accused of having con-
spired to take the king's life, to raise a rebellion in the
country, and to establish the Duke of Monmouth, the king's
illegitimate son, upon the throne. Among these was
Rye-house Plot.' From the name of a farm near New-
market, at which it was said that the conspirators agreed to
meet, in order to attack and dispose of the king as he be
returned. There were many meetings of persons suspected
of this plot, 'of which plot,' says Mr. Fox (Introductory chapter to Hist. of James II.), 'it may be
said, much more truly than the Popish, that there was in
it some truth mixed with much falsehood; and that
many of the substances in King James's
charging were nearly as absurd and ridiculous as those in the
other: it seems probable that there was among some of the
social men a notion of assassinating the king; but the
action was error ripened into what may be called a design, and much more whether it was ever evinced by such an overt act as the law requires for conviction, is very doubtful. In regard to the conspiracies of higher ranks, from whom all suspicion of participation has been long since done away, there is unquestionably reason to believe that they had often met and consulted, as well for the purpose of ascertaining the means they actually possessed, as for that of devising other and more effectual plans. But it was his spirit into which it had fallen; and thus far their conduct appears clearly to have been laudable. The court ascribed the king's safety to his return from Newmarket somewhat earlier than was expected, and prepared to take advantage of his absence to commit murder at Aleppo. The different methods of their political adversaries. Russell, Essex, Sidney, and a number of less important persons were immediately committed to the Tower. Some were convicted and executed before Parliament was brought to the bar. On the 13th of July, 1683, he took his trial at the Old Bailey for high treason. He was indicted 'for conspiring the death of the king, and consulting and agreeing to stir up insurrection; and that intent to seize the guards for the preservation of the king's person.' A full account of the proceedings is given by Lord John Russell (Life, p. 184), and in Phillips's State Trials. We believe that the extent of his error was having attended a meeting where a general raising was spoken of, and where there was some discourse of the feasability of seizing the guards. He was not convicted to either of those schemes, which were never matured or determined on. An illegal construction was put on the 25th of Edward III., the statute under which he was indicted. The evidence against him was contradictory and insufficient. He was committed to the custody of the nobility of the kingdom, but in the nomination of the panel, the sheriffs, who were creatures of the court, had secured his conviction. He was found guilty and sentenced to death. His sentence was passed till the day of his execution, he manifested great piety, and maintained a dignified calmness. He was accompanied to the scaffold by Bishop Burnet and Dean Tillotson. Burnet, who likewise attended him during his imprisonment, has written of his conduct at his latter day. He delivered to the sheriffs, at the time that he was beheaded in Lincoln's Inn Fields, on the 21st of July, 1683, a paper containing an explanation of the act and statement of his conduct. Speaking of those who died for this plot, Mr. Fox says, 'that which is most certain in the careful examination of the whole, it is a fact not to be questioned, that the conspirators of this plot, and the king's executioner, were disposed to murder the king without any regard to law and justice.' The firm and noble conduct of Lady Russell, who attended her husband during his trial to take notes and give him assistance, deserves the greatest admiration. The bitterness of their parting is described in the most pathetic terms, and a lasting grief is shown in her subsequent correspondence. She died at Southampton House, in Sept. 1723, at the advanced age of eighty-six.

We have not mentioned the charge made against Lord Russell, in common with Algernon Sidney, and many others of the time, by the late Royal Commission, of failure in the government. We believe it to be groundless, as far as the two persons mentioned are concerned, but we must refer those who would inquire into the subject to the more learned biographers. Lord Russell's character is what at variance with such an act. As a politician, he appears uniformly disinterested; he was zealous and energetic, though not conspicuous for ability, the high public estimation in which he was held being founded upon his sense, his judgment, and his industry. Lord Russell's character is what he united the mildness of domestic affection; he was beloved by his wife and children with sincerity and earnestness. Lord Russell's son was created duke of Bedford, one of his daughters was married to the Duke of Monmouth, and another to the Duke of Rutland. An act for annulment of his attainder, which passed in the first year of William and Mary, recites that he was by undue and illegal return of jurors, having been refused his lawful challenge to the said jurors for want of freehold, and, by partial and unjust constructions of law, wrongfully convicted, attainted, and executed for high treason. After the executions which followed the Rye-house Plot, the country party had little influence during the remainder of Charles's reign.

(Lord John Russell's Life of Lord Russell, from which this article is compiled; Life and Letters of Rachel, Lady Russell; Burnet's Own Times; Hallam's Const. Hist.; Fox's Life of James II.)

RUSSELL, ALEXANDER, was a native of Edinburgh, where he received his medical education. Having finished his studies in the university of that city, he came to London, and in the year 1740 was appointed physician to the English Hospital in Aleppo. He soon made himself useful to his countrymen in that remote part of the world, and by his skill in the Arabic language, he soon obtained a pre-eminence over all the practitioners in the place, and was honoured by the particular friendship of the pasha. On his return to England, in 1754, he published his 'Natural History of Aleppo,' a valuable and interesting work. It contains a description of the city and principal natural productions in its neighbourhood; together with an account of the climate, inhabitants, and diseases, and a diary of the progress of the plague in 1742-3. Four years after the publication of this work a vacancy occurring in St. Thomas's Hospital, he was elected physician to that institution, which office he retained till his death in 1768.

He was a man of great abilities, industry, and human heart. He presented several contributions to the Royal and Medical Societies. A second edition of his 'Natural History of Aleppo,' revised, enlarged, and illustrated with notes, by Patrick Russell, has been translated into several European languages.

RUSSELL, PATRICK, brother of Dr. Alexander Russell, was born in Scotland, in the year 1726. His father was a lawyer of great eminence in the city of Edinburgh, and of seven sons whom he brought up, it is reported that he never gave one a dinner. His most eminent son was a disquietude. We possess no record of the early history of the subject of the present memoir. It appears however that he completed his medical studies in the University of Edinburgh, and some time afterwards we find him at Aleppo, residing with his brother Dr. Alexander Russell. On the return of the last-named physician to England, Dr. Patrick Russell succeeded him as physician to the British factory at Aleppo. It was during his residence in this capital that the great plague of 1760 and the two following years broke out in Syria, and the opportunities were afforded his brother to execute most of the cases in all its varieties, were not thrown away on a man of his abilities. His quarto work, which was published some years after his return to England, is justly esteemed one of the most perfect works that have ever been written on the subject. It contains an historical and medical account of the disease, and treats fully the subject of quarantine, lazaretos, and the police to be adopted in times of pestilence. He also gave to the public a new and very enlarged edition of his brother's work on Aleppo, and in 1796 published an account of the Indian serpents collected on the coast of Coromandel, containing descriptions and drawings of each species, together with experiments and remarks on their several poisons. He died in the year 1806, and his name will be found among the contributors to the Royal Society and some others.

RUSSIAN EMPIRE, THE, extends over the north-eastern part of Europe, over the whole of Northern Asia, and over the north-western coast of North America. It consists of Russia in Europe; a great part of Russia in Asia, called Kamchatka in Asia; and some settlements on the north-west coast of North America. [NORTH-WEST TERRitory.] Excluding the last-mentioned country, the area of the whole empire, according to a very rough estimate, is 7,000,000 square miles, of which 2,100,000 belong to Europe, nearly 5,000,000 are included in Siberia, about 100,000 in Georgia, and 86,000 in the peninsula of Kamchatka.

EUROPEAN RUSSIA comprehends the north-eastern part of that empire, extending from the Baltic sea on the N. lat. and from 26° to 63° E. long. It is divided from Asia by the Ural Mountains, which begin on the peninsula which lies opposite the island of Nova Zembla, on the coast of the White sea, and run in a southern direction to 54° N. lat., where they divide the country into three ranges. [URAL MOUNTAINS.] From this point, the river Ural, which rises between the two most eastern ranges, is considered to form the boundary-line until it falls P. C., No. 256.

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into the Caspian Sea. It is however to be observed that the political division of Russia does not in its whole extent coincide with this boundary which has been adopted by geographers, and that a portion of the two governments of Perm and Orenburg extends to the east of this line, and may therefore be considered as lying in Asia. From the mouth of the river Ural the boundary runs along the northern shore of the Caspian Sea to the embouchure of the river Kooma. At this point begins the southern boundary-line along the course of that river to the Caspian Sea, and thence through the north eastern part of the governments of Vitebsk and Polack, where it descends in low ridges to the lakes of Neipsus and Ilmen. The main elevated part of this tract probably attains 1000 feet above the sea, as the town of Mogoszew on the Moskwa is more than 700 feet above sea level. The Caspian Sea is divided by the rivers that flow into the Black Sea. At this point however it divides, and forms two watersheds, of which one runs north-east between the watercourses that fall into the White Sea and those which are separated from the Caspian Sea by the south-east between the rivers which flow to the Caspian and those which fall into the Black Sea.

The north-eastern watershed begins in the hilly region of Valdai, which contains the source of the Volga, and the river of Europe. It lies contiguous to the region just described, beginning on the west between the sources of the river Pol, which falls into the lake of Ilmen, and extending north-east to the river Kota. In this direction it occupies the highest portion of the boundary, is intersected partly by the river Narew, an affluent of the Vistula, and partly by an imaginary line. North of the river Niemen, Russia borders on Prussia, from which it is separated by a imaginary line. Farther north on the Baltic, Russia borders on Riga and Finland, and stretching along that of Bothnia to its northern extremity (66° N. lat.). Farther north it borders on Sweden and Norway. It is separated from Sweden by the lower course of the river Torna, and farther north by the boundary between Russia and Norway is partly formed by the watershed between the Gulf of Bothnia, and partly by the course of the river Tana. A small part of Norway extends east of the river Tana. On the north, Russia is washed by the Arctic Ocean, and on the south-east by the Gulf of Finland, White Sea. The countries included within this boundary-line, according to a very rough estimate, occupy an area of 2,100,000 square miles.

Surface.—The whole surface of Russia may with propriety be considered as one extensive plain. If the Ural Mountains, which extend along its eastern border, and a mountain tract in the peninsula of the Crimea [Crimea] are excepted, there is not in this immense extent of country an elevation more than 1100 feet above the sea-level. The watersheds which divide the rivers that flow into the Arctic Ocean, the Baltic, the Black Sea, and the Caspian Sea, is not formed, as in Western Europe, by mountains, but by tracts of elevated ground, the summits of which extend in wide and nearly level plains, and whose declivities form long and generally imperceptible slopes. The plains themselves are covered either with woods and swamps or with forests, and in other parts they are dry and wooded, tract called steppe.

In tracing this watershed, we begin on the west. Almost on the banks of the river Bug, which separates Poland from Russia, between 51° 30' and 53° N. lat. there is a plain which is flat, and the rivers and watercourses have so little fall as to render them unfit to carry off the accumulated water. The whole plain is covered with woods, covered with trees, especially firs. It contains the sources of several affluents of the Dnieper and Vistula. On both sides of 52° N. lat. it extends from 24° to 30° E. long., a boundary line of 50 miles, bordering the country on both sides of the river Pripeer almost impassable. This portion of the watershed is called the Swamps of Pinsk and Rainmor. The swamps ground extends farther north, between the affluents of the Nemen and Dnieper, to 55° 30' N. lat., and extends on both sides of the river Potosk and Droosa. In these parts however the swamps are only from 100 to 50 miles in width, and are frequently interrupted by tracts of drier and more elevated land. On the east as far as the extreme of these swamps, between 48° 30' and 55° 30' N. lat., there is a more elevated country with a very broken surface, and containing numerous rocky hills, between which many lakes occur. The southern edge of this tract seems to lie close to the source of the river Dnieper, from its source till it turns southward at the town of Grasna. From this elevated tract, which separates the upper courses of the rivers Dnieper and Duna, the watersheds extend northward over the eastern portion of the governments of Vitebsk and Polack, where it descends in low ridges to the lakes of Neipsus and Ilmen. The main elevated part of this tract probably attains 1000 feet above the sea, as the town of Mogoszew on the Moskwa is more than 700 feet above sea level. The Caspian Sea is divided by the rivers that flow into the Black Sea. At this point however it divides, and forms two watersheds, of which one runs north-east between the watercourses that fall into the White Sea and those which are separated from the Caspian Sea by the south-east between the rivers which flow to the Caspian and those which fall into the Black Sea.

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of the government of Simbirsk, it forms an elevated ridge, but small in width, which runs eastward, and compels the river to make a bend at Samara (near 53° N. lat.). On the eastern bank of the river a similar ridge rises, which encloses the river, and continues into the northern direction until it joins the Osetahi Sirt, or western branch of the Ural Mountains, near 56° E. long., not far from the place where the Belaya, an affluent of the Kama, turns northward. The entire height of the lakes Volga and Ladoga consists of sandy hills almost without vegetation, and parishes largely of the nature of the steppes which lie south of it. This watershed encloses the whole upper basin of the Volga on the south, and divides it from the rivers which run southward and unite with the Dnieper and the Don.

Besides these two lines of watershed which cross Russia from west to east, there is in the southern provinces an elevated tract, the base of which is granite, and which traverses it in the same direction, but does not form a watershed, being broken through by several large rivers. At its western extremity it is connected with the eastern offsets of the Carpathian Mountains, which extend over the north-western portion of the governments of Kamensk, Bessarabia, and Transsilvania, as far south as the town of Kainnoff. From these ridges the elevated tract extends eastward, occupying the banks of the river Dniestr the whole space between Yampil and Dubossary, and rendering this part of the river useless for navigation. From the south, and nearly to the southern extremity of the tract, the banks of the Dnieper, the Don, and on the south-eastern branch, an affluent of the Bug, between Yelitsavetgrad and Bobrinetz. It continues eastward to the Dnieper, which is compelled by it to make the great bend extending eastwards past the Poronge, or twelve waterfalls of Ekaterinowski. From this place it declines more to the south, and extending along the banks of the Konyskaya, an affluent of the Dnieper, it approaches the Azov sea, where it terminates, according to Puchkoff, the banks of the river Berda. But it is supposed that it continues from Ekaterinowski in a more eastern direction, and fills up the great eastern bend of the river Don which occurs between 48° and 50° N. lat.

The soil—Russia has a much greater variety of soil than any other country of Europe. Some very extensive tracts are hardly more adapted for agriculture than the great African desert; while others in fertility may be compared with those countries without the tropics which are most favoured by nature. On taking this survey of Russia, we begin from the north-east.

Between the northern portion of the Ural Mountains on the east and the river Mezen on the west, is the region of the Sandurs, which extend from the western extremity of the Samara government to the northern extremity of the government of Arkhangel and the whole of Vologda.

West of the river Onega begins the region of rocks and lakes. It extends over the immense tract which lies between the gulfs of Finland and of Bothnia on the west and south, and the White Sea on the north-east, and which is called by modern geographers the Isthmus of Finland. A line drawn from the mouth of the river Neva across the southern boundary of this region and the southern shores of that of Onega to the lake of Ladoga, indicates the southern boundary of this region; and another, drawn from the town of Uleaborg, on the shores of the gulf of Bothnia, to the northern extremity of the Gulf of Kandalaske, separates it from Russian Lapland. This region extends about 500 miles, and from south to north more than 400 miles, and considerably exceeds the British Islands in extent. It has a much more broken surface than any other portion of Russia of equal extent. The northern portion, as far as 63° 30', is level; at least it does not contain any continuous ridge of hills, and here the watershed is found to rise gradually, but not to a great extent. Near 63° 30' N. lat. and 30° E. long., a ridge of hills rises, which runs south to 64° N. lat., where it divides into two ridges east, north of which that which runs east divides the waters that fall into the White Sea from those that run to the lakes of Ladoga and Onega. After having passed the last-mentioned lake at a short distance, it approaches the banks of the Onega river, and then turns towards the south-eastern branch of the lake. It is called the Mountains of Masielka (girdle), and, properly speaking, is only a huge swell of elevated ground with a broad-backed summit. It consists chiefly of sand-hills; but in some parts granite is visible. The surface is very irregular, and the country is very poor, and the fertility of the soil is very slow. The ridge which runs westward is mainly composed of granite, but it is of considerable elevation, and grows lower as it approaches the Gulf of Bothnia, sinking to a low level on the north-western border of the country from the shores. The country surrounded by this ridge, that is, the gulf of Bothnia and Finland, the lake Neva, the lake of Ladoga, the river Swir, and the lake of Onega, has a rocky subsoil; and in many places the rocks rise above the surface, and constitute hills. They never form large mounds, but only low and narrow ridges, which alternate with wide and deep depressions, the greater part of which are filled up with lakes. It is supposed that one-fourth of the surface is covered with water. The general surface of the country appears to be a vast plain extending to the north-west of the lake of Ladoga, where it probably does not attain 900 feet above the sea-level, and is less interspersed with rocks and lakes. But in approaching 30° E. long. it rises considerably. The western ridge has a northern extremity of this rocky region, and is only divided into a large number of small ridges, somewhat more than 20 miles wide, from the Gulf of Finland, is said to be 300 feet above the sea-level; and the numerous cataracts of the river Vosk or Vuoksa, by which it is divided, carries water. If we consider that the lake of Paima receives the waters of numerous other lakes of various size, which extend in a line northward to 63° 30' N. lat., a distance of 180 miles, and that the channels by which they send their waters downward have a very rapid course, and in some places form cataracts, it is not improbable that the general level of the country that surrounds the lake of Pielisyari, which is the most northern of them, may be 600 or 700 feet above the sea-level. The system of lakes which follows next to the westward is called, from the largest of them, that of Paima.

The country along the shores of this lake is called Tavasteland, and is considered the most elevated portion of Finland; its general level is estimated to be 400 feet above the sea, even towards the south, where the river Kymmen, which issues from the lake of Paima, descends with numerous cataracts to the Gulf of Finland. The country seems not to be lower east of 24° E. long., until it approaches the Gulf of Bothnia within about 40 miles, to which it is reduced by a number of small ridges which divide the lakes from one another, occupying only a small space, as level tracts, usually of considerable extent, lie between their declivities and the water-edge. The soil is of the same nature as before, from 200 to 600 or 400 feet above their base, and frequently take the most fantastical shapes. Many of their declivities are covered with trees. All the northern shores of the Gulf of Finland, and the eastern shore of the Gulf of Bothnia, as far north...
as 64° N. lat., are high and rocky, especially the former. They are also lined with numerous rocks and small islands, which give shelter to the navigation during winter. Good harbours and anchorage are found about these islands. Though the country rises as we proceed from east to west, the climate improves in the same degree, and vegetation and cultivation also. In the country surrounding the lake of Onega, the climate is colder. This is owing to the poverty of the soil, agriculture is very limited. Rye, buckwheat, oats, and barley are cultivated in some places, and also hemp and flax, but by far the greatest part is still in a natural state. Pine-forests still cover more than nine-tenths of the country, perhaps not less than 30,000 square miles. There are few cattle in these districts, owing to the want of meadows, and the difficulty of maintaining them through a winter which lasts eight or nine months. But the more rocky country further west contains extensive meadows along the banks of the lakes, and the rearing of cattle and the management of the dairy form the principal branches of rural economy. Agriculture is also much more attended to; and in addition to the grains which are cultivated far to the north, potatoes are extensively grown. Many tracts of ground are covered with bogs, preserve the ice under their surface late in summer, and are the cause of night-frosts being felt to the end of May or the beginning of June. The climate is extremely wet, and much snow falls during the winter. A great deal of this is blown away from the lakes by the strong westerly winds. The water rises in such a degree that the water rises several feet above the adjacent country, damages the winter crops, and renders the fields incapable of being cultivated for summer crops. With these disadvantages, the western portion of this rocky country, Tavastland, exports annually a considerable quantity of grain. Though the winter generally lasts from October to May, and the thermometer descends to 24° below zero, fruits, especially cherries, apples, and pears, succeed very well. The general climate of the Gulf of Finland, and of the town of St. Petersburg, is far north as 61° N. lat. At Abo the mean annual temperature is 40°, that of the winter 24°, of the spring 40°, of the summer 60°, and of the autumn 42°; but at the northern extremity of this region, at Uleaborg, the mean annual temperature is only 33°. The quantity of rain which annually falls is 24 inches. Spring does not appear before the end of May, when the birch comes into leaf, and the ice of the rivers breaks. In the middle of August, and sometimes at the end of July, night-frosts occur on the hills, and the crops burnt; they are sown and cut in the space of six or seven weeks. There are still extensive forests in this region, which chiefly cover the declivities of the rocky masses: they chiefly consist of oak and birch. The timber of the forest is of very good quality, and is sold at a high price. The market, on account of the cataracts which occur in all the rivers; but a great quantity of tar is annually made in these forests.

That portion of Russia which lies north of a line drawn from Uleaborg to the extremity of the Gulf of Kandalaksha comprehends Lapland as far as it belongs to Russia. The surface is mostly a level, on which some sand-hills rise a few hundred feet above their base. There are numerous depressions on this plain, but most of them are of little depth, and form only extensive bogs; the deeper depressions are permanent lakes, of which some, as that of Enara, are of great extent. The sandy soil, being well saturated with moisture by the melting of the snow, affords pasture for a few months to a breed of small cattle, but especially to the numerous herds of reindeer. In the southern districts there are considerable forests of high growth; but towards the north they are less frequent, and the trees are of diminutive size. Some level and more frequent streams, running along the bases of the hills, and rye and barley are cultivated, which commonly ripen in spite of the severity of the climate and the length of the winter. Even along the southern coast of the peninsula of Kola the birch is most extensively cultivated. The shores are high and precipitous, rye and barley are cultivated. The early night-frosts indeed frequently destroy the crops; but when that is not the case, the labour of the husbandman is richly remunerated by a crop which produces twofold its seed. We have a set of meteorological observations made at Enoniekis (65° 30' N. lat.) in 1802-1805, according to which the mean annual temperature of that place did not exceed 27°, that of the winter was 22°. The springs of the month of May, 25°, and the autumn 24°.

On the southern coast of the Gulf of Finland, the shores are composed of limestone, and rise abruptly from the sea like a wall to an elevation of 60 to 180 feet. From this elevated coast, the country slopes to the south and to the west, and descends to the plain of Livonia by a gradual slope. The surface of the plain is covered with a mould of indifferent fertility, producing moderate crops of rye and barley. A part of the land is covered with forest, but far more intermixed with poplars and lime-trees; the last-mentioned trees constitute, in some places, extensive forests. The plain is furrowed by watercourses, which run many yards below the surface, and the rivers which flow in them have a very rapid course, so as to be unfit for navigation, at least in several places. There are no swamps in this region.

Though both the northern and southern shores of the Gulf of Finland are elevated and rocky, the country that surrounds its innermost recess on both sides of the river Neva forms a depression which extends round the southern shores of the lake of Ladoga, and continues to the southern extremity of that of Onega. Towards the latter it reaches, near 59° N. lat., the low terraces that branch off from the table-land of Valdai. A moderately thin layer of mould covers a subsoil of rock. The surface is level and very swampy, and though the soil is not of a very poor nature, it can only be successfully cultivated of a great deal of labour, in the vicinity of one of the largest and most populous towns of Europe, only a very small proportion of the surface of the region is under cultivation, and about 20 miles from Petersburg; the Government of this tract is under the government of the country. The forests consist almost solely of fir and birch; pine does not occur except in a few spots which are somewhat more elevated and have a dry soil. Immense boilders of granite are dispersed through these forests. The mean annual temperature of Abo, the capital of Finland, and of the town of St. Petersburg, is near 37°; that of Abo, being only 37°; that of the winter is 16°, of the spring 32°, of the summer 50°, and of the autumn 37°. The mean annual quantity of rain which falls in that city is between 17 and 18 inches.

The table-land of Valdai and the elevated tract which extends from the river Mata to the lake Biede Oerve (both which countries surround the plain just noticed on the south and south-east) were formerly covered with extensive forests, but the greater part of them have been cleared for agriculture, and cut into the wood in the most violent manner, perhaps not one-fourth of the surface. They chiefly consist of elms, birch, and poplar. The surface is undulating, and the rocky eminences which rise on it attain a height of about 300 feet. The climate is very cold, and the crops are not grown with any great success, although the climate is so very well, and it is rather abundant, the greater part is used for the maintenance of horses, which are in great request, as several well-frequented roads and three lines of canals traverse this region. The elevated and broken region which is contiguous to the table-land of Valdai on the west, and occupies the greater part of the government of Pskow and Vitebsk, appears to be similar to its natural features, but the surface exhibits greater variety. The lakes being very numerous, and probably their effects on agriculture are as hurtful here as in Finland. But this tract is imperfectly known, as it is not traversed by any great line of road.

A ridge of elevated ground of considerable width commences on the banks of the river Don and Dünaburg, not far from which town the last rapids in the river Don extends northward on both sides of 27° E. long., and terminates on the banks of the lake Peipus south of Dorpat. It appears that its average elevation is about 600 feet above the level of the rivers and lakes, and between Dorpat and Dünaburg, which lies nearly in the middle of the ridge, has this elevation. But in some places there are hills which are from 300 to 500 feet higher. This sandy and sterile ridge comprises the elevated table-land of Vitebsk and Pokrov from the low plains of Livonia, which extends westward from it to the shores of the Gulf of Riga. The eastern portion of this plain, east of 26° E. long., is in general undulating, but in many places contains hills 500 or 500 feet high. It is this tract the soil is chiefly loamy, and has a considerable degree of fertility. In the forests the birch prevails. To
the west of 65° E. long., the country is nearly a level, with the exception of the southern districts between the Dnina and the river As, where there are some hills. The Wesenberg, near the town of Windesheim, rises 1200 feet above the sea-level. The soil of the level portion of the plain is much less fertile, the greater part of it consisting of sand, which, by being saturated with moisture by the melting of the snow, becomes fit for maintaining vegetation, and for producing crops, are rather scarce. West of Prus and Ratinor, is traversed from north to south by a series of table-lands, which occupy extensive tracts between the Dnina and Vilka (an affluent of the Niemen), the Vilka and the Niemen, and the last-mentioned rivers and the Bug, and extend eastward to the swamps. The tops spread out in large plains, the borders of which however are not well determined, as they lower imperceptibly towards the rivers with long and gradual slopes. The more elevated portions of these table-lands are from 40 to 60 feet above the sea-level, and as the soil is sandy and dry, but well penetrated by the water from the melting of the snow, they are covered with pine-forests, which supply the best pine-timber in European Russia. The Niemen, rising in the north of the table-lands, is sent from Manevol to England. On the most southern table-land, between the Niemen and Bug, near the sources of the river Narov, and contiguous to the swamps of Prus and Rainor (between 25° 29' and 25° 31' lunar meridian, the depth of 30' of the lake), lies the estuary of Radovitz, which occupies more than 700 square miles, or about the extent of Westmorland, and contains oak, fir, and pines of immense size. It is said that no person has ever penetrated through this wilderness, as the interior is impregnated with innumerable springs. There is only one place where the water is said to be still fresh. [Bison.] The lower countries along the banks of the rivers have a tolerably fertile soil, consisting of loam and sand, intermixed with alluvial mould, the depth of 20' of the lake, which is the only place where the river is still fresh. [Bison.] The climate of this region is much colder than that of the countries along the Baltic under the same parallel. Even in the southern districts the mean annual temperature does not exceed 42°. The winter is long and severe; the spring short and late. The summer is extremely variable; the difference between two days frequently amounting to 20° and more. Frosts are frequent, but are followed by a cold wind. Fogs are very frequent in this season. Autumn is the most agreeable season, when the days are dry and warm; but the nights are chilly. Wheat and rye do not exist farther south than the Volga, which occupies 650,000 square miles, and is equal in extent to three times the area of France, and five and a half times that of the British Islands. It constitutes the most important, and, generally speaking, the most fertile portion of the whole empire. The upper basin of the Volga comprehends the governments of Tver, Yaroslav, and Kostroma. The source of the river is 910 feet, the town of Twer 390 feet, and the town of Nihnei Novgorod, at the lower extremity of this part of the basin, 30 feet. The declivity of this region brings a great part of the southern declivity of the uawl, or northern watershed. Between Yaroslav and Kosroma, the declivity of the uawl terminates about ten or twelve miles from the Volga, but further east at a greater distance. Between it and the river there is a level plain. This declivity is much less wooded than the northern towards the confines of the Drina. The forests, which consist mostly of pines, occupy less than half its surface. The remainder is pasturage suited only for sheep and milch cattle, here and there interspersed with tracts of sand. It is only along the watercourses that cultivable tracts of moderate extent and moderate fertility occur. The plains north of the river are sandy, stony, and poor. Along the middle course and the delta, it is moderately fertile, and give tolerable crops of wheat, rye, barley, oats, hemp, and flax: the forests which lie within them and on their borders consist of oak, birch, ash, alder, poplar, fir, and pine. Further down the land is less fertile, and as the climate seems to be more severe and less favourable to the growth of grain, hemp and flax, especially the latter, constitute the principal objects of agriculture. Extensive fields are entirely covered with flax. Rye and barley are largely cultivated with tolerable success, but wheat, oats, and peas do not succeed so well, and are little grown. A consid- erable portion of the flax and hemp grown in this country is consumed in the numerous manufactures which exist in the towns and even in the villages. Forests, chiefly pine, are also very extensive. The loamy soil in some places is sanded, where the plains increase in width, the soil is almost exclusively covered with sand, which produces few trees, and is only partially cultivated. In a few depressions there are mounds, but it is generally a very poor tract.

South of this point the Volga in the basin of the Volga lies that of its affluent the Oka, which in some places extends to 52° N. lat., and is on an average 250 miles from north to south. Not far from the banks of the Volga, the country south of it rises to an elevation of from 50 to 100 feet, and south. The soil with a steep ascent, but in several places with a long gentle slope. The country which hence extends southward is an undulating plain interspersed with a few hills of moderate elevation and gradual declivities. The general level of the surface rises very slowly, as the total fall of the Volga is only 416 feet above the sea, or only 26 feet higher than Tver, and no part of the intervening country much exceeds 600 feet; but towards the west it rises higher, as the town of Mezisk is on the right bank of the Volga, more than 600 feet.

The country possesses Checa, a large plain, which is one of the sources of the Oka (north of 52° N. lat.), but we are not acquainted with the amount of this rise. The soil, which near the Volga is of indifferent quality, improves as we proceed both south and east. In the government of Moscow it is much better than that of the Volga, and though it is under cultivation, the crops are less abundant, and the forests, which occupy extensive tracts, consist only of scrub oaks. In proceeding east of Moscow through the governments of Vladimir, Riasan, and the northern districts of Tovar, the soil improves more than that of the south. The rivers which intersect this extensive region, and generally with a northern and eastern course, run in narrow valleys from 50 to 100 feet below the surface of the plains. The river bottoms are chiefly covered with sand, and are utterly sterile; in a few places only there are meadows. The heights which enclose these valleys are steep. Forests are rare in the countries south of Moscow, but in the eastern districts they occur at certain intervals among the fields, and obscure the sky. The trees are fir, among which there are many tall oaks. Though Moscow is not situated in the very centre of this region, but rather towards its northern boundary, the climate may be considered as representing that of the whole country, as the climate of this region is more elevated, the mean temperature is 39°, that of the winter 13°, that of the spring 30°, that of the summer 62°, and that of the autumn 40°. The mean annual temperature of the summer is one degree higher than at London, whilst in that of the winter there is a difference of 26°. In spring the difference is 15°, but in autumn only 4°. The number of rainy days is 202 in the year, but still the quantity of rain is small.

The middle basin of the Volga extends from the mouth of the Oka down to the ridge of Sochais, is divided into the four governments of Nihnei Novgorod, Pensa, Casan, and Simbirsk. It contains the most fertile part of the basin of the Volga, and perhaps of all Russia. Pallas repeatedly asserts that this region is the granary of the empire. The most fertile portion of the basin of the river. Along its banks there is an activity from 300 to 500 feet above its lowest level; and the country at the back of this activity does not ascend, but stretches out on an undulating level, and is traversed by a series of large and excellent soil. It produces abundance of wheat, rye, spelt, barley, buckwheat, and millet. Horses and cattle are numerous, but of small size. Sheep are very abundant, especially the broad-tailed kind. Oak is the most common tree, but the few forests of fir which occur in this rich loamy soil consist only of stunted and crooked trees covered with branches from the bottom to the top, and they cannot be used as timber. The region east of the river is not so fertile, but still it supplies rich crops, and is remarkable for the...
extensive forests of oak which occupy the higher grounds. These higher grounds are divided from the banks of the river by a low tract from four to six or even eight miles in width, which partly covered with swamps, but partly supplies good pasture. The mean annual temperature of Cassan is nearly equal to that of Moscow, being 37°, but the autumn and winter are much colder. The mean temperature of the autumn is only 53°, and that of the winter 19°, which of that of the tropics is 65°, or four degrees higher than that of London, and that of the spring is 42°.

To the north and east of this portion of the basin of the Volga extends the largest extent of the Kama, which is situated to the north and east of Perm, heavily seventy miles distant from the great river in a straight line, is only 576 feet above the sea-level. Along the rivers there are valleys, or rather depressions, from ten to twenty miles wide, and between these depressions there is an elevated ground found to the north of the valleys, the highest part of which is a level or undulating plain, equal in width to the adjacent depressions. Near the Ural both the valleys and ridges run parallel to the principal range of the mountain-system, but farther west the course is north-east and south-west. The heights of the Ural's mountains are entirely covered with forests, which towards the north consist of pine-trees, but towards the south the forests are intermingled with oak and lime trees. A great part of the lower country is also wooded, but extensive tracts have not been separated from the cultivation of rye, barley, and oats. In a few places wheat is cultivated. In the most northern districts drained by the Kama there are extensive swamps, which render cultivation precarious, but still it extends north of the parallel of 59°. The southern portion of this region, on both sides of the Ural and Ufa, is very imperfectly known. In many parts it appears to resemble the woodless steppe farther south, but in others cultivation alternates with forests of deciduous trees, especially oak. The basin of the Kama contains the richest mines of iron and copper in Russia, and immense quantities of salt are extracted from salt-springs. In this region platinum has been found.

The lower course of the Volga traverses an immense sump, which does not extend over the whole of the lower basin of the river, but stretches out eastward to the banks of the river Ural, along the course of which it extends from its mouth to the place where it issues from the Volga Mountains, and forms the boundary of Russia towards the Kirghiz Cossacks, whose country do not differ much in natural features from the great steppe which extends over the south-east of Russia. On the shores of the Caspian Sea the steppe extends from the embouchure of the river Ural to that of the river Kooman, which, with the Manych river, constitutes the boundary of Russia in Europe. But the greater part of the country between the river Kooman and the upper course of the Manych on the north, and the base of the Caspian on the south, is a steppe. This is the region of the Semenian desert lies close to the right bank of the Volga. About 52° 30' N. lat., or where the ridge of the hills of Samara is broken through by the Volga, there begins on its right bank an elevated tract, rising in general 300 feet, but sometimes 500 feet above the lowest level. This elevated ground continues without interruption to the place where the Volga turns to the south-east (45° 30'), and prevents all the rivers that originate west of its course from joining it, and obliges them to run to the Don. The elevated ground does not cease at the bend of the Volga, but continues to advance southward along the left bank of the river Sarpa, an affluent of the Volga, which runs from south to north. North of the Sarpa the country is covered with a fine gravel, the most southerly of the Volga, north of the Sarpa, 51° and 46°, is gradually lost in the plain which extends north of the river Manych. The steppe thus confined, as far as it belongs to Russia, contains, according to a rough estimate, an area of 3,000,000 square miles, or more than once and a half the area of all France. Though the whole of this region is unfit for cultivation, and supplies only pasture for the herds of the nomad inhabitants, some parts are less arid, and have been converted into pasture-grounds. That part of the steppe which lies west of the course of the Volga is called the Koomans steppe. This portion of the great steppe is not a level, but it is divided into a series of gentle swells of a roundish form, so that the view seldom extends over many miles. The soil consists almost entirely of a yellow clay, and remnants of sand; it is impregnated with salt, and pits, or small salt-lakes, are common. Vegetation is confined to a few grasses. The most frequent are the Russian wild oats, some species of salisolea, and a coarse grass, which grows in tufts several feet from one another, between these tufts the yellow soil is without any vegetation. In the great flat, the surface of which, so far as it forms a turf, except in some of the deeper depressions and in these the vegetation chiefly consists of salt herbs, is only for cannels. The shore of the Caspian Sea between the mouths of the Volga and those of the Kooman is very muddy, and distance varies between the river mouth and the sea. The mouth of the Volga is distant 40 miles from the sea. It is inundated by the waters of that great lake in which a strong easterly wind happens to blow for some time, small vessels are sometimes driven on the sand-hills which rise over the west of this level tract. These low hills appear to have been produced by sand which has been piled up by the lake. At the back of these hills there are extensive salt-lakes, which once evidently formed part of the Caspian Sea before the sand-hills existed. Among these salt-lakes that part of Solomon Khaki are very remarkable. They are depressed in the centre, and rise to the level of the sea, forming a very swampy surface, over which the salt-lakes are distanced. In this tract the river Manych originates, and runs nearly due west for about sixty or seventy miles until it joins the Caspian Sea. The river Manych, or Sarpa from the Don, it enters an arid plain of moderate width which extends westward to the mouth of the Don, and is enclosed on the south and north by more elevated land. This level tract contained, at a former period, the sea of Anapa. The river constitutes a broad estuary which is connected with the Caspian Sea by small banks, entirely consisting of sand, which is elevated in the winter, when the waters of the sea again rise, and which indicates that such a communication once existed. To the Caspian Sea, according to the latest measurement, about 100 feet below the level of the Black Sea, it is supposed that before this communication was stopped. The river must have been higher by 100 feet, and that the waters then covered the whole steppe, not only the Russia, on both sides of the Volga, but also that of the Kirghiz Cossacks, far beyond the shores of the Sea of Azof, and is enclosed on the south and north by more elevated land. This level tract contained, at a former period, the sea of Anapa. The river constitutes a broad estuary which is connected with the Caspian Sea by small banks, entirely consisting of sand, which is elevated in the winter, when the grass of the plains is entirely destroyed, and the herds find abundant pasture on the swampy islands along the banks of the river Sarpa, on the low shores of Caspian, and on the more level ground of the river Kooman. The southern steppe is the region of the Atlas, where the Semenians, or horsemen who, according to their ancient occupation. The most famous of these Cossacks are horses, saiga-antelopes [Antelope, vol. I, p. 72], wild wolves, and the dipus jeros. In winter, the grass of the plains is entirely destroyed, and the herds find abundant pasture on the swampy islands along the banks of the river Sarpa, on the low shores of Caspian, and on the more level ground of the river Kooman. The southern steppe is the region of the Atlas, where the Semenians, or horsemen who, according to their ancient occupation.
are formed, most of which, as well as the low tracts along the river, are annually inundated for about two months, and though they are thus rendered unfit for cultivation, they are used as meadows and pasture-ground. Some of the larger islands however, being above the reach of the inundations, allow the cultivation of different kinds of grain; and these are the only tracts in this region where grain is grown.

The larger portion of the steppe is situated on the east of the Volga; and it is called by the Calkums Gahsen, that is, the steppe. The name however applies only to the southern and more fertile part, a considerable extent of land being formed by the river of the Ostobesh Sirt. This ridge of elevated ground is connected at its eastern extremity with the most western ranges of the Ural Mountains, near 52° N. lat., whence it extends westward, and at first parallel with the middle course of the river Ural, to the place where the river turns southward. The elevated ground continues westward until it reaches the Volga opposite Kamyshein, between 51° and 52° N. lat. The Ostobesh Sirt rises with a gentle declivity about 550 feet above the steppe, which extends along its southern side, and is considered by Pallas to be the antecedent coastline of the sea, when the waters of the Caspian Sea covered the whole plain south of it. It differs considerably from the steppe itself, the soil containing a considerableness of peat and clay, interspersed with reeds and alder, and with a thin alder grass. The northern part of the steppe is reached by a short descent on its northern side. This country is several feet above the level of the Black Sea, while the southern portion is from 30 to 50 and not very high. Its surface is also a level, in which the water-courses have made deep furrows. The upper level consists of a more fertile soil than that of the steppe, and is chiefly covered with a tolerably good turf, but is without trees or bushes. No part of this extensive soil is in cultivation. On the bottoms of the rivers however there are wild cherry and almond trees and other shrubs, and between them meadows. In some places these bottoms are partially cultivated.

The western extremity of the Ostobesh Sirt, not far from the town of Kamyshein, begins the Naryn, an elevated tract of sand, which runs in a south-east direction through the great steppe, south of the Ostobesh Sirt, and terminates not far from the shores of the Caspian Sea. Its length is about 300 miles, and it varies in width from 30 to 100

miles. The surface is covered with hills varying from 12 to 30 meters in height; they lie generally in groups close together, but sometimes the groups are separated from one another by wide intervals. The steppe is covered with sand intermixed with broken shells and decomposed lime, and quite destitute of vegetation; but it is remarkable that a few feet below the surface spring water is always found among these hills, and in some of the depressions may be found a kind of moss which is required to the very worst part of the steppe. It appears that a great depression occurs here, which contains numerous salt lakes, which begin on the north with the lake of Elton, about 70 miles south-eastward to the shores of the Caspian. The lakes are separated from one another by level tracts, consisting of yellow clay, without any vegetation, except in a few isolated spots of small extent. In some parts there are hills covered with gray morass, and consisting of great masses of rock. The surface of these rocks is salt. Solenina Gora, or Tashtapshatub, is about 100 miles north of the town of Astrakhan. No use is made of the immense masses of rock-salt which occur in this tract, as that country can be obtained with less expense from the lakes of Russia. Formerly the fine and pure salt which crystallizes along the banks of the lake of Bogudon Dobossou was collected, but it has been discontinued since 1807, on account of the expense of transport. This lake, which is 10 miles long and 2 miles broad, and is 12 miles long, with a width of nearly 1 mile, and is about 20 feet deep. There is a lake of salt, like ice. It has a brownish-grey and reddish colour, and though not quite pure, is used in most parts of Russia. The government maintains on the sterile banks of the lake an establishment of about one thousand persons. The layer of salt is broken with poles and collected on the shores of the lake, whence it is transported to the great salt depot at Saratow, which, according to Erdmann, has existed some years ago thirty million pools of salt, a quantity which was considered sufficient for the consumption of the whole empire for more than a year. Between the series of salt lakes which have been already noticed, and the banks of the Volga, is a tract of sandy hills similar to the Naryn, but of less extent. Though the vegetation of this tract is very scanty, it is most important for the depression in which the salt lakes occur, and there are some spots which supply pasture. There are no permanent watercourses in this region, nor even temporary ones of any considerable size.

That part of the steppe which lies east of the Naryn appears to be less fertile than the country just described. Here the soil consists chiefly of yellow clay, but is more intermixed with sand, and more fit for supporting vegetation. But the soil is also impregnated with salt, though much less so than the western part of the steppe, and some saline plants, with the short wormwood, on which the saiga-antelope feeds, are the vegetation most frequently met with. Three rivers traverse it from north-west to south-east; two of them are called Uzen (the Lesser and the Greater), and fall into the salt lake Kamyshein Samara, which sometimes discharges its waters into the river Ural by a small channel, but generally, like all the lakes of this region, has no outlet. The third river, which rises in the mountains of the Caspian lake of Zagan, or Zagan Nor. The two rivers Uzen run in two beds from 15 to 30 feet below the surface of the steppe, which is a dead level, and the bottoms along their banks are from half a mile to two miles wide. They are covered with poplars, willows, wild asparagus, and other hardy plants. These are the only wooded tracts in the whole extent of the steppe; for the bottoms along the Ural river, which are from half a mile to a mile and a half wide, are subject to annual inundations.

Though the Ural river is considered as the boundary-line between Russia and the country inhabited by the independent tribes of the Kirghis-Co-sacks, from the place where it turns southward, or from the redoubt of Oreskia, of which the locals consist of a large number of tribes of the river as belonging to them, the rock-salt mines of Elton and the salt lake of Inderskoe. The first are about 80 miles west of the town of Orenburg, near the place where the small river Ikh falls into the Ural. They are the only mines of rock-salt which are annually worked in Russia. Great quantities of salt were formerly obtained from them, but in modern times they have not been worked to any great extent. The salt lake of Inderskoe, which is near 49° N. lat., about eight miles south of the town of Orenburg, the Ural is about 35 miles in circumference. It is entirely covered with such a thick layer of salt, that, according to Pallas, it may be crossed by a man, like a sheet of ice. Only the Co-sacks who are stationed on the Ural river take the salt out of it, as it is required at the fish which are caught in the river. [URAL RIVER.]

No country on the globe is subject to a greater diversity of heat and cold than this steppe, especially the eastern part. The Ural, notwithstanding its rapid current in its upper course, is covered with ice at the end of October or the beginning of November, and it does not break up before the middle of April. During this season the frost is continuous and intense. The thermometer generally sinks 15° below zero, but it continues so for several weeks together, and sometimes it descends to 36° and 35°. During this time a considerable quantity of snow falls, but it does not cover the ground, being carried over the plain by violent whirlwinds, which cause it to accumulate in certain places. The spring is very short. In the middle of May the heat begins to be oppressive in the day-time. In June and July the thermometer rises to 100°, and at Orenburg it sometimes attains 110°. The heat is generally attended with a total want of rain and a southern wind which drives up the water from the sea and coats the lakes and country with a film of salt, but the rains, however, are cool. In September the heat decreases rapidly, and soon afterwards night-frosts become frequent. In this season rain is rather common. Thus the inhabitants of Uralian expeditions often hand down the following saying: 'One does not inferior to that felt on the banks of the Mackenzie river near the polar circle; while in summer they are oppressed by a heat which may be compared with that of the hottest month on the Amazonas, under the equator.' As no mountains intervene between this steppe and the western countries of Europe, the effects of this extraordinary
climate are felt as far west as Great Britain. When the wind blows from the east between October and May, it is extremely cold, and more disagreeable than from the north. Though the wind has passed over extensive regions before it reaches our coast, it has not entirely changed its character. When a cold, dry, and gusty wind between May and October, it is attended with a greater degree of warmth than the southern winds. In summer the thermometer rises in Great Britain highest when easterly and south-easterly winds blow from that southern Russia which lies west of the lower basin of the river Volga extends along the coast of the Black Sea as far west as the Danube and Pruth. It terminates on the south with the peninsula of the Crimea, which forms a large portion of the mountainous and fertile and depopulated level region; the latter exactly resembles the great steppe lying west of the lower course of the Volga. [Crimea, vol. viii., p. 158.] The country which extends from the shores of the Purtid Sea northward between the Dnieper on the west and the river Molossynia on the east, as far north as 42° N. lat., is likewise a salt steppe; the waters of the lakes as well as those of the small rivers being slightly impregnated with salt. It is not however level, but the surface consists of rounded hills, separated by chains of small detached mountains and deep valleys. The higher land has a soil consisting of a reddish clay, which is very barren. In the lower tracts the soil is an intermixture of black mould and sand, and mostly covered with grass, which supplies tolerable pasture. The most wonderful feature of the steppe traversed by the Dnieper to the Linn or estuary of the last-mentioned river, is a sandy waste, which is entirely barren and uninhabited.

North of this country there is a steppe of somewhat different character. It comprehends the whole country south of the granite tract which traverses Russia from east to west, from the banks of the Don and the Azov (its confluent, which joins it at its most eastern bend) to the river Pruth, with a width of between 20 and 30 miles. This tract may be included within the steppe, being similar in soil and climate, and only differing from it in the form of its surface, which is more hilly. Towards its eastern extremity, near 40° E. long., between the town of Voronez and the Manych river, the width of this region is near 200 miles; but towards the west it grows narrower, and from 33° E. long. westward it does not exceed 150 miles. Its length from east to west is 900 miles, and the area is about 180,000 square miles, exceeding that of the British Islands by more than twice its length. It is, however, distinguished by its characteristic features. It is considerably more elevated than the low steppes near the Caspian Sea, and not impregnated with salt, except between the mouths of the rivers Dnieper, where a large sandy tract extends some distance from the sea, and when it does not, where low marshes of the extent occur. Towards the south and east the surface is mostly a dead level, with the exception of narrow tracts along the watercourses, which are enclosed by steep acclivities that form the banks of the rivers. The rainfall is dry and even. Rain is rare, and of short duration, and the thermometer rises from 90° to 100°. In autumn and winter whirlwinds are frequent; and though a considerable quantity of snow falls, it is swept by the winds from the extensive plains, and does not produce any essential change in the climate. The rivers very little advantage from it. From December to February, the thermometer frequently sinks to 25° and 30° below zero. The spring and autumn are of short duration. The western coast of this extensive steppe may be divided into two tracts; the western, or on both sides of the middle course of the river Dnieper. On the west of the river, it extends from the northern border of the steppe (between 48° and 49° N. lat.) to the great swamps of Pskov and Ratinor (near 52°), and comprehends the governments of Podolia, Volynia, and Kiev. On the east of the Dnieper, it comprehends the government of Poltava, the greater part of that of Cherkassy, and the western parts of Charkow, under the general name of the Ukraine. The surface of this region is chiefly undulating, but in many places it extends in level plains. The soil mostly consists of a black mould, here and there interspersed with sand, and in some parts, where loam is mixed with the mould, it is very great. In fact it vies in fertility with the country in the middle course of the Volga. Here the forests principally consist of oak, but they are much less extensive than in the western part of Russia. The principal rivers which lie within the basin of the river Don, between its upper affluents, and comprehends the eastern portions of Charkow, Kurak, and Orlo, the whole of Voroumys, and portions of Tammow and Saratow. It appears to be the least fertile of the western region, and partakes more of the nature of the steppe, as wood and water in many parts are scarce. The surface is also more undulating, and in many parts it rises into hills of moderate elevation with rather steep declivities. In the southern parts it is sandy and impervious to the soil without a certain degree of fertility, though on the higher parts there are considerable tracts of sterile land. On the lower ground however cultivation in general, and the wheat which is grown here is of excellent quality. The wheat is exported, and at times the exportation of grain is actually exported. Though the difference of the temperature in summer and winter is considerable, it is much less that in the steppe farther south. Here also the rains are much more abundant, especially in the western region. The precipitation of rain in summer in this region is one of the causes to which its smaller degree of fertility is ascribed.

In conclusion, if we view Russia as an agricultural country, we find that the most fertile region is nearly the central part of it, extending from between 48° 30' and 52° on the west, north-eastward to between 45° and 56° N. lat. on the east. It lies between 25° and 50° E. long. The central part of this region, that about the ancient capital of the country and in the basin of the river Oka, is the best for agriculture, and the most eastern and western parts may be enumerated among the most productive countries in Europe. On both sides of this central region the fertility decreases, but less rapidly towards the north than towards the south. On the south and west, a midland of water courses in Southern Russia and those of the river Volga, but on the north the wide basin of the Upper Volga and the wooded region on both sides of the wullai separate it from the swampy desert which extends along the shores of the Black Sea. Rivers and Marshes.-The waters of Russia are not so extensive as the articles Dwina, Volga, Duna, Niemen, Dnieper, Dniester, Danube, Don, and Ural. As Russia is a level country, the rivers present a greater number of rapids and cataracts, and the rivers which join the gulf and the lakes from the south generally present some impediments to navigation in their upper course, which is also the case with the Duna, which falls into the Black Sea, while the Niemen is navigable in all its extent, and the Don extends to navigation; and the principal river and all its branches may be ascended to a short distance from the places where they originate. The Volga has the longest line of navigation, as it flows more than 2000 miles, and in the river which falls into the Black Sea are much less adapted for the transport of merchandise. Besides their comparatively small volume of water, owing to the scarcity of rain and snow, the shallowness of their beds, the channels are quite adapted for the navigation of the vast tracts which traverses Southern Russia.

Lakes are very numerous in certain parts of the empire.
especially in the north-west and south-east. Almost all the lakes which occur in the salt steppes that surround the Caspian on the north, as well as in those of the Crimea and the Volga steppe, which lies north of the peninsular, on the salt lakes of the inner regions, and on all of them. The lakes from which salt is actually obtained have been noticed before, namely the lakes of Elton, Bogdoïn-Dabosso, and Indersoo. There are very few lakes in the interior of Russia, and these are very few or even 10 or 100 miles, and in the Gulf of Finland are very numerous. To the south of that Gulf a very great number of lakes is dispersed over the country, between 55° and 60° N. lat., and between 27° and 30° E. long., especially over the southern districts. The lakes are known with the names of their owners, and are not more than 40 miles long, and in its northern part nearly 30 miles wide. The area is about 1500 square miles, or more than the county of Sussex. It is 10 fathoms deep in the centre, and greatly facilitates the communication between the countries along the shore; but it is less favourable to the commerce with the gulf, for its outlet, the river Narova, though deep, has a very rapid course, and forms a short distance above the town of Narva, a cataract 16 feet high, by which both boats can pass.

In the country north of the Gulf of Finland there are several systems of lakes, of which it is difficult to give any description. The deep depressions between the rocks are filled with water, which sometimes expands to four or five miles in width, and is 10 to 20 fathoms deep. This is hardly 30 or even 50 fathoms across, which however soon widens again to the dimensions of a lake. The wider parts of these extraordinary pieces of water are dotted with rocks or rocky islets. The most extensive of these systems of lakes is the great lake of Komisty, which contains a series of lakes of nearly 30° N. lat., north of the town of Kuopio, and from thence the series of lakes connected with one another by short and rapid channels extends in a south-south-west direction to Nagurov, a lake 40 miles deep, which is connected with the waters of another series of lakes, which begin on the north, also near 63° 30' N. lat. with the lake of Piilaysavri, and extend southward. South of Nysslott the lakes lie from north-east to south-west, and continue to 61° N. lat., where they join the lakes of West Timo, of which the northernmost lies near the flat and lake lakes, which are from three to five feet deep. The waters are rarely agitated by storms. Its outlet, the Chasaka, flows to the Volga in a southern direction. At a distance of about 30 miles from the Bielö Ozero, it is the lake of Koobenskoe, which communicates to the basins of the lakes, which are in length from north-west to south-east, varying in width from five to ten miles. Several small rivers fall into it, and the lake is considered the source of the river Sukhona, one of the principal branches of the Neva, which is navigable for large river boats, its depth varying between three and four fathoms. The third lake is the Ilmen or Ozero. It lies between 58° and 38° N. lat., and near 31° E. long., and has nearly a triangular shape, extending from south to north. It receives a great number of rivers, and sends its waters to the lake of Ladoga by the river Volkhov. This lake is 430 feet above the level of the Baltic.

Canals.—The navigability of nearly all the Russian rivers to a very short distance from their sources, and the very moderate height of the elevated tracts, which divide the river systems from one another, above the level of the rivers that originate in them, facilitates more than in any other country the making of canals to establish the establishment of a continuous water-communication in the interior of the empire. Peter the Great perceived the advantages of such a water-communication, and he planned nearly all the canals which have been executed since his time, and some of them have been finished.

It has been already observed that those rivers which originate south of 55° N. lat. are much less adapted for navigation in their upper courses than those which have their sources farther north. This is mainly to be attributed to the great height of these rivers, and the very high water. When the attempt was made to unite the southern rivers by canals, this circumstance does not appear to have been known, or at least not to have been considered as an obstacle to the enterprise. Experience has shown that it constituted an insurmountable obstacle. All canals which were undertaken in these districts have failed. Between 48° 30' and 49° 20' the river Don approaches the course of the Volga within 25 miles, and the Ilwia, an affluent of the Don, is only 20 miles from that of the Volga, and a very extensive country in that latitude. But the river Woxa it receives this width of the Saima lakes from the eastern districts of Finland, by

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Great, but though both are of considerable dimensions, there is no drop of water in them at present. No water can be procured in the vicinity to feed them. Pallas thought that the most advantageous place for uniting the Don and Volga was where these two rivers approach nearest to one another, but by a line drawn from the bank of the Don to that of the Volga, there found that the country between them was 310 feet above the level of the Volga, and 210 above that of the Don. There being no water in the neighbourhood to feed the number of locks required of the Volga, he recommended that the river Don might be connected in a small lake called Ivanowskie Ozero, and not far from this lake are the sources of the Shat, which falls into the Oka, an affluent of the Oka. Peter caused a canal to be made between the lakes of Shat and the Oka, and it is stated that 1797 barges passed through it, but it does not appear that it was used afterwards; and when Alexander intended to re-establish the navigation, it was found that there was no water. The Shatnja, an affluent of the Oka from the west, originates not far from the Bolva, which falls into the Desna, a tributary of the Dnieper. In the beginning of the present century a plan was formed for uniting the Shatnja and Bolva by a canal, but no step has been taken towards its execution. It is very probable that this design also would fail for want of water.

On the contrary, all the canals which have been made in the northern provinces have succeeded completely. The three most important constitute a water-communication between the Volga and the Neva, the Neva and Petersburg, and consequently with the Neva and Petersburg. The most famous and most frequented of them is the canal of Vishnei Volotoshok, near 57° 40' N. lat. and 34° 30' E. long., by which a direct water-communication is opened between Lake Kasimovskoe and Lake Ilmen, Mezil. Of 3200 feet long. Yet the canal does not exceed three miles in length. It traverses the town of Vishnei Volotoshok, and unites the river Tvera, which falls into the Volga near Tver, with the lake of Mstino, which is about eight miles long, but has a breadth of 400 yards, and from which flows into the lake of Ilmen. A simple cut was made by Peter the Great, but as in course of time the number of vessels passing through the canal rapidly increased, the want of water was felt, and in modern times a large reservoir, the basin of Sowel, has been formed by collecting the water of several streams and small lakes. Other hydraulic works have been constructed in order to render the rapidity which occur both in the Tvera and Mstino less dangerous to the vessels. But the largest of the navigation is the broad, Borovitkio Porog, where the river in the course of 20 miles descends 160 feet, and where many vessels were formerly lost. After descending the Mstino the vessels were obliged to traverse the northern extremity of the lake of Ilmen, and that part of the route is so dangerous, that in sudden gales, many vessels were lost. To obviate this danger a canal was made from a point about a mile above the embouchure of the Mstino to the Volchoh, along the northern shkino Volotoshok. This canal, which is nearly six miles long and from 12 to 14 fathoms wide at its upper level, is called the canal of Nogrod, as it terminates in the vicinity of that town in the Volchoh. The Volchoh also offered many difficulties to navigation by the rapidity of its course, as it descends 400 feet in a distance not much exceeding eight miles. Though the actual extent of the canals on this line of water-communication amounts only to nine miles, the works are very extensive and have cost large sums. With the exception of the canals in the interior of China, there is no water-communication which is more frequented than the Vishnei Volotoshok. The produce of the mines of Perin and Ekazarburg, of the rich country and the oak-forests between Nishnie Nogrod and Simbirsk, and of the whole basin of the Oka, from the sources of the Volga by the Volga and this line of navigation. In 1628 the number of laden river-vessels which arrived by this route at Petersburg was 12,936; that of empty vessels 702, and that of rafts 6398; and since that time a considerable increase has taken place. On the 26th of July 1828, the number of vessels passing through the Volga and Petersburg amounted to 130 millions of rubles banc. The canals and rivers on this line are generally free from ice from the middle of April to the end of October.

The second line of water-communication is formed by the Tikhova Volva, which is farther to the north-west, near 59° 25' N. lat. and 34° 20' E. long. This line of inland navigation begins in the Volga at the mouth of the river Malogos, north of 58° N. lat. and near 38° 30' E. long. It ascends the last-mentioned river to its most northern bend, where it is joined by its large affluent the Chagodaos or Chagodora; it then follows the last-mentioned river to its junction with the Somyno, which rises in the lake of Bogorod in the province of Yaroslavl. The route is marked by the Tikhova Volva with the small lake of Lebdini, which is the source of the river Tikhova. The Tikhova runs westward into the Sea, which falls into the lake of Ladoga a distance of nearly 20 miles. At the mouth of the lake the highest level in this line of navigation is 564 feet above the lake of Ladoga, and only 162 feet above the level of the Volga at the mouth of the river Malogos. The canal itself is only five miles long and 36 feet wide at its upper level. A visitor arriving in the ruts has 1709 abatements, and although their length does not exceed four miles. The number of locks amounts to eighty-six, which occur in a space of about 120 miles. It was terminated in 1814, and improved between 1828 and 1829. Loaded barges can return by means of this canal from Petersburg to the Volga, which is very difficult by the canal of Vishnei Volotoshok. In 1828 the number of loaded barges which went to Petersburg was 7813, of empty ones 276, and of rafts 1488; while from Petersburg 887 loaded and 665 empty barges returned to the Volga.

The third line of water-communication traverses the two lakes of Onega and Bieloie Ozero. The Kowska, a navigable river, falls into the last-mentioned lake from the north-west; and from these two lakes the river Vytaga, which is part of the elevated tract which is the watershed between the lakes of Onega and Bieloie Ozero. Some miles west of this lake are the sources of the river Vytaga, which by a north-west course reaches the lake of Onega. Between these two rivers, the Vytaga, goods must be 300, and, with the help of the Khosan, are used to feed the locks of three short canals, whose length, taken together, does not exceed eight miles. The length of the Kowska amounts only to 53 feet, and that of the Vytaga to 50 feet; consequently the Bieloie Ozero is nearly one mile wide, and the river Vytaga is about two miles wide. The rails of the locks is 31. But the river Cheksna, which issues from the Bieloie Ozero, and falls into the Volga at Rybinsk, contains some rapids, and in one place, above the town of Cherepov, goods must be 240, and, with the help of an additional lock, can be passed. It is to be considered that a distance of 160 feet, which was proposed several years ago to make a canal on the left bank of the Cheksna, about twelve miles long. We do not know if this project has been executed. The canals by which the Vytaga is joined to the Volga were opened in 1738 in honour of the wife of the emperor Paul Petrovitch, who paid the expenses of the undertaking. It was finished in 1808. By this communication 2280 loaded and 150 empty barges, and 3536 rafts, came to Petersburg in 1828. The rail of the locks is 400, and the distance between the sea and Petersburg is about 100 miles. In 1825 and 1830, on an average, about ten millions of rubles banc; but that of the merchandise which went from the capital to the interior fell short of one million. The season. Nine locks are situated near the northern bank, and can be navigated from the end of April to the middle of October.

On comparing these three systems of water-communication between the Baltic and the Volga, as to length, it appears that the shortest is that through the Tikhova Volva, by which the whole distance between Bykyn and Petersburg is reduced to 556 miles. Between the same places, through the Mary Canals, it amounts to 713 miles, and through the canal system of the Vishnei Volotoshok to 732 miles. Though the last is the longest route, it is still generally preferred than the next, as during the last twelve years were brought to Petersburg by the Mary, Tikhova, and Vishnei Volotoshok canals was estimated in the respective proportions of one, three, and ten.

As these three systems of inland navigation traverse the lakes of Ladoga and Onega, and the barges, as originally obliged to pass over them, heavy losses of property were frequently incurred by the barges being swamped during the gales to which the lakes are subject. To avoid this great evil, a large number of small reservoirs were made along the southern shores of the lakes. The most western, called the Ladoga canal, unites the river Voloch with the Neva; it is nearly 70 miles long, from 10 to 14 fathoms wide, from 4 to 7 feet deep in summer, and from 7 to 10 feet deep in winter. Nine locks are built on the northern bank, and discharge the superfluous water into the lake of Ladoga, and sixteen on the southern bank, to bring into the canal such
a supply of water as is required in summer. For the latter purpose some irrigation-engineers are also used. The canals, which were first opened in 1723, but have since been improved at several times: the last occasion was in 1831. When the Tikhvin canal was made, this line of navigation was extended farther east, by the Sias canal, which runs along the southern bank of the Swir, is about 10 miles wide, and is about 7 miles long. Fathoms wide, and 5 feet deep. To obviate the danger which the barges passing through the Mary canals might encounter in navigating lake Onega, the Onega canal was undertaken. According to the original plan, it was to be a line of southern extremity of the lake and to unite the river Vyatka with the river Swir, more than forty miles distant from one another on the projected line. But only one-third of this distance has been completed. The Onega canal begins in the river Vyatka, about twenty miles from its several, and runs eastward to the lake. It is about 14 miles long, 12 fathoms wide, and in general 7 feet deep. The barges are therefore still obliged to pass over the lake of Onega, a distance of about twenty-eight miles. The navigation on the river Swir is easy, and it has not appeared to require any improvement. But from the entrance of the Swir to that of the Sias, where the Sias canal begins, the barges must traverse a portion of the wide expanse of the lake of Ladoga, which is full of danger. A canal was proposed to be made from the southern extremity of the lake, which is about 28 miles long and from 13 to 22 fathoms wide; its lowest level is seven feet below the surface of the Ladoga. It is called the Swir canal, and has no locks. Thus a line of canals is proposed extending from the mouth of the river Volga, westward from the Swir, and thence to the White Sea, on the north coast of Norway as far north as North Cape is always above 32°, or the freezing-point, in a considerable portion of the most northern part of Russia the mean annual temperature is below 32°. This is the case with the whole of Russia west of the Urals. It is also the case with the extreme north, and the extreme north-east. But east of the White Sea, the line which separates the countries which have a mean annual temperature below 32°, and those in which it rises above it, turns more to the south-east, terminating on the Ural Mountains near the town of Ufa, on the river Buzuluk. Thus the whole country drained by the rivers Pechora and Moen has a climate the mean annual temperature of which is below the freezing-point. But this severity of climate does not prevent the growth of trees; along the upper courses of both rivers, forests of immense extent are seen. But where the mean annual temperature does not exceed 25° or 26°, which is the case near the mouths of both rivers, a shrub a few inches high is hardly met with. Yet, on the swamps of the delta of the Volga, the barberry is cultivated, and generally comes to maturity. That part of Russia in which the mean annual temperature is below 32° may be called the Arctic Region.

The south of the Arctic Region lies the Cold Region, in which the mean annual temperature varies between 32° and 40°. The southern limit of this region begins on the shores of the Baltic, on the Gulf of Riga, about 58° N. lat., and runs hence east-south-east to the confluence of the Moskva and Oka, near 55° N. lat., whence it continues in the same direction towards the southern extremity of the Ural Mountains, terminating south of Uralisk on the river Ural, near 51° N. lat. It probably extends farther south in the middle of the line, over the elevated region in which the Deana, Oka, and Don rise. The winter in the northern districts lasts from seven to eight months, and in the southern from five to six months; in Petersburg, from the end of September to the beginning of May. The nova is generally covered with ice for 100 days, and the spring and autumn are short, and the passage from cold to heat, and vice versa, is rather rapid. But in summer the heat is for two or three weeks very great. The thermometer then rises to 95° or 96°, and the cold are greater than on the coast. At Cassan the thermometer in winter generally descends to 28° below zero, and in summer it rises to 95° and 96°. Near the sea eastern and north-eastern winds prevail, but in the interior southern, south-eastern, and south-western winds are most frequent...
The temperate region extends over the southern provinces, as far north as the line above mentioned. Its mean annual temperature varies between 46° and 50°, but in the Crimea and the south-east of the Don, it rises to 54° and 56°. This region is distinguished by severe though short winters, and by long and very hot summers. Night-frosts are frequent in October and November, but continual frost does not set in before the middle of December. In January and February, the elevated steppes west of the river Don, the frost is often interrupted by a few days' thaw, while such a phenomenon is of rare occurrence east of the river. The frost however is severe, the thermometer generally sinking in the western districts to 20° below zero, and in the eastern steppes to 15° below zero. Salticidae, the so-called locusts, are a pest in this season northern and eastern winds are prevalent. From the end of February the cold becomes more moderate, but the weather continues to be raw, and there are night-frosts during the northeast and winds, which, at that season are most frequent. In the middle of May however a sudden change takes place. In a few days the heat increases to such a degree as to become oppressive. In June and July it still continues increasing, until the thermometer attains between 75° and 80°. From the middle of August onwards the best rapidly decreases, and in September the thermometer frequently descends to 42° and even 40°; sometimes night-frosts occur. In the hot season south-east and east winds are prevalent.

The climate of Russia is not favourable to the cultivation of fruit-trees. With the exception of wild cherries and some bad apples, no fruits grow north of 56° N. lat. At Vladimir the first extensive plantations of cherry-tree occur, and their produce is sent to Petersburg. In the Black Sea and the Baltic, and to far distant parts, especially the north of Germany. Peas and plums are only grown to any extent south of 59° N. lat. In the most southern districts there are peach orchards. The climate of Russia, with its numerous and extensive orchards of the Crimean there are also almonds and pomegranates. Grapes are chiefly cultivated in the districts along the lower course of the Don, and on the Volga between Kasimov and Saratov, and also in the provinces of Russia proper. Those grapes were formerly of inferior quality, but the grapes cultivated in the important article of internal trade, and were sent to Moscow and even farther north. Since the beginning of this century however great improvements in the grape industry have been made, and the appearance of vineyards north of the Don, by a Frenchman from Champagne, and it is stated that the wine which is made in these parts and extensively used all over Russia, and known under the name of Russian wine, is hardly inferior to the French champagne.

Kitchen-gardens are not much attended to. Potatoes, several kinds of cabbages, turnips, and carrots however are extensively grown; and in some places cucumbers, pumpkins, and radishes, melons, and especially watermelons, are very abundant in the hot and dry countries near the steppes, where they constitute in summer a considerable part of the food of the lower classes. Asparagus grows wild in the southern districts. Hops are frequently found wild, but they are also cultivated. Liqueur is manufactured on the banks of the Volga in the government of Astrakhan, where it sometimes attains the size of a man's arm: it is taken to Astrakhan, where the juice is expressed, and由此 extends inland and south. As a rule, however, the wine is obtained from different kinds of salsola which grow at the steppes on both sides of the Volga.

The forests constitute one of the principal sources of wealth to Russia, and their produce, consisting of lumber, fire-wood, pitch, cedars, and sali and poplars, is exported to a large amount. It is difficult to say what may be the proportion of the surface of the country which is still forest, to that which is cleared or not covered with wood. The official statistics which have been made do not comprehend those forests of no real property, but they are limited to those that belong to the government. It can hardly however be an excessive estimate, if we assume that about three-fourths of the countries between 65° N. lat. and the course of the Volga as far east as its mouth, near the sea, are covered with forests. In all these countries only pine, fir, larch, alder, and birch are found, with a few evergreen shrubs.
lime-trees; ashes are rare. From these countries is derived the greatest part of the produce of the forests which goes to foreign markets. The forests are much less extensive south of the upper course of the Volga. The central provinces, or those which are situated between the middle course of the Volga and the Dnieper, have hardly as much wood as is required for the consumption of a country subject to a severe winter, and for this mass taxation which are established. In some parts even fire-wood is dear and scarce. The forests in the provinces west and east of the central countries are much more extensive. West of the Dnieper, in the government of Smolensk, a large part of the river-beds southward, several extensive forests occur on the banks of the Niemen and in the swamps of Pinsk and Ratinor. They chiefly consist of pine and fir trees, but birch and lime trees are also common, and in some parts they are the prevalent kind. So, if the swamps of Pinsk and Ratinor there are some forests of beech, and this is the only part of Russia where that tree is abundant. The great forests to the east of the central provinces occupy a large part of the governments of Perm, Viatka, Casan, Nishniey Novgorod, Pensa, and Saratow. The two first governments consist mostly of the same trees as the more northern forests; but in the other governments the pine and fir trees are rare, and are replaced by oaks, lime-trees, elms, and ash. In these parts the proportion of the latter to the former trees is not much. Russia has not engaged the attention of government, on account of their great importance for the navy. A more exact survey of them was made some years ago, when it was found that all the forests of Russia were not more than 170,000,000 acres. In 1784 a full survey was made, that is, trees which were between 24 and 36 inches in diameter. The greatest number of them was found in the large forest which extends on both sides of the Volga, and begins at the town of Tcheborosar, somewhere toward the river, and extends toward the river. This forest contained more than 100,000 full-grown trees. In the neighboring provinces the number amounted to 248,000. In the forests along the upper course of the Volga, and farther westward toward the Baltic, only 15,000 trees were found, and these were of a scorpion-spider. In the province of Smolensk included, not more than 11,400 trees. The southern provinces of Russia are quite without trees. In the oak-forest it is common between 55° and 56° N. lat. Near the Ural Mountains it is not found north of 57° N. lat., but farther west it extends to 59°, and few trees are ever found in Finland north of 60° N. lat. In Sweden the oak grows north of 61° N. lat., and on the western coasts of Norway between 62° and 63° N. lat. The domestic animals of England are found in Russia, and particularly in the Government of Orenburg. Horses are very numerous, and of various breeds. Those in the northern provinces are rather small, but the central and southern districts have large breeds. Those of the Cossacks, Calmucks, and Kirghis, are the most famous upon the steppes. During the winter sheep-skins are the common dress of the lower classes of peasantry. In the southern steppes there are some peculiar species of sheep, among which the Koghasian breed with the largest horns is the most renowned. Their wool, when full grown, is short and coarse, but the lambs have a fine and beautiful fleece. Goats are more numerous in Russia than in other countries of Europe; the skins are used for making marocoo leathers. However, there are not many domesticated; they are the most numerous in the countries where there are oak-forests, and in the western provinces, from which a great number of hams and much bacon is sent to other parts of the empire. The nomadic tribes who keep large flocks of sheep are the most numerous; some rich proprietors have herds consisting of more than 1000 head. In the government of Astrakhan buffaloes are kept, but they do not appear to be numerous. Fowl, geese, and ducks are abundant; the two latter especially in those parts where there are numerous lakes and ponds. Reindeer are only kept north of 60° N. lat. The bison (Bison, iv. 462), as already observed, still exists in the forest of Baloviza, near the sources of the river Narow, a confluence of the Vistula. In the extensive northern forests there are elk, and several kinds of deer, hares, and wild hogs; the wild hares and hogs are so numerous for their skins, are very valuable, as bears, gluttons, beavers, wolves, foxes, martens, polecats, weasels, ermines, otters, squirrels, and marmots. In the steppes there are wolves, foxes, and wild hogs; also wild asses, saiga-antelopes, konsaks, or feral horses, and the wild dogs of the steppes. Russia parts of the steppes which yield several valuable produce of the steppe. Nearly all kinds of birds which are met with in England occur in Russia, and also the capercaillie and pelican: the last however only lives on the shores of the Black Sea and of the Caspian.

Fish is very plentiful in the rivers as well as in the White Sea and along the coasts of the Arctic Sea, but it is less abundant in the Baltic. The fish which are chiefly taken in the White Sea are haddock, cod, herrings, and the omul (salmo autumnalis, Pall.). In the Polar Sea, especially the coasts of Novaya Zemlya, the whale, the walrus, narwhal (physkrus macrocephalus), seal, dolphin, white fish (physkra catus), and some other kinds are caught. A considerable number of families settled along the shores of the White Sea live by fishing. The most important fishing-places are the Vagu, Vaigach, and the sea of Azof. [ASTRAKHAN; AZOF.] The fish there taken are chiefly the beluga (acipenser huso, L.), sturgeon, seewruga (acipenser stellatus, Pall.), sterlet (acci- pencer ruthenus, L.), white sturgeon, carp, carp-pike, and the knife-fish (cyprinus culturatus, Pall.). The fish are sent to all parts of the empire, but is not exported to any large amount. Isinglass and caviar are sent to foreign markets.

Serpents and lizards are only common in the steppes. There are also a species of poodles, which occasionally appear on the cultivated tracts within the steppes or those that border on them. They are not less destructive than those of Asia. Among thenoxious insects are scorpions, millipedes (scolopendra millipodes), tarantulas (aranea tarantula), and centipedes. Russia imports great quantities of silk from Persia for the manufacturers in Moscow. The mulberry-tree thrives well in the southern provinces, and the silk-worm also succeeds.

Russia is rich in minerals. A gold-mine was formerly worked not far from Kazan, but such mines exist no more; but as the produce was small, and did not pay the expenses, it was abandoned in 1783. Gold occurs also on the western declivity of the Ural Mountains; but it has not yet been found in such quantity as to induce any person to collect it. Gold is found on the eastern or Siberian side of the mountains in considerable quantity. Platinum was discovered on the western declivity of the Ural in 1823, and has been worked since that time. The mines are near 57° 40' N. lat., and the produce has always been on the increase. Between 1831 and 1834 it amounted to 2000 pounds. Gold was also worked in 1836 to 1837 in 2820 marcs. The number of mines is six, and they lie at a short distance from one another. No silver is found in European Russia, though it occurs in Siberia. But the greatest mineral wealth of Russia is in its mines of copper and iron. Both these metals frequently occur on the western declivity of the Ural Mountains, from Slatoust near 55° S. lat., on the south, to 60° N. lat., and they occur in about 4,000,000 pounds. It is stated that in 1830 the government of Perm, where the mines are most extensively worked, had 200 mines in operation, and that more than 7200 furnaces were employed. The number of copper-mines is estimated to 27, with about 130,000 persons in employment; but these men were directly or indirectly employed in this branch of business. The mines belong to the crown or to private persons. Those of the crown produced, in 1830, 41,000 pounds of copper, 106,325 pounds of bar-iron, and
1,050,000 pounds of cast-iron. In those belonging to private individuals there were produced 90,000 pounds of copper, and between 24 and 34 million pounds of cast-iron. The produce of the mines in the governments of Viatka and Orenburg is not stated. It is however supposed that in both taken together it fell short of that of Perm alone. Iron ore however is not confined to the Ural Mountains; it occurs also on the southern declivity of the Uwall, and on the table-land which extends about the sources of the rivers Oka, Don, and Desna. It is there found in the clay in layers, and sometimes only in lumps. Frequently it occurs in bogu and morasses. The quantity of iron obtained in these places is however small, for the civil and manufacturing districts hardly use any other iron. Other metals are not worked, though it is said that quicksilver, arsenic, nickel, cobalt, antimony, and bismuth exist in several places.

Salt is simply salt. We have already mentioned the numerous salt lakes in the great steppes to the east of the Volga and the rock-salt of Ilia. But the salt-fornation seems to extend along the western declivity of the Ural Mountains, to the source of the Kama, and thence to the sources of the Volga. The most western salt-work is at Saratov Russia, a few miles south of the Lake of Ilmen, by which some of the countries along the Baltic are provided with this article. But a considerable quantity of salt is imported from the last-mentioned country, and the salt from Tuniz in Russia by land, and the eastern and remote, and the expenses of transport are so great that salt can be got from France or England at a much more moderate price.

Coal exists in a few places, as on the banks of the river Maloga, where it is found with iron ore. Palmes says that it is abundant in the country of Orenburg, and to the north of Taganrog, beyond the sources of the rivers which fall into the Black Sea; it is not worked. Other minerals are not much used, with the exception of marl and arenaceous stone, of which there is an extensive deposit near the village of Tidvila, at the northern extremity of the lake of Omega; and at Serdobol, on the northern shores of Lake Ladoga. The marble is of a good quality; some is white, and some has a reddish colour with white stripes or spots. The numerous wells of water are plentiful, and several of the private edifices and many of the private palaces in Petersburg are built of it.

Inhabitants.—Russia is inhabited by a greater number of nations, differing in language, character, and civilization, than any other country of Europe, and has almost as many inhabitants as the whole of Europe. The greater number of these inhabit the south-western corner of the empire, which is mainly composed of Latin, Greek, Italian, and Turkish words, which however have undergone some change and corruption. They are industrious cultivators of the land, but do not appear to have otherwise made much progress in the arts of civilization. They inhabit both the flat and hilly parts of the country, and are composed of a mixed race of different tribes. The modern inhabitants of the country, and the descendants of the ancient Scythians and Persians, are divided into two classes; the SerboCroats, who are of the Slavonic stock, and the Turks, who are of the Turkish stock. The Serbo-Croats are generally divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats. The Serbs are divided into two classes, the Serbs and the Croats.
Düna, but were expelled from the southern districts by the Latins. Their number does not exceed two thousand. They speak a dialect of the Finnish language, and are exclusively agriculturists.

The eastern members of the Tchudian family are separated from the western by an immense tract of country upwards of 300 miles in width, which is now inhabited by Russians. When and how they came there is not certainly known. The eastern Tchudian tribes live on the western declivity of the Ural Mountains, and on the banks of the middle Volga, and are eight in number,—Syrians, Permians, Vogulians, Chuvashes, Cheremisses, Mordovins or Mordwi, and Teptians.

The Syrians, the most northern of these tribes, inhabit the woody country between the upper course of the Kama and the Vychegda, an affluent of the Dvina, and particularly both banks of the Vychegda, as far west as the mouth of the Sysola. Their number is stated to be above 30,000. Their principal occupation is the chase of the wild animals with which their country abounds. Their language differs very little from that of the Permians, which has preserved a great affinity to that of the Finns, but so far differs from it as to be properly considered a distinct dialect. The Permians occupy the country south of the Syrians, between the rivers Kama and Vistach. Their number is estimated to exceed 35,000 individuals. Though agriculture has made some inroads upon their forests, they still maintain their antiquity, and preserve their original dialects, generally speaking the Russian language.

The Vogulians occupy both declivities of the Ural Mountains between 59° and 60° N. lat. According to the description of them by Pallas, it would seem that they rather belong to the same tribe as the clothed bee-hives, which are found in the samoyed, and have a similar habitation, though they have a more distant affinity to that of the Magyars in Hungary is stated to be very great. The Vogulians live entirely on the produce of the chase. They live in small societies, consisting only of five or six huts, and lead a wandering life. Their number is stated to amount to about 100,000 individuals, of whom however the greatest part live east of the Ural Mountains in Siberia. A small number have been converted to the Greek church; the remainder are Mohammedans.

The Votakians are settled west of the Permians, on both sides of the upper course of the river Vistach, and in the country about the source of the Kama. In the conformation of their body they rather resemble the proper Finns than any of the eastern tribes. They are also a Samoyed tribe, and have a greater affinity to that of the tribes on the shores of the Gulf of Finland. They are diligent agriculturists, according to Pallas, and rear cattle and bees. Some of the peasants have more than fifty bee-hives. The wax and honey are sent to Archangel. Their number is stated to exceed 100,000 individuals; and government has granted them permission to live under the jurisdiction of their own tribe and chosen by themselves. They pay only a captitation.

Most of them have embraced Christianity.

The Chuvashes and Cheremisses live in the neighborhood of Casan, on both sides of the Volga. The first-named tribe is chiefly settled on the western side of the river, and the Cheremisses on the eastern. Single families and families living together, according to Deseré, live in 10 miles of the Volga. The number of the Chuvashes is stated to be 370,000, all of whom, with the exception of about 3000, have become members of the Greek church. In their personal appearance they resemble the Turkish or Tartar tribes, a circumstance which is attributed to the Mongol invasion of the thirteenth century. The Tartars of Casan. As to their language, a difference of opinion prevails. The French philologist Le Basque, from the examination of a printed grammar of their language, is of opinion that it contains a large number of roots which are common to the Finns, but Le Basque says that the grammar of their language appears very nearly to the pure Turkish, that about three-fourths of the words are of Turkish origin, and the rest belong to the Uralian and Samoyed languages, and that some few are entirely unknown. The Chuvashes cultivate the ground, and rear cattle and bees; the care of bees is a regular branch of rural economy. The Cheremisses are stated to number about 200,000 individuals. Their language seems to contain a much larger number of Finnish roots than that of the Chuvashes, but they are intermixed with a large number of Turkish origin. The conformation of their body is somewhat like that of the Syrians. The Cheremisses are very diligent and intelligent agriculturists, and have large herds of cattle. The majority have adopted the religion of the Greek church, but many still adhere to their own religious ceremonies and tenets. All of them observe the religious festivals both of the Greek church and of the Mohammedans.

The Mordwi or Mordvins are settled west of the Chuvashes, in the country on both sides of the river Sura, which falls into the Volga from the south, between Novgorod and Casan. On the west they extend to the very banks of the river Oka. They are divided into two tribes: the Eresad or Erasans, who inhabit the tracts along the eastern banks of the Oka, and the Mokshad or Moskhan, on the banks of the Sura and its branches. They are dispersed in the forests of the governments of Casan, Nishey Novgorod, Simbirsk, Saratov, Penza, and Tambow, and live intermixed with the Russians, with whom they communicate more freely than with the Chuvashes and Cheremisses. Their number is stated to exceed 30,000. They are Mohammedans. They rather resemble the Russians than the Cheremisses and other Finnish tribes. Their language is of Finnish origin. They cultivate their lands with great care, and their fields are not less productive than those in Russia. They pay great attention to bees, especially the Mokshad, who have their lands in the middle of the extensive forests of lime-trees which are contiguous to the oak-woods. Some individuals have from one hundred to two hundred beehives, and their honey is preferred to that of any other part of Russia.

The Teptians, the most eastern of the Finnish tribes, are settled on the banks of the Beslau, an affluent of the Kama from the east. The origin of this tribe is of comparatively modern date, and is connected with the Mongol invasion of the sixteenth century, took possession of the territories belonging to the Khan of Casan, a number of Cheremisses, Chuvashes, Votakians, and Tartars left their country and settled along the upper course of the river Beslau, where they soon formed a separate nation, which was divided into two branches; the northern branch was subject to a tax which they were obliged to pay to the Bashkirs, in whose country they had settled. Though the Finnish element prevails in their language, it always contained a smaller number of Turkish words, which was explained by their close connection with their neighbouring Bashkirs. They do not attend much to the cultivation of the land, but rear cattle and bees, and pass a great part of their time in hunting the wild animals with which their country is abounding. Their number, which was not given in the last century did not exceed 34,000 individuals, is stated to have increased to 110,000. They are partly heathens and partly Mohammedans. The exhortations of the Greek clergy to introduce their creed among them have almost entirely failed.

The third great branch of the Caucasian family which inhabits Russia is the Turkish. They are generally called Tartars, but they call their language Turkish. They did not originally inhabit any portion of Russia, but came into it between the ninth and fourteenth centuries, with the Mongols and other conquerors. The Turkish tribes at present existing in Russia are four, the Tartars of Casan, the Bashkirs, the Mestchernakes, and the Kaghe Tartars. The Tartars of Casan are the most civilised nation in Russia. Their language is in great part Persian, and has been polished and refined by the Turks. The Tartar dialect is the basis on which the whole present Turkish language is built up. The attempts of the Greek clergy to convert them to Christianity have not been successful, and they are still Mohammedans; they take great care of the education of their children. They have schools both for the lower and higher classes. The elementary school instruction is given in reading and writing, and the Koran and other religious books are explained. The objects of instruction in the higher schools are the Koran, Persian, and the Turkish language. The priests are educated in an institution established for that purpose in a village called Gargall, which is about nine miles from the town of Orenburg. Those who are established at Casan, and in other towns, are either merchants or manufacturers. They traffic chiefly in tea, goods im
imported from Bokhara, and stuffs of European manufacture. They are very expert in tanning leather. The inhabitants of the villages are very careful cultivators of the soil, and also occupy themselves with rearing cattle and bees. Their villages are well provided with the most common mechanicals, as tanners, shoemakers, tailors, dressers, blacksmiths, and carpenters. Like other Mohammedans, they are distinguished by their cleanliness. According to Erdmann, their number amounts to about 236,000, of whom about one-eighth have embraced Christianity.

The Bashkirs still adhere to a wandering life. In winter they inhabit villages, but in summer they roam about in the country, sometimes to a distance of 60 or 80 miles from their villages. They cultivate some patches of land near the houses before they begin their wanderings, but the produce of these fields is not adequate to their consumption. Their riches consist in horses, of which the most constant has from 150 to 300, and many have over 500, and the richest from 1000 to 2000. Their horses are of a good breed. They keep only a small number of black cattle, sheep, and goats. They have also a great number of bee-hives, and they collect an immense quantity of honey from the wild flowers which are more common than in the countries adjacent to the base of the Ural Mountains. They are good huntsmen, and know completely how to train the falcon for the chase. The smaller species are used by them to take hares, but the largest (the runs) is used in hunting foxes, and the wolves.

They sell a considerable number of these trained birds to the Kirghiz Cossacks. The number of Bashkirs amounts to 150,000 individuals. The small tribes of the Madagascar and of the Moghul Tartars, which have dispersed among the Bashkirs, and subsist upon the produce of their herds of cattle and of their bee-hives. They also cultivate the ground, but not to a great extent. They are considered to be more civilised than their neighbours.

Both the Kazakhs and the Nomad Tartars inhabit the Crimea and the steppe which extends north of the peninsula; they are also dispersed over the country east of the Sea of Azof, and along the northern base of the Caucasus. They are stated to consist of a population of 400,000 individuals, of whom a large number are settled in the valleys and towns of the mountainous part of the Crimea, where they are agriculturists, and have extensive orchards. They also manufacture leather, and make cutlery, saddles, and shoes.

The most extensive tribe is the Beshig Tartars, who have the greatest independence in a state of civilization, and they are hardly inferior in that respect to the Tartars of Casan. Their number does not exceed 250,000. The remainder of this branch of the Tartar race wanders the plains of the Azof and Casan, and passes the winter among the town of the Crimea. In summer they travel northward with their flocks, and sow a little wheat and millet in some convenient place. In winter they return to the shores of the Sea of Azof or some warmer tracts. Their huts consist of cattle and horses, and of a rather small breed; their horses are much prized, being strong, hardy, and tractable. They have numerous flocks of the large-tailed sheep. Notwithstanding their wandering habits, they have adopted a degree of civilization in their dress and manners, which are derived from those of the Cossacks.

The number of individuals belonging to the Teutonic family is probably larger than that of the Turks. They are Germans and Swedes, with whom a few Danes are mixed. Numerous descendants of Germans are scattered throughout the provinces of the Baltic, south of the Gulf of Bothnia, among the Lette and Ethelians, and in those parts they constitute the nobility of the country. Most of these families settled there when the Order of the Knights Sword-bearer was the principal power in the country (from 1230 to 1530). Great numbers of German families are settled in the two capitals of the empire. When Peter I quelled Peterburg, he peopled it at first almost exclusively with Germans, and they constituted for several years the principal family of that city. The number of them at present is stated to exceed 24,000. The Germans are also numerous in all the sea ports, in the southern provinces, and in the Crimea; and along the middle course of the Volga a great number of German colonists have been settled at the expense of government in the last seventy years. The number of such colonists in the government of Saratow alone amounts to more than 30,000, and they constitute nearly the whole population of some towns and of villages.

The Swedes are numerous along the northern coast of the Gulf of Finland, and the eastern coast of the Gulf of Bokh- 

nía. In some places they constitute the whole population. The Swedes have asserted the possession of Sveaborg, and live together. The number of Swedes in these ports probably exceeds 100,000, and there are also a few Swedish families in Estonia.

There are no Jews in the central and northern provinces; but there are numerous in those parts which formerly belonged to Poland, especially in the government of Vilna, Grodno, Volynia, and Podolia, where they are almost the sole inhabitants of the towns. They exercise several kinds of handicraft; they are also tailors, tanners, leatherdressers. They have also small breweries and distilleries. Their number is stated to exceed a million.

The number of Greeks probably does not exceed half a million. They are dispersed all over the southern provinces of the empire, and on the shores of the Azof. In the Crimea there are a few villages entirely inhabited by them. They occupy themselves with agriculture, especially gardening.

The Calkmuks show their Mongol origin by the forms of their body, as well as by their language. (GALCZUK.) The Calkmuks live in the Calkmuks, which are the steppes of Russia are the remnant of those which left Russia in 1770 and 1779, at the invitation of the Chinese government, and settled in the plains of Sowomara. They are divided into five tribes. The Derbet and Torack are the two largest tribes, the third tribe, the Bred, and the Breda, the fourth tribe, the Khoshut, live on the banks of the Lower Volga, on both sides of the river. The fifth tribe is the most numerous, consisting of 12,000 kybitzak, or men; the four latter, taken together, probably fall short of that number. In the summer a similar number live among the horses, of which the saiga antelopes are the principal object, but in winter they depend on their herds. They wander about with their flocks and herds in the immense steppes. In a country which has hardly a tree they feed on all that is available. A considerable degree of comfort has been acquired by them. The Calkmuks have succeeded in maintaining herds of cattle, sheep, and goats, and the number of these three classes of animals is estimated at 200,000 and 250,000. The Calkmuks wear sheep skins, hides, and fur. The Calkmuks are Buddhists, and the only nation in Europe which professes that religion. They have the different classes of priests found among the Turcs, namely, the lama, the lama, the guraf, and the aman. The last of these are the religious and civil officials, to whom are subject to the ecclesiastical authority of the Dalai Lama, who resides at Jhassa in Tibet, but in 1800 the emperor Paul wished them to choose their own Great Lama, to whom all the other lamas and priests are subject. The Calkmuks are not immediately subject to the government of Astarabak, but have their own political administration, of which the object of the Derbet tribe is the head. He is assisted by eight counsellors and judges, and a person sent from Petersburgh, to whom the migration of the Calkmuks is reported. In 1771 and 1772, the whole steppe between the rivers Volga and Ural south of the Obstebei was at once depopulated of its inhabitants, and remained in that state till about 1785 or 1786, when a numerous tribe of Kirghiz Cossacks, being dispersed into the Little Horde, were induced by the Russian government to live between the different tribes of these horse, was induced to submit to the Russian government, and was settled in the tract which the Calkmuks had abandoned. The other of these countries of horse, from the name of their chief, called Budes, who introduced them into Russia. At that time the horses consisted of about 10,000 kybitzak, or families, but it is supposed that the number may at present fall short of 170,000 individuals. In personal appearance, they greatly resemble the Calkmuks and other Mongol tribes, but their...
language is Turkish, and it is supposed that they owe their origin to several tribes of Mongols, which have united with Turkish tribes, and in progress of time formed one nation. Like the Calkums, they are nomadic herdsmen, but they have only a small number of camels, the climate of their country being much more severe than the steppes further west. They also keep some cattle and goats. Their wealth mainly consists in horses and sheep. Some rich proprietors are said to have 4000 or 5000 horses and 20,000 sheep. The sheep supply the principal articles of traffic, and numerous woolen factories exist on the Terek, Don, and Astrakhan. Their agriculture is limited to the raising of some barley, and a small quantity of wheat and millet. They are also expert hunters, and in winter kill the far-bearing animals, with which their country abounds, and in summer the saiga, a species of deer. The Kirghiz Cosaks and Mohammadans, but far from being very exact in the performance of the duties prescribed by that religion.

(Pallas, Reisen durch Verschiedene Provinzen des Russ. Reichs: Pallas, Travels through the Southern Provinces of the Russian Empire; Ernst, Reise um die Erde; Zwick, Calkum Taurity, or a Journey from Sarepta to several Calkum Hordes; Erdmann, Beiträge zur Kenntniss des Inserns von Russland; Georgii, Beschreibung des Russischen Reichs; the civil wars of the accession of Paul I. to the Imperial Throne; nach dem Ural, dem Altai, und dem Kaspiischen Meeres; Miller, Der Ugrische Volks-stamm; and Schubert, Reise durch Schweden, Norwegen, Lappland, Finnland, und Ingermanland.)

Agriculture.—Notwithstanding the vast and great abundance of the natural productions of the Russian empire, agriculture may be said to be even now in its first stages, since there is certainly no province which could equal or surpass it even a century ago. In the greater part of the empire it is not so much the ground itself that has any value, as the labouring population, and accordingly it is not the number of acres in an estate which matters, but there is little else than they are inhabited. The Southern Baltic provinces, the governments nearest to Moscow, and the kingdom of Poland, have the greatest proportion of cultivated land, and the best system of cultivation, but it is on only a few estates that it approximates to the same idea as that of the South, and the most that can be said of these there are extensive tracts in which not one-fifteenth part of the surface is cultivated. The thinness of the population, and the want of a market in the interior of the empire, contribute to prolong this state of things; for where there is little demand for an article, the production of it can never be interesting. In this country, then, the nature may be, especially when, as is here the case, the inhabitants are satisfied with having a sufficiency of the necessities of life, and are too little advanced in the scale of civilization to have any desire for the comforts or luxuries of a more advanced state of society. The whole area of European Russia is (according to Schubert) 1,742,843,723 Russian acres, of which about 667,000,000 acres are covered with forests and shrubs; about 771,000,000 acres are to be reckoned as arable land, and 24,590,000 acres as meadow land. Of the remaining land, not even a rough estimate can be given, for want of all data respecting it in most of the governments. On account of the comparatively small value of land, and the want of manure, the fields in the provinces of Great and Little Russia are often suffered to be fallow for two or three years. The times of sowing and harvest are regulated according to the climate. The usual kinds of corn are grown in most of the governments, viz., rye, wheat of many different species, barley, and oats. The, wine, and there are many vineyards in the provinces. But not general article of food. The kind of pulse most cultivated is peas, which succeed up to 62° N. lat. Millet is grown in Poland, hemp chiefly in Little Russia. Flax and hemp are cultivated in most of the following states, viz.: Poland, Prussia, and Lithuania. The cultivation of the grasses is neglected. Schubert judges from the official averages for several years, and from the tables of the quantity produced, that after deducting the reserve and corn, and that used by the manufacturers, distilleries, and for feeding cattle, besides the quantity exported, there remain (in Europe Russia) about fifteen Winchester bushels per head. Between 1830 and 1841 there have been several years in which the harvests have failed, and instead of exporting, it has been necessary to allow the importation of corn free of duty. This is as present the case, the crops in 1839 and 1840 having proved deficient. The government makes great efforts to favour agriculture. It endeavours to extend useful knowledge on the subject to all parts of the empire; many agricultural societies have been formed, and schools established, in which everything bearing on the subject is taught in the most agreeable form. A school of agriculture has been lately formed at Gorgye-reitz (a domain of the crown) near Mohilew; it is designed for educating 120 young men in such a manner as to qualify them for the management of great estates. The chief agricultural prosperity in the southern provinces of the empire, that is, the Transcaucasian provinces, and in Taurida, the countries on the Volga between Saratow and Astrakhan, and the governments of Kiew and Podolia.

Manufactures.—The manufactures of Russia commenced, as in other countries, with the beginning of its political importance, but have been chiefly indebted for their encouragement and progress to the efforts of the government. The emperors Ivan I. and II., who in the fifteenth and sixteenth centuries had restored Russia to independence, invited artisans and workmen from Germany, the Netherlands, and Italy, and established at Moscow, Yaroslav, Smolensk, and Kiew manufactories of woollen cloth, linen, arms, &c. In the accession of the successors of Ivan III. the manufactures were checked by the manum, and the interference of Sweden and Poland, which led to the desolation of the country, checked the infant manufactories, so that in fact nothing was done till the reign of Peter the Great, who, in this, as in many other respects, to the founder of the modern state of Russia, who by his encouragement to foreign manufacturers, and founded in the first instance great manufactories of arms at Tula, Petrosowofsk, and at Sestraebeck near Petersburg; and the great imperial manufactories of woollen and linen at Moscow. At Petersburg, too, there are establishments for the manufacture of glass, the glassworks, as mirrors, expensive glass-wares, rich cars, silks, cotton, &c. In all the larger cities he established at least one manufactury of woollen, linen, and metal, so that at his death there were twenty-one on the dominions of Peter, and manufactories, and many smaller ones, partly supported at the public expense, Peter's system was not followed up by his immediate successors, but it was renewed by the empress Elizabeth, and has been steadily adhered to with constantly increasing success, and the demand has increased up to the present time. It may perhaps be questioned whether many branches of manufacture may not have been forced into premature existence, for the protection of which it has been necessary to establish a more rigorous system, entirely prohibitory of many foreign articles, and for a great number of others. This system, it is true, chiefly affects the rich, for whose use foreign goods are imported. The chief seat of manufactures is Moscow and its government; and next the government of Volyn, and the provinces of Novgorod, Saratow, and Petersburg. In Poland, the woollen manufactories attained great prosperity under Alexander. In 1828 there were in the empire 600 manufactories, with 250,000 workmen, and in 1831 there were 100 with steam-engine power, the excitement of which has produced great activity in the Russian manufactures which have taken place within these few years at Petersburg and Moscow have greatly contributed to excite emulation. But the prices of most of the articles of Russian manufacture are still higher than in most other European countries. In general, too, the Russian workman finds it difficult to give to his work a high degree of perfection. He is indeed very clever, and imitates with wonderful facility, but as he attends mainly to external appearance, his works are deficient in quality and durability. There are exceptions undoubtably, but in general the defect is universal, and most of the manufactories have foreigners at their head. The Report of the department of manufactures for 1839 published in 1840 (that for 1840 has not appeared) contains the following statement, in a few words, of the state of manufactures in Russia.

'The progress of manufactures in Russia has been so extremely rapid for some time past, as to excite general attention. The partial failure of the crops in some seasons, though it certainly had some effect on the inland trade, did not greatly influence the number of the workmen employed in them. The years 1833, 1836, and 1837 were more favourable to the development of the national manufactories; we have seen an increase of activity in all the provinces of our vast empire, and the progress made has far exceeded the most sanguine expectations. To give our readers an idea of it, it will suffice to say that in the

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the year 1838 the number of new manufactories was 405. As we have not yet received all the accounts for 1839, we cannot state the number of new manufactories established in that year, but there is no doubt that it was as considerable as in the preceding one.

The number of manufactories existing in Russia at the beginning of 1839 was 6855, and that of the workmen employed in them 412,931, not including those that work in the mines, and in the furnaces, smelting-houses, &c. dependent on them, there were only 5112 manufactories in the whole empire, employing 279,673 workmen. Thus we have 640 new establishments in three years, and an increase of nearly 50 per cent. in the number of workmen employed.

Among the most important branches of national industry, and the development of which has been the most remarkable, are the following:

- Manufactories of Woollen Cloths and other
  - Woollen Goods
  - Silk
  - Cotton
  - Linen of all kinds
- Tanneries
- Tallow Melting-houses
- Candle Manufactories
- Soap Manufactories
- Metal-Wares

The central part of the empire is the chief theatre of manufacturing industry. Moscow has become the focus of it; in the little towns of the government of which it is the capital, the number of manufactories continues to increase, so that at the beginning of last year there were in that government alone 1086 manufactories, with 8,033 workmen. In the government of Wladismir, there were 161 manufactories, with 83,655 workmen; and in that of Kaluga, 164 manufactories, and 20,401 workmen.

The changes which have been effected in several other parts of the empire are not less remarkable. But Tula alone used to be mentioned for its manufactories of all kinds of metal articles; yet the 124 manufactories in that government (of which 39 are of metal articles) employ only 6338 workmen, though there has certainly been no relaxation of their activity; they therefore no longer hold the first place, since in the government of Perm alone, which at a pretty recent date was still almost a desert, there are now 322 manufactories (of which 51 are of metal goods, and 199 tanneries), with 36,600 workmen.

A mention, among the branches of industry, the increase of which has been the most remarkable, is the manufacture of tobacco and snuff. In the year 1839 they furnished (including what remained of the preceding year's stock) scarlet 3,680,000 lb. of snuff, 2,200,000 lb. of rolls of tobacco and cigarette tobacco, 800 lbs. of cigars, 63,600,000 rubles. There were imported from foreign countries 64,141 pounds of raw tobacco and prepared; but 59,646 pounds were exported. The excise duty on the tobacco consumed in the interior produced 25,920,000 rubles, which must be deducted 300,000 rubles for the expense of collecting the duty.

The above are the great manufactories properly so called. We have not the means of ascertaining the total amount and value of their products up to a recent date. The latest account that Schubert was able to procure in 1838, was that of 1828, in which year there were manufactured 20 million pounds of linen, nine million yards of woollens (besides seven millions in Poland); 60 million of calico; 2 million pounds of cotton-yarn; 2 million of glass bottles; 15,000 chests of export tobacco; 36 lb. of potatoes; 2 million pounds of snuff and 975,000 pounds of sugar. Besides the workmen employed in these great establishments, there were employed in hand-loom trades, and a much larger number in the villages, in coarse woollen and linen manufactories, iron, and other metal-wares, or in preparing bast-mats, caviar, hogs' bristles, in dressing furs, &c.

Commentary—Inland Trade.—The inland trade is carried on in a very great measure by means of annual fairs, the most remarkable of which is that of Nischnei-Novgorod, of which we have given a very detailed account. [Nischnei-Novgorod.] The following is an official list of the principal fairs, and of the value in rubles of the goods exposed for sale in 1839:—

<table>
<thead>
<tr>
<th>Name</th>
<th>Value in Rubles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romna, second</td>
<td>24,661,026</td>
</tr>
<tr>
<td>Charkow, first</td>
<td>20,368,388</td>
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<tr>
<td>Charkow, second</td>
<td>17,386,237</td>
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<tr>
<td>Charkow, third</td>
<td>6,261,646</td>
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<tr>
<td>Kurk, 21,401,926</td>
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<tr>
<td>Korsun, 2,959,023</td>
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<tr>
<td>Rosstow, 13,864,478</td>
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<tr>
<td>Sumy, first</td>
<td>6,506,900</td>
</tr>
<tr>
<td>Sumy, second</td>
<td>5,204,080</td>
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<td>Saratow</td>
<td>321,960</td>
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<td>Simbrak, 5,161,080</td>
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<td>Tamborz, 1,465,800</td>
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</tr>
<tr>
<td>Tselitz, 1,093,671</td>
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</tr>
<tr>
<td>Lelbedian, first</td>
<td>2,143,416</td>
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<tr>
<td>Lelbedian, second</td>
<td>2,334,591</td>
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<tr>
<td>Penza, 1,774,570</td>
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</tr>
<tr>
<td>Nischnei-Lomov, 1,725,878</td>
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</tr>
</tbody>
</table>

The total amount is 355,694,722 rubles in bank account, which, reckoned at 103d. English, is nearly 15 millions and a half sterling.

In order to facilitate still more the commercial intercourse in the interior of the empire, the minister has organised, a different cities and towns, twenty-five new fairs and ten market days. The inland trade is greatly promoted by the extensive system of inland navigation, of which the following is the summary for the year 1839:—

- The goods designed for exportation are of course conveyed in a great quantity by water from the most distant parts of the empire to the seaports. In entering into some detail of the navigation on the rivers and canals last year, we shall examine in the first instance their result as a means of aiding our foreign commerce. The following is the number of the banks and rafts which, coming from the provinces more or less distant, were sent out from the sea, arrived in or passed through the value of the cargoes.
  1. Archangels: banks, 1534; rafts, 1233; value of the cargoes, 15,281,503.
  2. St. Petersburg: banks, 22,419; rafts, 784; value of the cargoes, 199,745.
  2. Riga: banks, 1595; rafts, 784; value of the cargoes, 38,437.

Of the most important of the seaports in the south of Russia, has not yet had any direct communication by water with the central provinces of the empire, but it is well known that the goods conveyed on which the Danube and Dniester from the interior to the mouths of those rivers, are sent by coasting vessels to Odessa. &
  Cherson: banks, 398; rafts, 340; value of the cargoes, 4,065,885.
  5. Taganrog, Nakhitchevansk, and Rostov.

These three towns, which are very near each other, are certainly the most important of the second rate, and with the Black Sea by the Strait of Kertch, ought to be considered as one commercial entrepot: banks, 320; rafts, 114; value of the cargoes, 8,338,820.

The number of banks and rafts and the value of the goods despatched on the Volga to the port of Astrakhan on the Caspian, were: banks, 348; rafts, 12; value of the cargoes, 6,236,887.

The following is a summary of the navigation in all the rivers of Russia, in 1839.
- Despatched from the seaports:
  60,277 banks, 24,421 rafts; arrived, 46,866 banks, 17,409 rafts; value of the goods despatched from these ports 737,814,276 rubles; value of goods arrived, 534,917,798.

The difference which may be observed between the arrivals and departures, arises from the circumstances that a great number of the above banks have been lost or seized as intermediate places, the names of which are not stated.

II. Foreign Commerce.

Value of exports:

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<tr>
<th>Country</th>
<th>Value in Rubles</th>
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<tbody>
<tr>
<td>To foreign countries</td>
<td>332,002,550</td>
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<tr>
<td>To Finland</td>
<td>2,401,747</td>
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<tr>
<td>To Poland</td>
<td>6,934,424</td>
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<tr>
<td>Total</td>
<td>341,555,673</td>
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Import:

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<td>From foreign countries</td>
<td>244,577,366</td>
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<tr>
<td>From Finland</td>
<td>1,349,809</td>
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<tr>
<td>From Poland</td>
<td>2,631,326</td>
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<tr>
<td>Total</td>
<td>249,512,474</td>
</tr>
</tbody>
</table>

Balance in favour of Russia | 92,382,703

Principal articles of export:

- Wheat: 4,754,473 chertweta
- Flour: 5,383,468 rubles
- Cattle, furs, metals: 12,787,675
- Flax, flaxseed, hempseed, oil, tallow, hides, wool, bristles, timber, metals, &c.
- Linen, cordage, woollens and cotton, caudles, soap, coarse woollen cloth, &c.
- Brandy, strong and salt fish, fruits, honey, &c.
- 3,287,844
Principal articles of import:—
1. Rice, refined sugar, coffee, tea, wine, and fruits
2. Raw sugar
3. Colored cotton which cannot be placed among raw materials or manufactures, such as pearls and precious stones, books, engravings, furs, &c., cattle and horses from Asia, &c.
4. Manufactures of silk, wool, cotton, &c.
5. Raw materials for our manufactories: Raw cotton, 354,353 pounds
6. Spinning cotton, 52,004 pounds
7. Indigo, 95,500 pounds
8. Cochineal, 4,409 pounds
9. Madder, 154,121 pounds
10. Dye-woods, 45,475 pounds

The number of ships that arrived in all the ports of Russia in 1839 was, with cargoes, 2,426, of 429,214 tons; in ballast, 4192, of 792,166 tons; sailed, 8275, with cargoes, of 1,052,642 tons; In ballast, 307, of 57,994 tons.
The custom-house duties produced, in 1839, 91,899,696 rubles.

The following are the chief particulars of the foreign commerce of Cronstadt and St. Petersburg in 1840:—Ships arrived, 1213, with cargoes, of which 175 with corn, and 256 with coals, and 163 in ballast, and 24 moved to Ports and Places, and nine new ships were registered: making a total of 1461, of which 675 were English, and there were probably many from England under other colours.
The number of ships that sailed was 1445, of which 735 were English and 38 to Ports and Places.

The total amount of 3,000,000 rubles was sold. Thus it appears that nearly half the import trade, and more than half the export trade, according to the number of the ships, were on English account. The tonnage of the English vessels, is, we believe, greater on an average than that of any other nation employed in this trade.
The value of the goods imported into St. Petersburg in 1840, on which the duty of customs was paid, amounted to 61,036,194 silver rubles (the silver ruble is nearly three shillings and three-pence sterling), including gold and silver to the amount of 3,000,000 rubles. The value of the exports on which duty was paid in 1840 was 36,536,814 silver rubles. The duties of custom raised in 1840 amounted to 12,342,866 silver rubles.

At Odessa there are three public institutions, viz.—
1. The Riceue Lyceum. 18 professors and 37 students; ditto, Demidoff, 20 professors and 54 students; ditto, Besborodko, 18 professors and 45 students.

2. The military schools, under the direction of the grand Duke Michael, consisting of about 200 officers and 2000 naval schools about 2500 scholars. The military schools of all classes have 10,000 scholars.
3. The ecclesiastical schools of the Greek church were, in 1836, 384 in number, containing 58,268 scholars. The schools of the Roman Catholics, Protestants, &c. were 327, with 8803 scholars.

4. Special schools are under the several ministers; such as the establishments of the empress Maria, those under the reigning empress, and those under the grand Duke, besides the commercial, naval, and special schools. The special schools are 1622 in number, and contain 127,864 pupils. The government contributes 10,000,000 rubles to their support.

The navy is divided into five squadrons, 2 in the Black Sea, and 3 in the Baltic, called the Blue, White, and Red squadrons; each squadron consists of 1 ship of the line of 110 guns, 2 of 84, 6 of 74, 6 frigates, and some lighter vessels. The 3 Baltic squadrons are supposed to be always complete and ready for service. There is also the galley fleet of the Baltic, consisting of 20 galleys with 320 guns, 25 floating batteries with 160 guns, 41 gun-boats with 162 guns, and 88 smaller vessels; the squadron of 40 gun-boats of the Black Sea; the flotilla of the Caspian, consisting of 6 vessels of 8 to 18 guns, and 11 galliots; and the flotilla of Kamchatka and Ochotsk, consisting of 3 vessels of 10 to 16 guns, and 8 galliots. These vessels are manned with 33,000 sailors, 9000 marines, and 3000 artillerymen. The navy has probably been increased since the publication of this official statement.

The population of Russia is estimated as follows:—

At Odessa there are three public institutions, viz.—
1. The Riceue Lyceum. 18 professors and 37 students; ditto, Demidoff, 20 professors and 54 students; ditto, Besborodko, 18 professors and 45 students.

2. The military schools, under the direction of the grand Duke Michael, consisting of about 200 officers and 2000 naval schools about 2500 scholars. The military schools of all classes have 10,000 scholars.
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4. Special schools are under the several ministers; such as the establishments of the empress Maria, those under the reigning empress, and those under the grand Duke, besides the commercial, naval, and special schools. The special schools are 1622 in number, and contain 127,864 pupils. The government contributes 10,000,000 rubles to their support.
<table>
<thead>
<tr>
<th>Region</th>
<th>Government</th>
<th>Area in English Squ. Miles</th>
<th>Population</th>
<th>Towns</th>
<th>Population</th>
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<td>950,000</td>
<td>St. Petersburg</td>
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<td>The principal Towns</td>
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Kingdom of Poland.

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### Russia in Asia

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<td>Kubetschi</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Karabudach</td>
<td>3,000</td>
</tr>
<tr>
<td>61. Imiretaga</td>
<td>4,830</td>
<td>170,000</td>
<td>Kutais</td>
<td>14,000</td>
</tr>
<tr>
<td>62. Four Muselman Provinces, viz. Schirwan, Karabag, Talischin, and Schenkin</td>
<td>9,145</td>
<td>133,000</td>
<td>Baku</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alt Schamachi</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Schuschi</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lenkoran</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nuchha</td>
<td></td>
</tr>
<tr>
<td>63. Armenia</td>
<td>7,850</td>
<td>160,000</td>
<td>Erivan</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nakhitschevan</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urdabad</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Megri</td>
<td>3,000</td>
</tr>
<tr>
<td>64. Gurezl</td>
<td>1,422</td>
<td>64,000</td>
<td>Tilizgbe</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Poti</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bathumi</td>
<td></td>
</tr>
<tr>
<td>65. Mingdulia, Achatia, &amp; c.</td>
<td>7,200</td>
<td>430,000</td>
<td>Redoute-Kaleh</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Anaklia</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sucham-Kaleh</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gelendjik</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sudschuk-Kaleh</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Anapa</td>
<td></td>
</tr>
<tr>
<td>66. Circassia</td>
<td>32,250</td>
<td>550,000</td>
<td>No towns, but villages and Russian forts</td>
<td>Cirassia</td>
</tr>
</tbody>
</table>

Kingdom of Siberia.

(N.B.—The population of the governments according to Koppen, the area according to Cannabich.)

<table>
<thead>
<tr>
<th>Government</th>
<th>Area in Eng. lab Sq. Miles</th>
<th>Population</th>
<th>The principal Towns</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>67. Tobolsk</td>
<td>519,000</td>
<td>655,000</td>
<td>Tobolsk</td>
<td>20,000</td>
</tr>
<tr>
<td>7 Circles.</td>
<td></td>
<td></td>
<td>Tjumen</td>
<td>8,300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Turinsk</td>
<td>6,000</td>
</tr>
<tr>
<td>68. Omsk</td>
<td>325,500</td>
<td>660,000</td>
<td>Omsk</td>
<td>2,000</td>
</tr>
<tr>
<td>2 Circles.</td>
<td></td>
<td></td>
<td>Tara</td>
<td>3,000</td>
</tr>
<tr>
<td>69. Tomsk</td>
<td>29,800</td>
<td>478,400</td>
<td>Tomsk</td>
<td>9,700</td>
</tr>
<tr>
<td>6 Circles.</td>
<td></td>
<td></td>
<td>Barnaul</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Schlangenberg</td>
<td>4,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kaesk</td>
<td>3,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kuznetz</td>
<td>3,500</td>
</tr>
<tr>
<td>70. Jenisseisk</td>
<td>945,000</td>
<td>205,000</td>
<td>Jenisseisk</td>
<td>5,850</td>
</tr>
<tr>
<td>4 Circles.</td>
<td></td>
<td></td>
<td>Krasnojarsk</td>
<td>4,000</td>
</tr>
<tr>
<td>71. Irkutsk</td>
<td>150,000</td>
<td>507,000</td>
<td>Irkutsk</td>
<td>15,800</td>
</tr>
<tr>
<td>5 Circles.</td>
<td></td>
<td></td>
<td>Nischni-Udinsk</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Werchni-Udinsk</td>
<td>2,600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nertschinsk</td>
<td>3,600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kiechta</td>
<td>4,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Selingensk</td>
<td>2,600</td>
</tr>
<tr>
<td>72. Jakutsk</td>
<td>1,386,000</td>
<td>162,000</td>
<td>Jakutsk</td>
<td>3,000</td>
</tr>
<tr>
<td>73. Ochotzk</td>
<td>170,000</td>
<td>7,700</td>
<td>Ochotzk</td>
<td>1,600</td>
</tr>
<tr>
<td>74. Kamchatka</td>
<td>84,000</td>
<td>4,400</td>
<td>St. Peter and St. Paul</td>
<td>650</td>
</tr>
</tbody>
</table>
The Islands in the Pacific.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Lena Archipelago</td>
<td>2,000</td>
<td>500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Siberia and some others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Nulka Islands</td>
<td>1,000</td>
<td>500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Lawrence and St. Mathew</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Kurile Islands</td>
<td>3,000</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Aleutian Islands</td>
<td>10,000</td>
<td>15,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Russian America.

<table>
<thead>
<tr>
<th>North-West Territory</th>
<th>Area (English Squ. Miles)</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500,000</td>
<td>61,000</td>
</tr>
</tbody>
</table>

Total of the Empire 6,442,593 61,803,049

If any differences should be remarked between the statements of the population in the above table and those in the several articles, they are occasioned by the receipt of more recent information.

(Stein's Handbuch, by Hörschelmann; Hassel's Handbuch; Cuningham's Geography; Schubert, Das Russische Reich; Kruzenstern, L'Instruction Publique en Russie; Schnitzler, La Russie, la Pologne, et la Finlande; Rosend, Reise nach dem Oural, &c.; Eichwald, Reise in des Caucaus; Erman, Reise durch Nord Asien; Von Wrangel, Reise längs des nordwestlichen Meeres, etc. The Russian Official Journals of the Ministers of Commerce, Public Instruction, and the Interior, for the years 1837-41.)

History.—The history of Russia cannot properly be said to commence before the middle of the ninth century of the Christian era; though we obtain occasional glimpses of the various Scythian and Scabavian tribes which roamed over its vast territory, little more can be ascertained than that it was divided into numerous small independent states, the two principal of which were Kieff and Norogorod. About A.D. 850 however a Varagian (probably Danish) freebooter of the Baltic, named Rurik, who had been called in by the people of Norogorod to defend them against their neighbours, made himself master of great part of the country, and founded a dynasty which continued to rule uninterrupted till A.D. 1598. Oleg, the guardian of the sons of Rurik, seized Kieff by treachery (883), put the ruler to death, and made it the seat of government. The Great (895-912) (various dates are assigned) conducted a fleet of 2000 canoes, carrying 50,000 men, from the mouth of the Don to the attack of Constantinople, called by the Russians Chrzegorod, or 'city of Caesar.' This first attempt was frustrated by a tempest: and a second expedition in 941, under Igor, the son of Rurik (979-974), was defeated by the operation of the Greek fire, which destroyed the Russian flotilla. A communication was however opened between Russia and Greece, and Oleg, the widow of Igor, was baptized at Constantinople (955) by the name of Helena; but her son Swiatopolk obstinately adhered to the idolatry of his fathers, and fell (973) in an invasion of the Greek empire. But the reign of St. Vladimir the Great (980-1015) was the era of the conversion of Russia. Vladimir himself, who had married Anna, sister of the emperor Basili II, became a Christian according to the Greek church in 988, and his example was speedily followed by his boyars, or nobles, and all his subjects. He subdued Heliga or Galicia, and reduced to subjection the Patimaces and Khours, a barbarous race in South Russia; and is said to have been the first who assumed the title of grand-prince, or grand-duke (Veliki-Knez). At the death of Vladimir, his dominions were divided and disputed by his numerous sons; and though Yaroslav, whose reign was signalized by an unsuccessful attack on Constantinople in 1018, reunited them for a short time, a second partition took place at his death (1055); and Russia was overrun for half a century with constant civil wars and Polish invasions. Vladimir II. (1113-1125) re-established in some degree his power as paramount sovereign; but disorder soon recommenced, and the authority of the grand-prince of Kieff was continually curtailed by the erection of petty sovereignties under the different branches of the house of Rurik, till Andrej, prince of Vladimir, or White Russia (1057-75), arrogated to himself the title of grand-prince of Russia, while the elder line reigning at Kieff sunk into a subordinate rank; and Norogorod, though still retaining the forms of princely government, had become in effect a free republic, and was the centre of an extensive traffic with both Europe and Asia. The annals of this period present only an unceasing succession of devastating struggles between the different principalities (in one of which Kieff was sacked and almost ruined (1168) by the troops of Vladimir), and wars with Poland for the possession of Galicia. The death of almost every prince was followed by a contest among his sons; but these scenes of discord and bloodshed are diversified by no event of historical importance, till the invasion of the Tartars (1223) produced a momentary unanimity from the sense of common danger. These barbarians had already under Ghengis-Khan overthrown and subdued the greatest part of Asia; and a host of 500,000 men under Toushi, the son of Ghengis, encountered and overthrew the combined forces of the Russian princes on the river Kalka, near the Sea of Azof: but though the death of Toushi diverted the vectors from the immediate completion of their conquest, they returned in 1236 under a new leader, Batu, who laid waste the whole country with fire and sword. Yourn, or George, grand-prince of Vladimir, after seeing his capital destroyed and his family massacred, was slain in battle: Kieff shared the fate of Vladimir (1240): all the cities and principalities of Russia (with the exception of Novgorod) were involved in indiscriminate ruin and slaughter, and the whole country fell under the yoke of the enemy.

For more than two centuries and a half after this conquest Russia continued to be held in abject vassalage by the Tartars of Kaspchak, whose hordes overpread the eastern and southern provinces, and the plains between the Caspian and the Volga, on the banks of which river the Golden Horde, or imperial residence of the khans of the race of Batu, was fixed; but the interior of the country was still left under the government of the native princes, who were compelled to present themselves at the Golden Horde to receive investiture and to perform homage; and to such an extent was their humiliation carried, that on the annual visit of the Tartar deputies to receive the tribute, the Russian rulers were required to lead the horse of the khan's representative by the bridle, and feed him with oats from their own cap of state. The grand-prince of Vladimir continued to be considered as the head of the Russian nation, and this dignity was disputed both by arms and by intrigues at the court of the khans, who fomented these dissensions as favourable to the stability of their own supre-
maey. In 1390 the reigning prince Mikhail was even put to death at the Golden Horde, on a charge of treason brought against him by his cousin Yuri, who was nominated his successor, and removed the seat of government from Vladimir to Moscow; while the principal of Kievan Russia was finally extinguished (1391) by the Duke of Lithuania, who conquered and annexed it to his own dominions. In the mean time Novgorod (which in 1760 had joined the Russian confederacy) was in constant and important trade with the Mongol dominions, in which it prospered, and its wealth and importance were attested by the well-known proverb, 'Who can resist God and Novgorod the Great!' But the remainder of Russia continued to be held in hopeless bondage. In 1395, with the blessing and consent of the Great Khan, the death of Berdi-Bek Khan, gave rise to disputes for the throne of Kiplack among the collateral branches, and the discord of their oppressors encouraged the Russians to resistance. In 1396 Tumnik-Mami, one of the competitors, was overthrown in a great battle on the Don by Demetrius IV, thence nicknamed Doniski; but this victory, though celebrated by all Russian writers as the commencement of freedom, produced no permanent effect. Moscow was burnt by Tokatnish-Khan in 1380, and the Don was forced to sue for pardon and peace. But the unsuccessful wars of Tokatniah against the mighty Timur, who twice (1389, 1393) invaded Russia, gave a fatal blow to the power of Kipehchak; and the reigns of Vasili II (1389-1425), and Basil III (1425-1462), were characterized by a series of disasters, and by the lawless spirit of the Russians and Tartars, who strove to maintain their domination. In 1414 Moscow was a second time destroyed by the khan of Cassan, but the Tartars were now still further weakened by their divisions into several separate and conflicting parties. Finally, the events of 1440-1442, the last success in shaking off the last vestiges of dependence on the Golden Horde, which was finally dissolved in 1480.

With the reign of this prince, who married Sophia, the noble of the last Green emperor, a new epoch commences in the history of Russia. He defeated the Polos and Lithuanians, reduced the Tartars of Cassan to tribute, and reunited under his authority most of the minor Russian principalities; but his capture of Novgorod (1472), and the exactions which he levied on the Russians and Cossacks, gave a death-blow to the commerce of that famous emporium. The embassies of the European powers, Germany, Poland, Venice, the Holy See, &c., were now first seen at Moscow; and though the character of Ivan is sulky, by the cruel despotism of his internal administration, he is justly entitled to rank as the founder of the Russian empire, the power and splendour of which date from him. He succeeded by his son by Sophia, Basil IV, (1465-33), who prosecuted the schemes of aggravation and conquest of his predecessor, and extended all the Russian states by the conquest of the principality of Severia; but great part of his reign was occupied by bloody and indecisive wars with Poland, terminated by a peace (1495), which left little advantage to either side. The Tartars of the Crimea, assisted by the Poles, committed fearful ravages throughout Russia in 1510; and in 1520 their Khan advanced to Moscow, which he spared only on promise of tribute; and all the efforts of Basil failed to complete the subjugation of the Tartars of Casan, who defeated (1524) an army of 150,000 Russians on the Volga, and compelled another force, commanded by thirty Vaiwodes (1530), to raise the siege of their capital with loss and disgrace. His successor Ivan IV, Vasiliovich, surmounted the difficulties of his position, and the responsibility of his father. The tyranny and maladministration of the regent Schuiski occasioned disturbances during his minority, and the Crimea Khan made in 1541 an unsuccessful attempt to reassert the supremacy of his nation in Russia; but the destruction of the main body of the Tartar army of the Kipchaks, and the refusal of his dominions to the depression caused by the late calamities; he was obliged to purchase the peace of Stolbova from Sweden (1617) by the cession of Ingria and Carelia, including that one-third of the Baltic coast which the Swedes had held since the treaty of Karlowitz of 1699, by the单一 port of Archangel in Europe, and to resign Smolensk to Poland as the price of a fourteen years' truce (1618-32), a sacrifice which was confirmed, after a vain attempt to recover it by arms,
of Carlowitz (1699) at length gave him a port on the Black Sea. His next aim was to acquire a territory on the Baltic, and with this view he joined the Northern League with Denmark and Poland. He barely succeeded in a great measure in recovering the abuses which the preceding anarchy had occasioned; and he gave a fresh impulse to trade by the conclusion of commercial treaties with England (1623) and with France (1629). The majority of his son Alexis (1645-76) was a very dangerous period of his reign. The precedents in tolerable order, and Alexis, on assuming the reins of power in 1648, became an unsuccessful candidate for the Polish crown against John Casimir. The Poles, distracted by civil war, were unable to make a stand against the Russians, who recovered, by the truce of Vilna (1656), Smolensk, and all the other cessions of the last reign. A short war with Sweden was concluded by the peace of Capitola (1661) without any change of territory. But the contest with Poland, which had re-commenced in 1658, was continued with increasing success till 1667, when the truce of Andrusow (converted into a permanent peace in 1668) gave to Russia Tchernigow, Kiew, and the Ukraine, with the protectorate of the Diidier Cossacks. But in the mean time the internal peace became more precarious by seditions in the government of the coinage, and from the deposition (1666) of the patriarch Nikon, whom the lower orders regarded as a saint; and in 1667 the dismemberment of the empire was threatened by the revolt of theDEVICE of the Duc de Richelieu, named Steniko Razin, who, by proclaiming liberty to the serfs, attracted to his standard an army of 200,000 men, by the aid of which he captured Astrakhan, and assumed the style of an independent sovereign; but he was at length overthrown and put to death, with great numbers of his followers. The last years of the reign of Alexis were devoted to internal improvements and the advancement of civilization. Numerous foreigners, particularly Scotch and Germans, were attracted to Russia, where they introduced the arts and manufactures of their own countries. A publication of a revised code of laws gave a settled character to the national jurisprudence. Alexis died in 1676, at the age of 47, leaving several children by his two wives. The short reign of his eldest son Feodor (1678-82) was remarkable only for the first war between Russia and the Porte (1678-82), which ended in the final cession of Ukraine to the charters and muniments of the nobility, which thenceforward took an active part in military affairs, and, in his death, of Ivan and Peter, both sons of Alexis, but by different wives, were placed jointly on the throne, under the guardianship of Sophia, the sister of the former. But the intrigues of this ambitious princess, who aspired to the sovereignty herself, and who had recourse to sanguinary tumults among the serfdom. The discord of the nation was excited by the total failure of two expeditions (1687 and 1689) against the Crimean Tartars; and the attempts of Sophia to exclude Peter from all share in the government at length brought on a revolution (1689) in favour of the latter. Sophia was sent to a monastery, and Ivan, whose weakness of mind and body unfitted him for rule, abdicated in favour of Peter, who ascended the throne in solemn ceremony.

The genius of this future regenerator of Russia had been cultivated by the instruction of a Genevese named Le Fort, who had been his tutor since 1664, and the energy of his mind speedily developed itself in action. His first care was the suppression of disorders, and having ascertained under the discipline of some regiments in the European manner, he atttackd and took Azof from the Turks in 1694, being further aided by a flotilla which he built on the Don, and which he had committed to Ivan Vassiliy, who had quittd his dominions, and travelled for nearly two years in England, Holland, &c., in order to acquaint himself with mechanics and ship-building, and to engage artisans and engineers for his service; and a sanguinary revolt of the state clergy among the Jews. Sophia, having absented herself, the corps were summarily abolished at his return, and replaced by regular troops. The same year (1698) he founded the first Russian order of knighthood, that of St. Andrew; and the cession of Azof by the Porte at the peace
and exiled to Siberia. The election to the Polish crown in 1733 was decided in favour of Frederic Augustus II., by the personal and peremptory interference of a Russian army; and though the Persian provinces seized by Peter the Great were restored (1735) by a convention with Nadir-Kouli, the determination of the Frucht was unimpaired: a war was declared (in alliance with Austria) against the Porte. Crim-Tartary was overrun by Marshal Munnich; Azof, Ossakow, and Chesterian taken, and Moldavia occupied; but the peace of Belgorod concluded in 1735 without the loss of Austria, restored all these conquests except Azof. Anne bequeathed the succession, under the regency of her favourite Biron, to her grand-nephew Ivan (1740-1), a child two months old, son of her niece Anne of Mecklenburg, by her first husband; he was reared a Prince of Weimar, overthrown by a cabinet headed by the parents of the infant emperor, who themselves assumed the guardianship; but the discontent of the Russians at the influence of the foreign ministers introduced by Anne at length broke out in revolt; and Elizabeth, daughter of Peter the Great by Catherine, was called to the throne (1740-62). Ostermann and Mun

ich were sent to Siberia, and the ministry vested in Betschuef-Ruzin, who continued at the head of affairs till 1741. Elizabeth seized the throne (1741), and the accession of part of Finland by Russia. The alliance concluded with Maria Theresa (1747) in the war of the Austrian Succession, and the consequent appearance on the Rhine of 36,000 Russian auxiliaries under Korsakov, ensured the first part of Russia, in the politics of Western Europe; and in the Seven Years' war, a large Russian force, acting as allies of Austria, invaded Prussia, of which they held possession from 1757 to 1762: the victories of Gross Jagersdorf (1757) and of Kuesener (1758) were followed by the cession of Posen, by the renunciation of Russian arms, and Berlin fell into their hands in 1760; while an army of observation was maintained in 1758 in Poland, then a prey to anarchy and confusion. Elizabeth died Jan. 1, 1762, a victim of her craft; she deserted herself by the mildness of her domestic administration; and was succeeded by her nephew, Peter III., duke of Holstein-Gottorp. The first act of this prince was to abandon the Austrian alliance, and conclude peace with Prussia: he abolished the torture in criminal pro

cesses, and issued judicious regulations for the protection of commerce; but he steadily disguised his subjects by the rash innovations which he attempted to introduce into the army and the church, and the public discontent was secretly fostered by his son and successor, Peter IV. (1762-3), a princess of a masculine understanding, who had long been at variance with him. After a reign of six months, he was dethroned (July, 1763) by a conspiracy, and died in prison a week afterwards, as a gaoler disposed by violence; when Catherine II. succeeded to the throne by the unanimous voice of the army and the people. The accession of this ambitious and unscrupulous princess (1762-96) gave a fresh impulse to Russian policy, which from absolute monarchism assumed the steady aggressive character which it has ever since maintained. On the vacancy of the Polish throne, in 1764, a Russian army dictated the election of Stanislaus Poniatowski, a former paramour of Catherine: but Poland continued disturbed by civil war, and the complaints of the Porte at the continued occupation of the country by Russian troops led to a Turkish war (1768-74), in which the Russian arms were signally triumphant. A Russian fleet appeared for the first time (1770) in the Mediterranean, and during the following year subdued Crim-Tartary, Moldavia, and Wallachia; the Danube was crossed for the first time in 1773, and the losses of the Porte compelled her, by the treaty of Kutchuk-Kainarli (1774), to acknowledge the Crim-Tartary independent, and to cede to Russia an extensive tract of territory. In the same year the first partition of Poland (1772) was taken place, which gave Potock and Mughilew to Russia; and the dangerous revolt of the Cosack Poguzhef, who per

sonated Peter III., was quelled by his capture and death in 1775. The partition was followed by the division of the empire (1778) into forty-five governments with separate jurisdictions, and by the gradual promulgation (1776-85) of a new code of laws; the deserts were colonized, and the names of voivode and hetman were abolished; it was 15 years minister from 1778 to 1793. In the mean time the chains of Poland were daily riveted tighter; and the opposition to the England of the/project of erecting a new Greek empire at Constantinople, on the r. arm of the Russian power, is generally supposed to have given rise to the famous Armed Neutrality (1780), in which all the northern powers combined with Russia to resist the right of maritime search claimed by Great Britain. Crim-Tartary was conquered (1788), and the Ukraine (1789) was ceded by the Poles; the peace of Jassy (1792) established the Dniester as the boundary of Turkey and Russia. A short war with Sweden (1788-90), in which the Swedes threatened Petersburg, and the Poles invaded Silesia, was terminated by a truce, and a time been concluded by the peace of Werela, without territorial change. The outbreak of the French revolution produced a change in the disposition of Russia towards England, with whom an alliance and a commercial treaty were concluded in 1793; but no active part was taken against France, as the attention of the empress was directed towards Poland, by the second partition of which (1793) Russia gained Podolia and the Ukraine, with half Lithuania and a portion of the Baltic coast, by the third, by which the Slavonic empire of Poland was extinguished. In the next war, a serious struggle ensued (1794) on the general revolt of the Poles under Kosciusko and Maladiński; till the storm of Praga by Suworow, in which 20,000 Poles were slaughtered, finally crushed all resistance, and the third and last partition of Poland took place (1795). Besides the extinction of the nationality of Poland was extinguished, while Russia gained Courland with the rest of Lithuania and Volynia, in addition to her former acquisitions. Catharine II. died the year after the accomplishment of the favourite object of her ambition. Her successor was succeeded by her son Paul (1796-1801), a weak and fickle prince. He joined (1798) the second grand coalition against France; and the Russian auxiliaries, under Suworow and Korsakov, assisted themselves with great bravery in Italy and Switzerland in the campaign of 1799: but Paul soon capriciously aban

doed his allies, concluded peace with Bonaparte (then first consul), and, in 1800, put himself at the head of the Conven

tion of the North, a union of the northern states, on the principle of the armed neutrality, against the British maritime supremacy. A war with England was impending, when Paul, whose frantic tyranny (verging on madness) had made him odious to his subjects, was murdered in his palace (1801) by a band of conspirators under his son and successor Alexander (1801-23) immediately effected a pacification with England, and disarmed a force of 45,000 Cossacks which his father had assembled at Oren

berg, with the wild design of marching overland to India; but the East Indian campaign was concluded in 1803; but Alexander refused to acknowledge Napoleon as emperor, and joining the Austrian alliance against him, was personally present at the defeat of Austerlitz. In 1806 the renewed alliance of the Porte with France was made the pretext of a new Turkish war (1806-13), and Moldavia and Wallachia were occupied; but the successive victories of Kyau and Friedland gained by the French (1807), led to the famous conferences between Alexander and Napoleon, the result of which was the peace of Tilsit. Russia joined the 'Continental System' of Napoleon, and became an ally of France; declaring war (1809) against England and Sweden, the latter of whom was forced to cede, by the peace of Fredriksbom (1809), all Finland, East Bothnia, and Valaam, with the Porte, to a great extent, she was reduced to languish, was resumed with fresh vigour in the bloody but indecisive campaigns of 1810-11-12; but the injury which the 'Continental System' inflicted on Russian commerce was becoming insupportable, and the refusal of Alexander to surrender it at length led to a rupture with France (1812). Alliances were now formed with England and Sweden, and the peace of Bucharest with the Porte, concluded through the mediation of the British minister, extended the Russian power over the whole of Rumania; at the autumn of 1812, Napoleon invaded Russia with 500,000 men, defeated Kutusoff at Borodino, and advanced to Mos
cow; but the country was everywhere laid waste, and the confagration of the capital itself by the emperor Rostopchin. The French were driven out of Moscow, and the war was an untasted rigour, pursued by the Russians: nine-tenths of their vast host either perished or were taken prisoners, and Napoleon himself escaped only by deserting his army.
A powerful Russian force continued to take part in the campaigns of 1813-14 against France, and Alexander entered Paris in triumph. By the congress of Vienna (1814), Warsaw and a large territory, under the name of the kingdom of Poland, were annexed to the crown of Russia, but with a separate administration and free press. A desultory war with Persia (1804-13) had been concluded by the peace of Golinian, Persia ceding most of her Caucanian possessions up to the Caspian. The military power and political influence of Russia were now almost paramount on the Continent; and after the final downfall of Napoleon, in 1815, she became the head of the 'Holy Alliance,' entered into by ten nations, the principle of which was the suppression of revolutionary principles. The remainder of the reign of Alexander was peaceful, and occupied chiefly in reforms of the internal government; while the long line of frontier was strengthened by the formation of military colonies, and the welfare of the subjects was promoted by the frequent progressions of the sovereign through the interior provinces. In one of these tours of inspection Alexander died at Taganrog, on the Don, aged forty-nine (Dec. 1825); and, leaving no issue, was succeeded by his brother Nicholas, the third son of Paul, the second brother, Constantine, having previously renounced the succession. This change in the succession occasioned some military tumults, which were not quelled without bloodshed. In 1826 a dispute respecting bordering waters led to a fresh war with Persia, which lasted till 1828, when the progress of the Russians compelled Persia to give up Biran and the country as far as the Araxes, as the price of the peace of Turkmanchay. The Greek revolutionary war was now raging in the Janina district, in July, 1827; a body of Greeks from Russia, France, and England, for the settlement of the question; but the refusal of the Porte to accede to the terms dictated to her by the production of the Turkish fleet by the allied squadrons at Navarino; and in 1828 a Russian army invaded Turkey; and though compelled to retreat before Shumla in the first campaign, succeeded in crossing the Balkan (1829), and occupied Adrianople, where a treaty was concluded, by which Russia acquired numerous frontier fortresses in the Balkans, and the protectorate of Albania and Wallachia. A general insurrection of the Poles (Nov., 1830), who were galled by the tyranny of their viceroy the grand-duc Constantine, and by repeated infringements of their constitution, was crushed, after a campaign of frightful devastation and bloodshed, by the capture of Warsaw, Sept., 1831: many thousand Poles of all ranks were sent to Siberia; the kingdom was incorporated with Russia, and has ever since been governed as a conquered province. The relations with the Porte assumed a new form in 1825, from the application of the system and of the system, for checking the advance of the rebel pasha of Egypt: an auxiliary force was sent to Constantinople, and terms imposed on the pasha; but this service was repaid by the treaty of Unkari-Skeleisi, binding the Porte to respect the rights of the Russians, and to close the Dardanelles against all foreign vessels of war. The absolute ascendency thus acquired in the divan was viewed with great jealousy by France and England; but their complaints were disregarded by the Russian cabinet, which, shortly after the accession of Mohammed Shah to the Persian throne, in 1834, succeeded in obtaining a similar paramount influence, to the exclusion of British interests, in the councils of that nation. These proceedings excited in England a strong popular feeling of hostility, which was displayed in the reception of the Russian ambassador, in 1836, of a British merchantman on the coast of Crete; where a fierce guerrilla warfare with the natives had been for some years carried on, the Russians claiming the country as ceded to them by the peace of Adrianople. The Greeks, who gradually recovered the liberty which had been restored to them by British pressure, declared the Albanians and Macedonians were restored by Russian officers, which was viewed as preliminary to the invasion of the Anglo-Indian empire, brought the conflicting relations apparently to the verge of a rupture: but the failure of the Albanian revolt was accompanied by the quiescence of the Persians, and the subsequent conquest of Afghanistan by an army from India; and the Russian schemes of aggression in this quarter have since received a further check from the failure of a formidable projected (1837) invasion of the Uzbek state of Khiva. Such is the present political aspect of Russia: with two formidable fleets in the Baltic and Black seas, and a standing army amounting (at least nominally) to upwards of 900,000, she presents a formidable armed force to Western Europe. The events of the last ten years have rendered her almost absolute arbiter of the destinies of her ancient opponents, the two great Moslem powers of Turkey and Persia; and her interests are everywhere watched and promoted by the exertions of her diplomatic service, the numbers and organization of which far exceed that of any other nation. But on the other hand, the absolute despotism which pervades every branch of the government, the geography and political officers of this vast power, almost entirely dependent on the personal character and energy of the reigning sovereign: the Polish nation and many of the subject tribes are retained in unwilling obedience only by military coercion; and the extreme desaccuracy understood to prevail among the nobility and some of the former privileges and power have been wholly annihilated, with the desire for free institutions, which must necessarily result from the gradual diffusion of knowledge among the lower orders. In this period, to important changes in the constitution and government. 

Government and Administration.—The actual political organisation of Russia is as follows:

The emperor is as absolute as in the times of Ivan Vassilovitch the Terrible. However this despotism may be modified by the progress of civilization, the actions of the emperor Paul I. prove, that should the monarch of Russia wish to indulge himself in any freaks of tyranny even bordering on insanity, there is no means of checking him. Several classes of the inhabitants enjoy certain privileges and immunities, although it is quite superfluous to add that these liberties have no other guarantee than the pleasure of the sovereign; who may grant them and revoke them at his discretion. A remarkable feature in the political organisation of Russia is, that no one has of right any rank unless as he obtains by filling a civil or military office. The offices, military, naval, and civil, are divided into the following fourteen grades:

<table>
<thead>
<tr>
<th>Military</th>
<th>Naval</th>
<th>Civil</th>
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<tbody>
<tr>
<td>1 Field-Marshal</td>
<td>General Admiral</td>
<td>Chancellor</td>
</tr>
<tr>
<td>2 Full General</td>
<td>Full Admiral</td>
<td>Actual Privy-Councillor</td>
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<tr>
<td>3 Lt.-General</td>
<td>Vice-Admiral</td>
<td>Privy-Councillor</td>
</tr>
<tr>
<td>4 Major-General</td>
<td>Rear-Admiral</td>
<td>Actual Councillor of State</td>
</tr>
<tr>
<td>5 Brigadier (now abolished)</td>
<td>Commodore</td>
<td>Councillor of State</td>
</tr>
<tr>
<td>6 Colonel</td>
<td>First Captain</td>
<td>Councillor of College</td>
</tr>
<tr>
<td>7 Lt.-Colonel</td>
<td>Second Captain</td>
<td>Councillor of the Court or Aula</td>
</tr>
<tr>
<td>8 Major</td>
<td>Capt. Lieutenant</td>
<td>Councillor of College</td>
</tr>
<tr>
<td>9 Captain</td>
<td>Lieutenant</td>
<td>Honorary Council for Secretary of College</td>
</tr>
<tr>
<td>10 Second Capt.</td>
<td>Midshipman</td>
<td>Secretary</td>
</tr>
<tr>
<td>11 Under-Lieut.</td>
<td></td>
<td>Registrar of College</td>
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<tr>
<td>12 Under-Lieut.</td>
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</table>

Many of these grades belong to certain offices, and are lost with the loss of office, which is particularly the case with those that are elective. The inhabitants of Russia are divided into the following classes: the clergy,—the nobility, the merchants and burgheers,—the peasants. The clergy is composed of the monastic or regular clergy, and the secular clergy. All the higher prelatures of the church are held exclusively by the first, the secular or parish clergy (the members of which, according to the discipline of the Greek church, must be married) have no higher prelature than that of a protopope or protopope, who has the superintendence over a certain number of parishes. The children of the clergy generally follow the profession of their parents, so that it is a very rare case in Russia to see a clergyman who is not descended from the clerical class. Many of these children however enter different branches of the public service, particularly the civil department. The nobility is the privileged class, and in some degree the ruling class, in Russia. Till the time of Peter III. it was subject to the duty of personal service, but that monarch, granted, by a ukase of 18th February, 1762, that to which the following privileges: —
The nobles may enter the service of foreign powers not at war with Russia. A noble marrying a non-noble woman raises her to his rank; but a noble marrying a woman of inferior condition does not lose the privileges of her order, although she does not communicate them either to her husband or children. A noble cannot be judged except by a judge belonging to his condition, and a sentence passed against him cannot be carried into execution without having been previously examined by the senate and confirmed by the emperor himself. A noble is exempt from corporal punishment and from military service. A crime committed by him if ten years have elapsed without legal notice being taken of it. The nobility may establish any kind of manufacture and engage in commerce, but in the latter case they must inscribe themselves in one of the manufactories established by law. In the case of the mines, which were nationalized in 1782, all the mineral productions found on their estates are their property, and they are the almost exclusive landlords of the country.

The nobles have meetings for the election of local magistrates, and they may send deputations to the emperor after having previously obtained a special permission for so doing. They also deliberate at these meetings on several local affairs. Those nobles only who enjoy a grade in the nobility, in the sense of the law, may act as nobles. Their votes are either personal or by representation. The right to a personal vote belongs to those who possess 100 serfs or 3000 dessiatinas of ground. Those who have not the required amount of property vote by a representative, proportionate to the amount of the produce of a ring of 100 serfs or 3000 dessiatinas of ground. This class of nobles elect in respect of their collective estates one representative for every 100 serfs or 3000 dessiatinas of ground.

The nobles elect the following magistrates——

For the government—1. The chief or marshal of the nobles. 2. The presidents and assessors of the criminal and civil tribunals which are courts of appeal from the district tribunals. 3. Judges of the consistory tribunal. 4. The burgomasters, the mayors, or the guilds, of the members of the commission of public vitioculating. 5. Deputies from each district, forming a commission for examining the pedigrees of the nobles. 6. A secretary of the above-mentioned commission. The elective officers of the districts are:—1. A chief or marshal of the nobles. 2. The district tribunal, consisting of a chairman, two assessors, and a secretary. 3. The police magistrates, consisting of the captain (praparnik) (i.e., executive), and four assessors. There are also offices existing only in some particular governments, as the magistrates for the construction of roads, &c.

The nobles are divided into two classes:—

1. Hereditary and personal. To the first class belong all nobles who have inherited their rank or risen in service to the nobility. Among them are the nobles of the hereditary nobility, who have acquired by their services a grade inferior to the eighteenth. These latter enjoy the privileges of the order without transmitting them to their children, and they cannot be elected to certain offices.

2. Second order of the inhabitants of Russia is composed of the citizens or townsmen, Grajdane or Gorodoveye. They are subdivided into many classes, viz.:—1. The honorary citizens, Pochtennye Grajdane, who are exempt from the capitulation-tax, military conscription, and corporal punishment, and have the right of being elected to certain offices, consist of free non-nobles, who have obtained academical honours, distinguished artists, and heads of manufacture establishments. The privilege of honorary citizenship is possessed by some of hereditary right, and is with others only personal. The children of the personal nobles are hereditary honorary citizens. The privileges of that order are forfeited either in consequence of a criminal sentence, or by engaging in some mean trade, and entering into domestic service.

The merchants are divided into three classes or guilds. The first guild, which is obliged to pay under various denominations an annual tax of 100 rubles, has a right to engage in the commercial or manufacturing enterprise without any limitation as to the amount of capital employed in it. The second guild, which pays an annual tax of 40 rubles, is subject to the following limitations:—A merchant of that guild cannot declare his warehouse or merchandise brought in one ship-load or by one consignment attache 200,000 rubles, and his foreign trade must not exceed in the course of a year the value of 12,000 rubles. Should the value of his merchandise exceed that maximum, he is obliged to pay the tax of the merchant of the first guild. The merchant of the second guild cannot enter into any contract for more than 2000 rubles, nor can he keep a banking or insurance office. Both the first and second classes enjoy an exemption from the capitulation-tax, military conscription, and corporal punishment. The third guild is composed of all men employed in manufactures. Their children enter the service on the same footing as those of the personal nobles, i.e., they can advance as officers after having served seven years in an inferior grade. The merchants of the third guild, who pay an annual tax of 15 rubles, may carry on every kind of retail trade, and have manufactories, provided they employ in them no more than 32 workmen. Nobles who engage in commerce may enter one of these three grades according to the extent of their transactions.

Foreign merchants trading in Russia must pay the same taxes as the Russian merchants, and their commerce is subject to several limitations. They may acquire real property in places where they are settled.

The burghers, by purchasing an annual licence, the price of which, according to the class of the town which they inhabit, varies from 12 to 32 florins, may engage in several kinds of retail trade, and have workshops, in which they may employ, besides their family, eight workmen, and thereby oblige the price of their living to sixty workmen. Should they wish to increase that number, they must pass into the third guild of merchants. Those who pay no licence cannot engage in certain ordinary trades and have a single store for retailing only common goods specified under fourteen heads. The mercantile trade, military conscription, or corporal punishment.

The peasants constitute the lowest class of the inhabitants of Russia, and as they do not enjoy any personal privileges, they cannot (according to the expression of the ukase of the 10th March, 1813) be deprived either of honour or good name. They pay the capitulation-tax and are subject to military conscription. Besides their agricultural pursuits, they are allowed to engage in handicrafts and some minor trades, as keeping inns in villages, &c. By purchasing licences they may engage in any kind of commerce, even that which is carried on by merchants of the first guild, they do not enjoy the personal privileges of the merchants.

There are instances of serfs belonging to some noblemen possessing immense wealth, and even a great number of serfs, which they hold in the name of their master. The peasantry of Russia are divided in three classes, those of appanage estates, serfs of landowners, and free cultivators of land; the number of these last is however very small.

The crown peasants are those who live on the estates belonging to the crown. They pay, besides the capitulation-tax, a rent for their grounds. Many villages are obliged to maintain post-horses for the government couriers and private travelers.

The crown peasants elect some of their authorities. Each commune, Volostr (500 male individuals constitute a commune), elects every two years its chief, called head. Each commune also sends a deputy for the election of assessors who judge in causes arising among themselves, or between them and other classes. These assessors may be chosen from among the peasants themselves or other classes. Causes between crown peasants themselves are decided by
The judge of the district with the above-mentioned assessors; but when other parties are concerned, the causes are decided by the same judge with an assessor of the peasants and another of the nobles. The crown peasants may pass into the class of burghers and merchants.

The Odnodvortsyi, or single householders, are descendants of military men who received grants of land for their services. They formerly constituted a kind of minor nobility. They own a personal serf, or a privilege which they, who are in the actual enjoyment of it retain even now, but they are prohibited from making new acquisitions, except from persons belonging to their own class. They have also some few other privileges over the common crown peasants.

Marriages concluded with crown peasants have been, according to a ukase of Peter the Great, ceded to particular individuals on condition of establishing manufactories. These peasants, called adscripti (приписные), work in manufactories on certain fixed terms. The owners of the manufactories pay all taxes due from these peasants, who are likewise exempted from military conscription. The condition of the peasants of the appanage estates (those reserved for the maintenance of the imperial family) differs little from that of the crown peasants.

The landowner's peasants, or serfs, are complete slaves. Their master can inflict on them such punishment as he chooses, but he is not permitted to kill, to starve to death, or to maim his serf. A serf cannot contract marriage without the consent of his master. The sale of a serf cannot be sold without the ground to which he is attached, but the domestic serf may be sold like any other chattel. A ukase of 1808 however prohibits the sale of serfs at fairs or by auction, or as substitutes for recruits. An accusation of a serf's master to the master, except in cases of high treason, is not admitted, and he who proffers such a charge is liable to punishment.

The free peasants, a class whose existence began under the tutor Alexander, are subject to the capitation, and military conscription, but they are free in all other respects.

A great number of German colonists have settled in Russia at different times. They are exempt from all taxes for ten years after their settling, and from military conscription entirely.

Having described the various classes of the inhabitants of Russia, we must say a few words on its administration. The principal authority is the council of the empire, presided over either by the monogast or by a member specially appointed. It is divided into four departments: 1. the legislative; 2. the military (which comprises also the navy); 3. that of civil and ecclesiastical affairs; and 4. the financial. Each department is subdivided into committees, and the general assembly of the council. The affairs which are decided by a majority of votes, are submitted to the approbation of the emperor. To the council of the empire any petition or impeachment of grievances can be directed, and on all petitions addressed to the emperor, and an imperial chancery.

The senate, or, as it is officially called, the Directing Senate (Председаельное Государство Сенат), was established by a ukase of Peter the Great, dated February 22, 1711, and its organization was determined by the ukases of 1773 and 1809. Its powers and duties are comprehended under the following heads:—

1. It is the judicial tribunal for all judicial cases.
2. Its authority is limited only by that of the monarch.
3. It is presided over by the emperor in person.
4. The ukases of the senate are binding like those of the emperor, who alone can prevent their execution.
5. Every imperial ukase obtained by private persons, except such as may require secrecy, must be presented to the senate by those by whom they have been obtained.
6. It is the duty of every senator to represent to his colleagues every matter relating to the state and breach of law which may come to his knowledge.

The senate is divided into eight departments, of which the 1st superintends the general affairs of the country; the 2nd, 3rd, and 4th try civil cases; and the 5th, criminal cases, in Petersburg. The 6th, 7th, and 8th similarly try criminal cases, and the 7th and 8th, which try civil cases, are at Moscow. Each of these departments has a number of governments or provinces, from the courts of which it hears appeals. Judgment is given by a majority of votes, which must consist of two-thirds of the whole number, or of the number present. In case the required majority cannot be obtained, the cause is decided in the general assembly of the senate, where all the departments vote together. Causes must publicly argued before the senate or before any other Russian tribunal.

A statement of the case of each party is made by the secretary, and communicated to the party, who signs it as correct. These statements are examined by the assembly, in the presence of the parties, to the court, which pronounces judgment. In the antient Polish provinces, where the Polish laws were retained, causes were publicly argued by advocates, but these laws have been recently abolished and those of Russia instead substituted. An assembly called the Hereditary Assembly is attached to the senate; its office is to examine and confirm the claims to nobility, and to superintend the advancement and rewards of civil officers throughout the empire.

The synod, or, as it is officially called, the most holy direct synod, is the supreme administrative and judicial court for all ecclesiastical affairs of the Greek religion. Its decisions are subject to the control of the emperor as head of the church.

The administration of the country is conducted by the following ministries:

1. Ministry of the Imperial household.
2. Ministry of foreign affairs.
3. Ministry of interior affairs, or home department.
5. Ministry of marine.
6. Ministry of national education, to which is attached the administration of the ecclesiastical affairs of those sects which do not belong to the Russian church.
7. Ministry of trade.
9. The board of control of the empire, which audits the accounts of all moneys expended for the public service.
10. Ministry of the post department.
11. Ministry of the general direction of land and water communication.

The governments or provinces are organised in the following manner:—The head of the administration of a province is the civil governor, to whose department belong all the affairs of the province except judicial cases, but although he cannot decide judicial cases, he may compel the judges to hasten the decision of an affair. No criminal sentence can be executed without his confirmation. There is also one military governor for two, three, or four, or provinces, to whom all civil and administrative affairs are referred.

The vice-governor is the head of the financial department of the province, and he supplies the place of the governor in case of his absence.

The financial director is appointed to observe that the laws are strictly fulfilled, and he may in case of irregularity suspend the execution of a judicial sentence, and report the cause to the minister of justice. On account of his extensive powers, he is called the eye of the monarch.

The tribunals or courts of appeal try civil and criminal cases, and the members of them are, as we have said, elected by the nobles.

The consciencious tribunal (оченьестной суд) is composed of a chairman and two assessors elected from the nobles, two assessors from the merchants, and two from the peasants. This court hears those criminal cases where the crime was committed more from a consequence of unfortunate circumstances than from malice; consequently all crimes are committed by minors, lunatics, as well as cases of witchcraft, because they are supposed to originate from folly, ignorance, and delusion, are within its jurisdiction. Parents may also apply to this court for relief against the misconduct of their children. In civil cases it evidences the right of the parties, the partition of property, the execution of bonds, and other important duties of the consciencious tribunal to prevent illegal imprisonment. If any individual addresses a petition to it, stating that he has been kept in jail three days without being informed of the charge or the cause for which he was arrested, and without having being examined, the tribunal is obliged immediately to issue an order that the person detained shall be brought before it, with a declaration of the reasons for which he was imprisoned and not examined, and to the situation he is in, as well as to the penalty. The jurisdiction of the court does not however apply to cases of offence against the Imperial person, high treason, murder, theft, and robbery.
The Board of Public Charities is composed of the governor of the province and some principal magistrates; its name sufficiently denotes its duties. There is a medical board in each government.

The authorities of the district have been enumerated in describing the privileges of the class of nobles from whence these authorities are elected; we must only add that there is in every district a council called the tuteelage of the nobles, which has the trustees of all minors of that class. It is composed of the marshall and his deputies and of the members of the judicial tribunal of the district.

The towns have their separate jurisdiction, composed of the burgomaster and ratmen (from the German ratsherrn) elected from the merchants and burgheers of the town. There is also a council of tuteelage for minors of the burgheer class.

This is a general outline of the political organization of Russia. And if this organization had been effective, the country would have been tolerably governed. It is needless to observe that a despotic power will not interfere with established order, except in political cases, as it is interested in maintaining that order for its own preservation; but other causes prevented the good working of the Russian administration, which, partaking of the annihilation of simplicity, was really wretched. One of the most mischievous defects is the insufficient pay of magistrates, of whom the highest, i.e. a senator, receives 1600 a-year. It is true that many senators receive a much greater salary and then they receive nothing more than their pay, which is also the case with the majority of the civil officers. Bribery is the universal plague of the Russian administration.

Laws.—Yaroslav I. promulgated at Novgorod a code of law in 1113. But this in essence the Tartars entirely changed the character of the laws of Russia, introducing death, mutilation, and torture, instead of the ordinance and fines.

In 1497, Ivan III. made an order for collecting into one book all the customs and ordinances, and rendering the collection complete by the necessary additions. By order of Ivan the Terrible, this code (1550) revised and completed under the name of Sudomstok, or judgmentbook, the Czar Alexey Michaelovich gave orders (1640) for composing a general code of laws under the name of Ugolenge (Regulation). It consists of 25 chapters, and still forms the basis of the Russian law. Since that time the Russian legislation has been continued by edicts, i.e. ordinances issued either in the name of the monarch himself or of the senate; and their number from the 25th Jan., 1619, to the demise of the emperor Alexander, is 30,920, including all kinds of statutes, regulations, and treaties.

Peter the Great had a project for collecting the separate ordinances of the whole empire into a large code, the basis of which was the code of 1649; and for that purpose he established a commission in 1700, which however produced no effect. The empress Elizabeth appointed (1744) one general and several special commissions the result of which was clear, intelligible, and adapted to the progress of the times.

These commissions prepared three codes, relating respectively to procedure, criminal law, and the different conditions of the inhabitants. These codes were not however sanctioned by the supreme authority, and the commissions dissolved of themselves. Catharine II. published her celebrated instructions for the composition of a code of laws, and appointed new commissions for that purpose. These commissions, which framed some projects of laws, were dissolved in 1774.

A new commission was appointed in 1797. The empress Paul (1797) had no better success. Under the reign of Alexander, the legislative labours were again resumed (1804). New instructions were published, and several foreign lawyers were nominated correspondents of the legislative commission; but all these labours produced no result. These commissions cost the treasury, from 1754 to 1826, 5,678,835 francs, and did not even effect a complete collection of the existing ordinances. Each of these legionnaires is supported by the fact that the law has been so many times changed, it was some time before new members became well acquainted with their subject. Opinions also frequently varied as to the real object of the undertaking; sometimes their labours were directed to the accomplishment of a simple collection and arrangement of the existing laws and ordinances (codice de Varand) and sometimes to the complete transformation of the existing laws into a new code. On 17th of December, 1825, the emperor Nicholas declared that a systematically arranged collection of the existing laws and ordinances should be the basis of legislation, and he transformed the legislative commission into the imperial chancery, under the presidency of the celebrated Speranski. [Speranski.]

The result of this measure was a collection of all the laws and ordinances from 1649 till the death of the emperor Alexander, 1685, into 5 volumes, 4612 pages, in 48 vols. 4to., 1827-30. It was followed in 1832-33 by a collection of the ordinances of the emperor Nicholas, from his accession to 1832, in 8 vols. 4to., and is still continued. These two collections contain 32,923 laws, from which was extracted the Sobor Zakonnov (corpus juris), published 1826-1833, 15 vols., which was declared by an imperial ukase, 31 January, 1831, to be the law of Russia wherever the provincial laws are not opposed to it, and that it should become valid from the 1st January, 1835. This set was a systematic revision of the old laws, abolished many abuses, and created a clear, simple code, not only of the civil, but also of the criminal law. It comprehended the fundamental laws of the state, the law of the imperial family, and the organization of the authorities of the state; the 2nd, the public services, i.e. military service and the police; the 3rd, the organization of the administration of the finances; the 4th, the different classes of the inhabitants; the 5th, civil law; 6th, internal administration, industry, municipalities, &c., 7th, police; and 8th, public law. These eight codes contain 1498 chapters, and 125,382 articles, and the unerring hand of the emperor and the ordinance from which it is taken, and its connection with other ordinances is given in notes.

An historical sketch of the Russian legislation is prefixed to the work. For further information consult Précis des Notions Historiques sur la Formation du Corps des Lois Russes, St. Petersburg, 1833.

RUSSIAN CHURCH. The Russian church is a branch of the Eastern or Greek church, whose missionaries seem to have penetrated among the Slavonian population that inhabited the countries to the north of the Black Sea at an early period. The commercial intercourse which Cherson and other Greek colonies on the north Shores of the Black Sea maintained with the Slavonians, facilitated the diffusion of Christianity amongst them. The Slavonian converts must have been considerable towards the end of the 9th century, as the Byzantine writers, about the year 900, mention the diocese of Russia. The expeditions of the Varego Russian princes of Kiev may have contributed to the progress of Christianity. Among their subjects, the princess Olga, wrote, in 956, to Constantinople, in order to be baptised. Her example was not followed by her son Sviatoslaf, who continued to hearken to his ancestors, although he did not persecute the doctrines nor prevent his mother from building churches. A popular commotion against the Christians, in 980, at Kiev, proves that their number was already sufficiently great to excite the jealousy of the pagans; and in 988, Vladimir the Great, grand-duke of Russia, was himself baptised by Greek missionaries. He also married the sister of the Greek emperor, and introduced Christianity into his dominions. The pagan idols were destroyed by his command, but idolatry was not completely extinguished. It was only the beginning of the 11th century that the state of Kiev was instituted about 960, by the patriarch of Constantinople. From that time the metropolitans of Kiev, who presided over all the churches of Russia, were consecrated at Constantinople and came thence monsigners chosen from among the monks. After the capture of Constantinople by the Latins, when the seat of empire, as well as that of the patriarch, was transferred to Nicomedia, the patriarchs of Russia were consecrated in that city until the expulsion of the Latins, when things returned to their ancient order.

The popes made several attempts to extend their supremacy over the Russian church, and there seems to have been some intercourse between Rome and Vladimir the Great, as the patriarchs of Constantinople were not always in correspondence with the pope. The grand-duke Jaroslav being expelled from his throne, in 1073, by his brother, sought refuge at the court of the emperor

* Several acquired provinces have retained their former laws for civil cases, but criminal cases are judged according to the Russian laws.

* It has not yet been put into execution.

P. C. No. 1264.
Henry IV., and sent his son to Rome, in order to interest Gregory VII. to restore him to his country, on which he prided himself and his dynasty, spiritual as well as temporal. Gregory wrote a letter in 1074 to the brother of Jsiisalaf, and admonished him to relinquish the sovereignty which he had usurped. The papal admonitions produced no better result than the imperial remonstrances to the same effect, and Jsiisalaf having recovered his throne after the death of his brother, thought no more about the pope. The chronicles mention different attempts of the Roman see to establish its dominion over Russia, but we are left in doubt whether these negotiations were attended with anything like success. There is no circumstantial evidence to imply that the popes possessed any influence at Kiev, about the end of the 11th century, as Ephraim, a learned Greek who occupied the metropolitan see of that town from 1070 to 1096, introduced into the Russian calendar, under the 9th May, the commemoration of the translation of the relics of St. Nicholas from Lyria to Bari in Italy; a feast which is unknown in the Greek church, but is observed by that of Rome. It is very possible that before the separation between the Western and Russian churches was completed by Michael Cerularius, the metropolitan of Russia were sometimes waverings in their obedience between Constantinople and Rome. The papal power however never gained a permanent footing in the Russian territory, although that of the Catholic Church in Poland and Hungary, was the object of its unceasing efforts. The Hungarians having, in 1214, occupied the principality of Halicz, endeavoured to subject its church to the supremacy of Rome, but their expulsion from the country destroyed the influence of that country was greatly diminished. Daniel, who had been a legate, was received as a legate by the other, and finally became the archbishop, and continued to hold his see until 1257. He was succeeded by his son Simon, who was declared by the pope to be the successor of Peter the Great, and the church of Moscow assumed the title of metropolitan. The jurisdiction of the patriarchs of Constantinople, came to Moscow, in order to get pecuniary assistance for his churches. The assistance was granted by the patriarchs of Constantinople, and by the metropolitans of Moscow, and by the clergy of the Russian patriarchs enjoyed extraordinary influence, not only in ecclesiastical but also in temporal affairs; their consideration was increased by the public marks of respect which were shown to them by the czars, who on every Palm Sunday led the procession to the monastery of St. Petersburg, and the church was visited by the patriarchs of Constantinople. The church of Moscow was erected by the Czar Alexey in 1682, and was consecrated to the name of the Virgin Mary. The church was completed by the consecration of the archbishop of Moscow, and the church was erected by the Czar Alexey in 1682, and was consecrated to the name of the Virgin Mary. The church was completed by the consecration of the archbishop of Moscow, and the church was erected by the Czar Alexey in 1682, and was consecrated to the name of the Virgin Mary.
church was professed not only by millions of the common people, but also by a great number of nobles, among whom there were many of the first families of the land, and even some of the nobility of the household of the Jagellons, such as the Czartoryski and Sanguszko.

The Russian clergy of Poland sent a delegation to the council of Basil, but they did not come to any understanding about a union with Rome. The efforts of Izydor of Ostrog, however, produced no fruit; and under Nicholas, in 1539, the bishops of the united church being prevailed upon to sign a renunciation of their obedience to Rome, all the churches of their dioceses were by an imperial ukase ordered to do the same, and a great number of clergymen who opposed this measure were severely punished.

Present State of the Russian Church. — The emperor is the head of the church, the affairs of which are administered by a supreme council, composed of the most holy governing synod, composed of ecclesiastical and lay members, whose number is not limited. The body usually consists of two metropolitans, two bishops, the chief secular priest of the imperial staff, and of the following lay members: — the procurator or attorney, two chief secretaries, five secretaries, and a number of the king. The procurator has the right of suspending the execution of the decisions of the synod, of reporting any case to the emperor. The synod decides all matters relating to the faith and the discipline of the church, and performs the functions of the ecclesiastical and civil courts of the country. It has the right of the attendance of the administration of the dioceses, from which it receives a report twice a year of the state of churches, schools, etc., as well as the register of births, marriages, and deaths.

The Russian church contains forty dioceses, divided into three classes: the first (containing four dioceses) is governed by metropolitans, the second (sixteen dioceses) by archbishops, and the third (containing the remaining dioceses) by bishops. Those who are not comprehended under the general appellation of archbishop, bishop, or priest, rank, and do not depend on each other, but immediately on the synod. Each diocese has a consistorial court, whence an appeal may be made to the archiepiscopate, and from him to the synod.

Episcopacy is confined, as it is in the Greek church, to the monastic clergy. The highest prelature to which the secular clergy can attain, is the rank of chief priest of the Imperial staff, and the individual who occupies that place is generally also the principal of the seminary at Constantinople, where, as already observed, he has a voice in the synod. The ecclesiastical law of Russia is the Greek Nomocanon, with the addition of some ordinances issued on several occasions.

There are four ecclesiastical colleges in Russia, at Moscow, St. Petersburg, and Kiev, and a number of numerous seminaries. All the sons of the clergy must be educated in these seminaries, many of which contain colleges, called burses, in which the poorer students are maintained. There is a system of discipline, or the effect of making many of the sons of clergymen the most learned men in Russia. The clergy form a kind of separate body in Russia, and it is a very rare occurrence that a person belonging to another class enters the church. The sons of clergymen are, as a general rule, obliged to follow the profession of their parents, and they must obtain a licence before they can adopt any other profession. This licence has been so easily granted, and is a mere formality, and we believe the practice of obtaining it is not abolished or discontinued.

Dissenters. — There are numerous dissenters from the Russian church, generally called Rashkolniki, from the Russian verb raskolot, to split, which signifies dissenters or schismatics. The beginning of this dissent dates from the introduction of Christianity into Russia. In 1603, fifteen years after the establishment of Christianity in Russia, a monk called Andrew attacked the hierarchy, the worship of images, and some other doctrines of the Eastern Church, of which opinion he was excommunicated. His appeal to the patriarch of Constantinople was seized by Russia at the first disembarkment of Poland in 1772.

Catherine II. and Paul endeavoured to force the united church of the incorporated Polish provinces to renounce their union with Rome, and to acknowledge the spiritual supremacy of the monarchs of Russia. Their attempts had partial success among the churches of Prussia, which had only recently formed this union, and which had been pressed at an earlier period to persist in their connection with Rome, notwithstanding the persecution to which they were exposed. Under the emperor Alexander the persecution was discontinue,
church; that hallelujah should be repeated at the end of psalms twice instead of three; but he insisted particularly that the sign of the cross should be made with two fingers (which is the Armenian manner), and not with three, as is prescribed by the established church, being, as some pretend, typical of the Trinity. However, the differences of opinion may appear, they are very remarkable, because they constitute, even now, among the great majority of Raskolniks, their chief grounds of opposition to the established church. The doctrines of Martin were condemned by a synod in 1133; but he himself went over to the patriarch of Constantinople, before whom he recanted, and became reconciled to the church. His doctrines were however preserved by a small number of followers, and reappeared with great force at a later period.

In 1573 a citizen of Novgorod called Karp Strigolnik accused the clergy of simony, on account of the custom then established in Russia, of the bishops receiving payment for conferring holy orders. At the same time he rejected communion to a priest. He had many partisans, and a church was raised and the supremacy of the established church enshrined in the streets of Novgorod. Strigolnik's party was defeated, and himself, with some of his principal adherents, thrown into the river and drowned. The rest however survived, and must have been important in the eyes of the patriarch of Constantinople several times addressed the bishops of Russia on that subject. The republican institutions of Novgorod and Pskov seem to have prevented any severe persecution against these sectaries; and it was only after the fall of the Polish empire that the Strigolniks were obliged to seek refuge in the border provinces of Sweden and Poland, where they still continue to exist, though under different names.

Towards the end of the fifteenth century, the so-called Julianites made a great stir in the Russian church. Their origin is ascribed to a Jew named Zacharias, who was described as an astronomer and necromancer, and who came from Poland to Novgorod about the year 1470. He began to teach secretly that the day of the Apocalypse was not distant but recent, that the Messias was still to come, and that the worship of images was a sin. He made his first converts among clergymen and their families, who became so zealous in their new persuasion, that they desired to receive circumcision, and persuaded some of their clergy to adopt such an act their real sentiments, and to conform outwardly to the Christian religion. The clergymen followed this prudent advice, and strictly performed the duties of the confessional. The number of proselytes considerably increased, crowds attached to the clergy and some principal families of the town.

These sectaries covered their real opinions with such a display of zeal in the rigid observance of the precepts of the church, that they acquired a great reputation for sanctity. Two of them, Alexei and Dymonius, were accordingly transferred to Moscow, in 1480, by the grand-duke Ivan Vasiliевич, as priests to two of the principal churches of the capital. Alexei advanced high in the favour of that monarch, to whom he had free access, which was a rare distinction. This circumstance gave him great facilities for propagating his opinions, and he made many proselytes, the principal of whom were the secretary of the grand-duke, Theodor Kuritin, who was employed on several diplomatic missions; and who was determined to adopt the opinions of whom the grand-duke, on the recommendation of the same Alexei, raised to the dignity of metropolitan of Moscow. Thus the head of the Russian church was secretly its bishop's successor.

Alexei died in 1489, and it was only after his death that his opinions became known. The grand-duke then declared that he remembered some very strange mysterious words of Alexei. It is also said that he confessed that his daughter-in-law, the Hashanina of Wallachie, was seduced to the Jewish sect by a disciple of Alexei. The existence of this sect was discovered by Genadius, archbishop of Novgorod, who went to Moscow several priests accused of having introduced into the churches and the inns of the saints, of having blasphemed against Christ and the Virgin, and denied the resurrection of the dead. A synod assembled at Moscow in 1490, in order to try these heretics. The metropolitan Zosimus presided, whose participation in their tenets, as well as that of the secretary Kuritin, was not then discovered. The accused denied the charge, but sufficient evidence was brought forward to prove the fact. The bishops wished to punish the heretics severely, and the grand-duke confirmed such, and declared they should only be anathematized and imprisoned. This leniency was indeed astonishing, if we consider the barbarity of the age, as well as the cruel temper of the monarch; and it must be ascribed either to the importance of the case, or to the political wishes of the church, which the grand-duke considered a sufficiently severe punishment, or, which is more probable, to the influence of the secret abbots of that sect. The archbishop of Novgorod punished many of them with a more severe penalty.

Theodorus Kuritin and other adherents of the sect continued to propagate its doctrines, and to increase the number of its followers, particularly by teaching astrology. They began to spread a spirit of doubt and inquiry among many people; and clergymen and laymen were constantly disputing about the dogmas of religion. The sectarians were persecuted by the metropolitan Zosimus, who is accused of having persecuted the orthodox clergy.

Nothing more has been heard of the sect since the date of 1503, but there now exists among the Raskolniks of Russian a sect which observes the Moscow rites, and it is very probable that it is derived from the sect which we have described.

The principal dissent in the Russian church was caused by the emendation of the corrupted text of the Slavonic version of the Scriptures, and other sacred books in the same tongue, which are used by the Russian church. The text of these books, transcribed by ignorant copyists during the dark ages of the Tartar domination, was disfigured by omissions, and still more by the additions with which some ignorant transcribers attempted to supply the omissions. The necessity of correcting the defects was represented by the metropolitan to the earl Vasili-Ivanovich, who, on 1520, requested the Greek convent of Mount Athos to send him a person competent to compare the Slavonic sacred books with the Greek texts from which they were translated. At Constantinople he received from the earl of Florence, a convert with the Greek and Slavonic languages, was sent to Moscow. He began his labours with great zeal, and continued them for ten years; but he was accused by the archbishop of Moscow for sedition, and was shut up as a convent, where, notwithstanding all his protestations of orthodoxy, he remained till his death in 1555. The necessity of amending the corrupt text was acknowledged on several occasions; but it was only under the earl Alexey of Wallachie, by a convention of thirty-six bishops, that the改正 of the corrupt text of the Russian sacred books was approved by the patriarch of Constantinople; and the earl made an order that there should be collected from all the
libraries of his empire manuscript copies of the sacred books, and he received above five hundred copies of the Greek texts from Mount Athos. The patriarchs of Alexandria and Antioc, and several bishops of the East, sent many manuscripts to Moscow on this occasion. This important affair was suspended for some time by a quarrel between the czar and the patriarch Nicon, who was deposed by the synod assembled at Moscow in 1660. This synod, in the presence of the church, forced the tsar to denounce the synods of Constantinople and Jerusalem, the new patriarch of Moscow, fourteen metropolitans of Russia and the East, eight archbishops, five bishops, twenty-five archimandrites, and decreed that — Certain persons, if they continued and completed the revision of the texts of the sacred books according to the ancient copies.

The solemnity with which this reform was carried into effect did not cause the general approbation of the Moscow clergy and nation; many of the more ignorant declared it to be an heretical innovation, and loudly declared against the heresy of the Nicomans, as they called it, after the name of the patriarch, whom they justly considered as the first mover of this measure; those who received the revised books. The leaders of this party generally belonged to the lower clergy, with the exception of the bishop of Kolomana, who also strenuously opposed the introduction of the revised text, and was in consequence deposed by the dissidents in 1663, and added to the number of the anti-reformers, who bravely defended themselves against the forces of the czar; and, after seven years' resistance, were reduced in 1675, when the monastery was taken by storm. Many of the besieged threw themselves into the sea, some were slain in the church, others in their houses or barns, and then setting fire to them, perished; firmly believing that they should obtain salvation by what they called the baptism of fire, and that their bones would immediately rise to heaven in the shape of doves. Others escape persecution fled to Poland, where they formed large settlements. Some even sought refuge in the Turkish dominions, where they settled in considerable numbers on the right bank of the Dnieper.

The revolt of the Cossacks under Stenko Razin (Alexey Michaelovich), who filled the south-east of the Muscovite dominions with carnage, gave the anti-reformers an opportunity to attack the old texts, and they joined the standard of the rebel, and committed the greatest excesses. It was a natural consequence that when the insurrection was quelled, the severity of their persecution should be increased. This persecution, which was continued under Peter the Great, the son and successor of Alexis (1676-82), and also during a part of the reign of Peter the Great, produced dangerous riots even in the capital itself. At last, in 1702, Peter the Great issued a ukase granting toleration to the sectarians, but subjecting them to a peculiar tax, and directed that they should wear a medal of copper stamped with a beard.

These adherents of the old text, who are designated by the general appellation of Raskolniks, or dissenters, call themselves Staroverii, which signifies 'those of the old faith.' The usual which now apply to them, even officially, is that of Staroobrudytee, that is, 'those of the old rite.' But although these appellations are in general indiscriminately applied to all those who dissent from the established Church, in reality, it is a variety of sects, most of which have no common characteristic except the absence of ordination, and the Poporoheese, or those who have priests, approach nearest in doctrine and ceremony to the established church, from which they differ on the following points:—They reject the revised text of the Bible and of the Liturgy, and use only such as are literally transcribed in the unrevised text. In making the sign of the cross when they use two fingers instead of three; they repeat the Hail Mary only twice, after which they say 'Praise be to the Lord.' They begin their processions, not as prescribed by the established rite, but from the left to the right; they reject the usual form of the cross. They never shave their beards, considering it as a deadly sin, and they support their opinions by references to the council or general synod of Moscow, held in 1551, which declared the present synods to be heretical, because they were carried on by combination, none is more damnable and criminal than to shave the beard. Even the blood of the martyrs is unable to purify such guilt; consequently whoever shaves his beard for human innovations violates the law, and is an enemy to God, who has created us after his own image. They also observe other prohibitions of this synod, which condemned as sin driving with one pole, eating bare, sausages, &c. They also consider the use of tobacco and snuff as unlawful. At the time of the Peace of 1721, the Great the use of tobacco and snuff was visited in Muscovy with several legal penalties.

Although the Poporoheese consider the established church as involved in heretical errors, still they hold that the czar is valid, and that the crown of Russia has descended from the apostolic bishops, because it descends in an uninterrupted succession from the times of the true church, that is, before the revision of the books. This opinion agrees with that of the church of Tigran and respect the jurisdiction of the Roman Catholic clergy, which it considers to have been given on account of the apostolic succession, notwithstanding the errors of the Romish church. In consequence of this doctrine the Russian dissenters admit priests who have been ejected by the established church, which is generally done for their bad conduct. It has been already mentioned that at the time of the persecution great numbers of the Raskolniks fled from the country. Many of them settled in the Ukraine, which was the kind of island country, having received the edict of the czar of Muscovy rather as a protector than as a sovereign. They also formed extensive settlements along the frontiers of Poland, and many settled in the interior of that country. They built churches, and founded monasteries and nunneries, which were soon filled with inmates from the most distant parts of Russia. The most celebrated of these was Viciebsk, situated within the Polish dominions, not far from the Russian frontiers. It stands on a small island in the Dnieper, which flows about forty miles below. This settlement was founded about 1690, by emigrants from the north of Russia, and being favoured by the landowner on whose property it was established, became so flourishing that it contained no less than 10,000 inhabitants. This community has been famous for its great celebrity among all the Raskolniks scattered through Russia, Poland, and the Turkish dominions; and the followers of the creed fled from all parts to that place, which they considered as the fountain-head of the true doctrine. The monasteries and nunneries received inmates from the most distant parts, from the shores of the White Sea and the banks of the Don, and the society was constantly enriched by large donations. This prosperity excited the jealousy of the Russian government; it fat off, in 1733 and 1734, an amnesty, toleration, and lands for a settlement. But the Raskolniks preferred the Polish government, and declined the offer. The Russian government, finding that all its efforts to induce them to quit the Polish dominions were ineffectual, resolved to drive them out; but it could not obtain by policy. Notwithstanding the peace then existing with Poland, an expedition consisting of five regiments of infantry, one of dragoons, and two of Cossacks, secretly passed the Polish frontier, and surrounded the settled churches. The inhabitants, who were nearly destroyed, the inhabitants carried by force into Russia, many of them sent to Siberia, and their priests were confined in monasteries, and even the bod'is of their saints desecrated and burnt. This event brought about the year 1737 the making on account of the empire by the empress Anna, and the community of Viciebsk was thus dispersed.
place was entirely rebuilt, and became more flourishing than ever. The persecution which it had suffered gave it the reputation of sanctity; and the numbers who flocked thither to settle, or sent donations to support the settlement, were greater than before. The monastery of Viehka must have been inhabited permanently, when, in 1758, its convent contained 1200 regular monks, not including lay-brothers.

The Russian government again held forth promises of protection, in the hope of inducing them to return to Russia. But these promises were of no better value than the fictitious ones that had again recourse to violence. In 1764 another inland was made, and the scenes of 1735 were re-enacted. Twenty thousand persons were carried away, and, almost without exception, sent to Siberia as colonists. Notwithstanding there were many of them who remained at Viehka and in its vicinity, but Russia made no more attempts to compel them to return, inasmuch as by the partition of 1772 it became master of that part of the Polish dominions. A great number of sects are comprehended under the general appellation of Bezpodevshchina, or those who have no priests. The most important of these sects is that of the Pomoranes, which signifies 'the inhabitants of the sea-coast,' because it originated on the shores of the White Sea. They are called Kapists, because they believe in those who become their converts. They maintain that all priests of the established church ordained since the time of the patriarch Nicou, are falsely so called, and that baptism administered by them is a profanation; that marriages contracted by the rites of the Church are invalid, because there are no longer any true priests to give the nuptial benediction; and they conclude and dissolve marriages at will: that churches are the houses of the Anti-christ, the sign of the cross is of the demon, although he himself invisibly reigns only in spirit. They confess one to another; they administer the sacrament to themselves; and the bread which they use on that occasion is said to be derived from some consecrated loaves saved from the fire. Sokevetska, which is mentioned, was for a considerable time the stronghold of these sectaries, but was taken in 1675 by the troops of the czar. This consecrated bread is multiplied by working the fragments of it with a new paste, and the loaves thus prepared are considered as holy. In the original form the order has thus descended in uninterrupted succession from loaves consecrated before the Nicouian heresy, that is, before the revision of the Liturgy. Each of these sectaries is always provided with a crumb of this bread, in order that he may be able to receive the sacrament in case of emergency, and the rich are obliged to pay a high price for their portion. They have places of worship, where they assemble for prayer, and where one of the members officiates as priest; but he has no ordination, and is frequently charged with ecclesiastication for some other employment. There are many subdivisions of this sect, the principal of which are the Theodosians and the Philoponians, who derive their apppellations from the names of their respective founders, both of whom were runaway priests of the established church. The points on which they differ from one another are trifling, and relate merely to some forms of worship; and they vie in acts of the wildest fanaticism, which is particularly manifested by their inclination to commit suicide by burning themselves. They support the doctrine of suicide by the context of St. Mark (vn. 35): - For whosoever will save his life shall lose it; but whosoever shall lose his life for my sake and the gospel shall save it.’ A remarkable instance of the severity of these sectaries is related by a priest of the Archangel in 1742. A commission of inquiry sent by the government came to a newly constructed monastery which contained about fifty individuals. This convent was a large wooden building, with narrow windows, and was enclosed by a thick wall. The convent was asked if they would receive admittance, but refused every kind of abuse and imprisonment. They ordered the gate of the enclosure to be broken open; but as soon as the order was carried into effect, they saw the convent in flames; and the entrance was so composed that the walls fell with large pieces of timber, that all their efforts to save the inmates were in vain. But this mode of self-destruction, by which life is speedily extinguished, is much less horrible than starving to death, of which a case was known by the public. The institutions of the official inquisitions made upon the subject. It is said that persons in times make a vow to fast forty days, in imitation of the fasting of our Saviour in the desert; and that they are generally induced to commit such acts of fanaticism by those who succeed to their property. These unfortunate victims are locked up in a house, barn, or any other building situated in some remote and unfrequented place, and strictly watched. After a few days the poor victim repents; but all their entreaties for food or drink produce no effect on their fanatical guardians. There are many other anecdotes of a less tragic nature related of these sectarians. Some of them, after having calculated that the sun would set, have cut off their heads, but have found not the very day and hour. In order to meet it becomingly, they dug their graves and laid themselves therein dressed in their shrubs. Those who have passed on, until the urgent cravings of nature rendered the less inconsiderable, were then compelled to resume their ordinary occupations.

Other sects differ in certain dogmas and ceremonies from the true Pomoranes, but all are united in their hatred to the established church. The members of these sects are numerous all over Russia, and many of them have moved to Livonia, Prussia, Austria, Turkey, and Poland. In 1751 they held a synod in Poland, the decisions of which, comprised in forty-six articles, display the wildest fanaticism and the grossest superstition.

The Bezpodevshchina sect is founded by a monk called Cap, and has no places of worship, but they assemble for prayer and other religious purposes in their dwelling-houses. Like the Pomoranes, they dissolve marriages at will, and are not infrequent to live in a state of great licentiousness. The sectaries of the Bezpodevshchina order, after a strange fashion, a girl fastens on her head a sieve filled with raisins; and after prayers, accompanied with frequent prostrations, she presents the raisins to the assembly. This sect is known by the name of the People of Podshelniki, that is, 'those from under a sieve.'

The Samokovshchina, or 'self-baptisers,' are a sect founded by a common peasant called Roman Danilevich. They baptise themselves by repeatedly diving into a river. The Semenovshchina (the men who have already been self-baptisers) (the term is considered as the ordination of a monk), are a sect founded in 1706 by Fedor Rosow and a nun called Anthia. According to their doctrine, every one may become a monk or nun by tonsuring his or her own hair, putting on the vestments of the church, and performing certain rites usual in taking the monastic vows.

A sect founded in 1715 by a priest called Procopius Lapkin, and another individual of low condition named Laza Nagoy, chooses a man to personate Christ, and a woman to personate the Virgin, and they worship them. They also employ twelve individuals to represent the apostles. Great oblations are imputed to this sect, but it is impossible to know with what degree of truth. The Cossacks of the Don, called Schelentski, i.e. 'Chinkemen,' because in saying their prayers they look on a chink through which a ray of light is passing. They have no images, which they reject as forbidden by the second Commandment. They never go to church, saying that God dwells not in a house made with men, but is omnipresent. They make use of the revised sacred books, in which respect they differ from all other Raskolniks.

In several parts of Poland, Turkey, and in the Russian government of Tula, there are the followers of the Jete-nestyleshchina. The origin of this appellation is unknown, and it is probably derived from the name of their founder or some leading member. Although Russians by origin and language, they observe the Jewish law, perform circumcision, keep the Sabbath, and observe the Christian religion. It may be that they are the descendants of that Jewish sect which appeared at Novgorod and Moscow at the close of the fifteenth century.

The Roman Catholic Church in Russia is very different from the Greek Church, consisting in whole or in part of the use of eggs and eggs on Wednesdays and Fridays, which the established church does not permit on these fast days, but they observe a rigid fast on Sundays. Their dogmas and ceremonies are almost unknown. They have some strangely shaped images of saints, which they carefully venerate and carry in procession, but do not long to their sect. They are also called Sobolutniki, or 'Saturday-men,' but we are unable to say whether they have any Judaic rites. On the whole the nature of this sect is very little known.

The Jete-nestyleshchina, that is, 'Iconoclasts,' reject images, and always pray in the or before their dogmas.

We know nothing about their dogmas.
The Atkinstrohchea are a sect founded by a woman of the name of Akulina. They form a kind of spiritual community. They receive by a certain formality, the monks and priests who join them from their vows, and are accused of living a life of great profligacy. The Choroststeini or Sentimentalists, are a sect founded by a monk called Benedikt, who ran away from his convent. They require nothing more than unison among those of the antient faith (that is, who follow the unrevised books), and they teach that whoever keeps to that antient faith is in the right way to salvation, and that it matters little whether he is not only a priest of his sect which has priests or to that which has none. Their number is not considerable, and many of them incline to Deism.

The Dchohobritez, or 'combattants in spirits', are a sect which has much resemblance to the Quakers and the Menonists. They never take an oath, and they shed no blood. They entertain Unitarian opinions, and admit only the New Testament. They have neither churches nor priests, and in their devotions make use only of the Lord's Prayer. This sect became known under the empress Ates, 1730-40, at Moscow and other towns, and a commission was appointed to inquire into their tenets. Its origin is involved in darkness, and it is not improbable that it may be of very antient date. Under the reigns of Catherine II. and Paul, the sect was sometimes or plurally suppressed by force of arms, with a really Christian meekness and resignation. The emperor Alexander granted them toleration, and ordered to assign them lands for cultivation in the deserts of Southern Russia. The sect is long ago disappeared, that is to say, and they formed, by their industry, flourishing settlements in the uncultivated but fertile steppes.

The sect of the Bogomiles, which was well known in the Greek empire, and of which a description is given by Manasses, other ecclesiastical historians, is said to exist among the Raskolniks of Russia, and this circumstance leads to the supposition that some other sects comprehended under the above-mentioned appellation may have a similar origin. There are also many fanatics who inflect on themselves the premises and formalities of other sects and denominations, the instances of such acts of fanaticism have recently occurred in several parts of Russia.

There are still many less important sects of the Raskolniks, which are distinguished by some absurd rites or observances. All the sects are confined to the lower classes, and, notwithstanding the progress of civilization, they are rather increasing than decreasing. This must be ascribed to their great zeal for making proselytes, and to the circumstance that any person who is introduced by cutaneous operation to their persuasion, submitting to all their superstitious observances, is sure of the kindest reception and support, whatever may have been his former conduct. Although they are no longer persecuted on account of their religion, they are despised by the religious clergy, and often considered as the dregs of the community. Their clergy are not acknowledged by the government as such, and do not enjoy the privileges which are enjoyed in Russia not only by the clergy of all Christian persuasions, but even by Mohammedan mollahs.

The account of these sects is chiefly extracted from a Russian work, entitled 'Description of Antient and Modern Raskolniks,' etc., published under the authority of the government, by a priest of the established church, who was for a long time a member of one of those sects, and had made a close acquaintance with the practitioners. It is never impossible to vouch for the correctness of the whole statements.

RUSSIAN LANGUAGE AND LITERATURE.

[The Woman Language.]

RUS. In the common acceptance of the term, is the red or verulment substance which is formed on the surface of iron when exposed to air and moisture. It is an oxide of iron, and in point of fact other metallic oxides may be formed on iron, and sometimes the iron may be oxidised in the same manner; but the term is here limited in application to the red oxide or per- or sesqui-oxide of iron.

RUST. [Mildew.]

RUSTIC or RUSTICATED WORK, in Architecture, a species of ornamentation for walls, wherein the joints between the courses, and between the separate stones in each course, are strongly defined by sunk channels or grooves. Although an imitation of what would in itself be offensive, and therefore at first apparently quite at variance with good taste, this mode is only a legitimate, artistic, or cashtistical imitation, suggested by art defects or defects. The expression, rustic, is generally derived from the French rustique and rustication, from large stones irregularly put together, without their edges being smoothed and fitted to each other, is here only partially retained as to indicate boldness and strength, and also a certain attention to finish and to regularity in the superimposed arrangement of the courses and stones. There is a studied intention manifested, which prevents our confounding the imitation with what furnished the hint for it. And through the preceding remarks partake more of criticism than of explanation, they may have their use here, if only as serving to correct a prejudice or misconception likely to be occasioned by the term itself as expressive of rude strength to the utter exclusion of anything like arrangement or grandeur, or rudeness or studied symmetry and regularity. In reality however rustication contributes in an eminent degree to richness of surface, and it was accordingly frequently employed by the antients—by the Romans at least, not only in those works which were characterised by massiveness and by a certain degree of rudeness, such as amphitheatres, bridges, &c., but on the exterior of temples and other edifices, on which the most finished decoration was bestowed. For not only does rustication give the face of the walls occasion contrast, and thereby tend to set off the ornaments in greater advantage, but also the darker shadows so produced remove that blankness which might otherwise attend too much uniform plain surface. Undoubtedly it is a very great excellence in masonry, and a great beauty in itself, the rustication of a wall is uniformly smooth and even in colour, and the shadow, whether with such extreme nicety that the joints can hardly be detected. Still the beauty so produced depends in some degree on that of the material itself—on its texture and colour, and in particular for smooth rusticated surfaces, it must be obtained either by stroke or painting; in which case the uniformity of surface and the absence of joints rather detract from than add to beauty.

Besides being different from plain masonry, rustication adds a slight amount of contrast, and introduces a variety, both in regard to substance and execution, and of great diversity of character, from severity and heaviness to studied elegance. The most obvious distinction is that arising from the surfaces of the rustics, according as they are either plain or rough; and if the former, they may be particular smooth or smooth and cast, i.e. left slightly chipped; else tooled, or with the marks of the chisel. Or if intended to be rough, the rustics may be vermiculated, hatched, or frosted. The first of these modes effects the insertion of bosses or projections in the stone, the second by making it jagged and rugged, while the third consists in giving a delicate crispness like frost-work to the stone.

As regards jointing, there are two modes: one in which the channels between the stones are inserted, or form rectangular sinkings; the other in which they are chamfered, that is, the edges of the stones are bevelled off in such manner that the section of the joints forms a rectangular triangle. Neither are the above by any means all the varieties, as will be seen by some examples at the end of this article, which cannot be very well explained without cuts. Great variety of character and design may further be produced by an intermixing of the different modes,—for instance, by smooth and rough rustics together, or by different kinds of rusticating for different stories, the bolder and coarser being placed below and the more delicate above, as is in a certain degree exemplified in the basement of the Exeese-Office, London, which consists of two stories, the lowest having rough, the upper one smooth rustics. Italian architecture presents many fine studies and examples of rusticated work; and indeed its productions of that class possess infinitely more artistic merit than many of its columnar façades, where the orders are generally intermixed, and sometimes so insignificant that the rustics themselves are nearly the most striking features in the design. The Florentine style—which, it may be observed, is the direct antithesis of the Palladian—shows what may be accomplished by little more than rustics alone. If it is a mere surface, it is also simple, yet rich and grand and dignified; on which account, we should hardly hesitate to say that, unlike as it is in its forms, it possesses more of antique feeling, more of the sentiment of Grecian architecture than is to be found in many buildings professedly Grecian and
adorned with Greek orders. Nevertheless the Florentine style has found little favour with those who have gone to Italy for their models. In this country we have very few examples indeed of rusticated work upon a grand scale; for here it is almost entirely confined to basements. It is scarcely ever employed as the general decoration of an entire front, except it be occasionally for prisons, for which it is certainly very appropriate, yet it does not therefore follow that it is unsuitable where richness and magnificence are more required than severity. Even if not for general purposes, the rusticated style recommends itself strongly for class of buildings that have sprung up of late years, namely, railway termini.

Rustication however is now almost entirely banished from architectural design, or else an exceedingly poor and spurious kind of it is substituted, in which only shallow horizontal joints, or rather stripes, are shown, which, besides producing a most meagre and monotonous effect, give a wall the appearance of being faced with planks instead of built of blocks of stone bonded together. The exterior of Goldsmiths’ Hall, London, is materially injured by the extreme poverty of the lower floor, which has merely a few horizontal streakings, without either moulded dressings or any kind of border or finishing to the windows. The lower windows, on the contrary, of the garden-front of the Travellers’ Clubhouse in Regent’s Park, built with rough rusticated quoins, and the faces of the other rustics are smooth; which produces a most pleasing variety and contrast. Both in that and the adjoining Reform Clubhouse, Mr. Barry has given some tasteful specimens of rustic quoining, which differs from rustication merely in the rusticles being applied only at the angles of a building, where they serve not only to give an expression of greater strength, but also to show that the design is completed and there terminates. It is a very great error to suppose that rusticated work is incompatible with elegance and elaborate finish. It is true that it admits of great rudeness and severity of character, but it also admits of the most studied and elaborate finish. So far too from requiring less care and accuracy than usual, the arrangement of the courses and rustics so as to combine them in perfect symmetry with arches, windows, &c., is a work of more thought and labour than would suffice for designing half a dozen Grecian porticoes. Much of the beauty of rusticated fronts depends upon the form and proportions of the arches or openings, and the arrangement, &c., of the rustics which form the voussoirs either to arched or straight-headed windows. Occasionally, moulded archivolt are substituted for radius voussoirs, but the effect is not good, because they cut the horizontal joints of the courses very discordantly; which, if not observed, is likewise the case where the voussoirs form an extrados either concentric with the arch, or making a more elevated curve, as in most of the Florentine examples. It is far better to make the vousoirs elliptical, so as to unite with the horizontal courses, whereby the whole looks firmly bonded together. Sometimes impost to arches are omitted altogether, or if there be such member, it is usually a mere plat-band, although occasionaly it is moulded. In arches the keystone may either be similar or distinguished from the other voussoirs; which last may be done in a variety of ways, although the most usual one is to cut it into the form of a console, or else enrich it with a mask sculptured upon it, of which kind are the keystones to the arches of the Strand front of Somerset House, representing the nine principal rivers of England, personified as old men. Bossages is a term more particularly applied to rusticated cinctures on the shafts of columns, which may be either square or cylindrical, but should not greatly exceed the thickness of the shaft itself, more especially in the former case. Columns of this kind ought invariably to be engaged, and the wall behind them of course rusticated also. In such case the cinctures serve as ligatures to bind and incorporate them with the rest, whereas insulated columns with blocks upon their shafts are equally unmeaning and uncouth. The same remark applies to rustic blocks stuck at intervals upon the architraves of doors and windows, as for instance those of St. Martin’s church, London, although there is no rustication in that building. Of columns with bossages or rusticated cinctures, the two arches within the court of Somerset House are a tastefully-designed and well-executed example.

The following are some of the varieties of rustication above referred to, drawn sufficiently large to show the precise form and section of the joints or grooves:

No. 1. Rustics with rectangular joints or channels.

Rustics of this kind have always plain faces. French or horizontal rustication, without vertical joints, has generally rectangular channels; this sort of rustication, or pseudo-rustication with horizontal joints only, has of late years almost superseded the other modes in this country, where it has been still further impoverished by making the channels broad and shallow, and the courses so deep that there are only a few horizontal streaks along the face of a wall.

No. 2 is an instance of chamfered joints and vermiculated rustics, bordered, that is, having a plain surface around their faces.

No. 3 shows an example of Florentine rustication with moulded channels, the effect of which is particularly real. Of this kind is the rustic work of the Königsbau at Munich. [MUNICH.] One of the rustics is faceted at the cut, in order to give an example of that mode in rusticated quoins.

No. 4 is another mode peculiar to the Florentine style, in which the rustics are faceted, or cut so as to form triangular surfaces. It is not used throughout, but only at the lower course, forming a sort of dado to the building. This example is from the same building as the preceding.
No. 5 shows one-half of a rusticated arch having elbowed voussoirs running into the horizontal courses

No. 6 represents half of another arch with voussoirs whose extrados form an eccentric curve from that of the arch itself, or else a pointed arch, while the intrados form a semicircular one

RUTA, the name of a genus of plants belonging to the natural order Rutaceae. The following is a description of this genus:—calyx four-partite, deciduous, shorter than the petals, which are four and unguiculate, with the limb vaulted. Stamens eight, longer than the petals; filaments subulate, glabrous; anthers ovate, obtuse. Receptacle broader than the ovary, marked round with eight nectariferous pores, bearing the petals and stamens at the base. Carpels four, partly combined by means of the central axis (gyrnose) into one four-lobed ovary, ovules 6-12 in each cell. Styles four, distinct at the base, united upwards into a single pistil which is attenuated towards the apex. Capsules four, partly united, dehiscing internally at the apex. Seeds dotted. The species of this genus are suffrutescent herbaceous or perennial plants, with alternate exstipulate pinnate or compound leaves covered with peltate dots. The flowers are yellow, rarely white, disposed in terminal corymbs or racemes. De Candolle enumerates twenty-four species of Ruta, of which comparatively few are generally known or cultivated. The species which has been longest known and most used, and perhaps the handsomest, for culture is the R. graveolens, commonly called Rue. It is a glaucous hairless erect herb or half-hardy plant, with a strong heavy unpleasant smell, growing to the height of about two feet. The leaves are suprarecordiate, alternate, their lateral lobes linear or nearly so, the terminal ones obovate; they and all other parts of the plant are covered with transparent dots. Carpels terminal, leafless, trilobotomous, cymose; petals four, wavy concave, a little irregularly toothed. Fruit roundish, warty, four-lobed, each lobe opening into two valves.

Rue is sometimes called herb-grace, or the herb of grace, and in some parts of England ave-grace. This name is said to have been given to it on account of its use in exorcisms. In company with rosemary it has been used from time immemorial as an emblem of grace on account of its evergreen foliage. The stigmas are remarkable for their presenting an instance of vegetable irritability. When the time is come for the pollen to be introduced into the stigma, and thus presented to the ovules, the stigma, which are hard and rigid, and almost at right angles with the style, approach the stigma one by one, and after remaining in contact with it long enough to discharge their pollen, they return back to their original position parallel with the petals.

Rue is frequently cultivated as an ornamental plant, for which it curiously cut leaves, their glaucous hue, and the profusion of fine dark yellow flowers appearing for several months in succession, adapt it exceedingly well. It may be increased by seeds, slips, or cuttings. The seed should be sown in March; and when the young plants are two or three inches high, they should be put out in nursery rows; but propagating by slips or cuttings is best, especially for continuing varieties, of which there are three or four.

RUTA GRAVEOLENS, a plant, native of the nouth of Europe, intermediate between an herb and a shrub, of a peculiar yellowish green colour. Every part of it is marked by transparent dots, filled with volatile oil. The leaves and immature fruits have a peculiar, aromatic, and stimulating taste. The volatile oil and a bitter extractive. The colour is peculiar, strong, and penetrating; the taste intensely bitter, aromatic, and stimulating. One hundred parts of the fresh herb dry into twenty-two parts. The quantity of oil obtained by distillation with water varies much according to the manner of growth when it is collected. Thirty pounds of the fresh herb before flowering scarcely yield one draught, while twelve pounds with the fruits almost ripe yield nearly one ounce. Rue possesses powerful stimulant, antispasmodic, and tonic properties. The careless handling of the fresh plant sometimes causes rubefaction and vesication, and its improper employment internally has produced serious results. When judiciously used, it is very serviceable in hysteria and other convulsive disorders.

Oil of rue obtained from the fresh herb is green, from the dried herb yellow. It has the peculiar odour of rue, and a bitter acrid cardamom-like taste. Its specific gravity is 0.911. It does not readily liximus-paper. The oil met with in commerce is rarely genuine, being an artificial compound of oil of petroleum and oil of rue.

The pollen of the flowers produces inflammation of the skin; and any of it received into the eyes causes violent lachrymation, and other painful effects.

RUTA, a natural order of Polygalaceae, characterised by the possession of hypogynous stamens, two or three times as many as the petals, cohering carpels with from three to five valves, an entire ovary with several cells, imbricate calyx with four or five divisions, symmetrical hermaphroditic flowers with petals either wanting or as many as the lobes of the calyx, mostly twisted in motivation; fruit capsular, the sarcocarp mostly separating...
from the endocardia leaves without stipules, opposite, or alternate, simple, deeply lobed or pinnate, and covered commonly with pellucid resinous dots. They are trees, small shrubs, or herbaceous plants.

This order embraces the Rutem and Diosm exam of A. de Jussieu, which are now made the principal sections of Rutaceae. Rutem are known by their seeds containing albumen, and by the sacrocarp of the fruit not being separable from the endocardia. In Diosm the seeds have no albumen, and the sacrocarp and endocardia are separable into distinct bodies when the fruit is ripe. A. St. Hilaire says that the observation of the adhesion of the sacrocarp and endocardia in Rutem has been made on turpentine specimens of the plants, and that when ripe they are as separable as in Diosm; whatever may be the real state of the case, the two sections are too obviously related in structure and general properties to permit of so slight differences elevating them into the importance of distinct natural orders. Rutem agree with Aurantiaeceae in their dotted leaves, definite stamens, and fleshy disk. With Xanthoxyloceae, Simarubaceae, and Humiriaceae, they have also many points of analogy. They are closely allied to Zygophyllaceae through Peganum, which Jussieu and other writers place amongst Rutem. They are found in the South of Europe, and in our hemisphere extend as far as the limits of the Old World. Diosma and allied genera are found at the Cape of Good Hope. Australia possesses Boronias, Phebaliums, Correas, &c.; and great numbers are found in the equinoctial regions of America.

Many of the plants of this order emit a powerful and usually offensive odour from the glands that cover their whole surface. These glands are sometimes so full of a volatile oil that in hot weather the atmosphere surrounding the plant becomes charged with it, so that a lighted taper brought near the plant will cause the air to inflame. This is especially the case with Dictamnus. The Diosmas, or Bucou plants, are used in medicine as antispasmodics. The celebrated Angostura bark is produced by a plant (Galipou officinalis) belonging to this order.

RUT (℞), BOOK OF, a canonical book of the Old Testament, consisting of a narrative, of which the following is an outline — During a famine, which happened in the time of the Judges, a man of Bethlehem, Judah, named Elimelech, removed into the country of Moab, with his wife Naomi and two sons. The sons took wives of the daughters of Moab, and they and their father died. The famine in Judah having now ceased, Naomi set out to return thither with her daughters-in-law, Orpah and Ruth. On the journey she gave them the choice of returning to their homes. Orpah returned, but Ruth clave to Naomi. It was harvest-time when they arrived at Bethlehem, and Naomi sent Ruth to glean in the fields of her husband Rimelech’s wealthy kinsman, Boaz, who was struck with the maiden, and showed her kindness (chap. 1, 2). At the end of the harvest, Ruth, under Naomi’s direction, claimed of Boaz the rights which he owed her as her nearest kinsman, or Geel, namely, marriage, and the redemption of her father-in-law’s estate. Boaz, after first certifying that a person was a nearer of kin to Ruth than himself declined to act as the Geel, married her (chaps. 3, iv.), and thus became the ancestor of David (iv., 18-22).

The history of Ruth seems to have been inserted in the sacred canon as a necessary link in establishing the pure genealogy of Jesus Christ, and the history of the famine Sisam was perhaps also to furnish a record of the fact that one of the Messiah’s ancestors was a Gentile, thus intimating the great truth that the Gentiles were to have a part in the highest privileges of the Jews. In the form of the Book of Judges, because it was recorded in it happened during the rule of the Judges. Its exact date is however uncertain, but most probably the famine mentioned in verse 1 is that which happened in the time of Gideon, about a.c. 1241. It is generally supposed to have been written by the prophet Samuel. The style is marked by a touching simplicity, and some parts of it are very pathetic. (The Introductions of John, Eichhorn, Dr. Wilkes, and Horne.)

RUTHERFORD, DANIEL, was born at Edinburgh, m. November, 1749, and was educated at the university of his native city. In 1772 he took his degree of M.D., and it was in the thesis which he printed upon this occasion, entitled ‘De Aere Mephitico,’ that he announced the discovery for which he is best remembered, by which the air was shown to have been called azote or nitrogen; for Rutherford merely indicated its existence as a peculiar air, and neither gave it any name nor explained its properties. The same discovery was also made at the same time by Scheele, who announced it in his paper ‘On the Different Kinds of Air,’ which obtained the Copley medal, and was published in the Philosophical Transactions for 1772. Dr. Rutherford was admitted a fellow of the Edinburgh College of Physicians in 1777, and in 1783 he was appointed professor of botany in the university. He died 15th November, 1819.

RUTHERFORD, THOMAS, D.D., was born in the parish of Papworth-Everard, Cambridgeshire, in the year 1712. Having taken his degree, and obtained a fellowship in St. John’s College, Cambridge, he was appointed Revisus Professor of Divinity in the University, and created D.D. He was afterwards elected a fellow of the Royal Society, and obtained the preferment of the rectory of Harley in Herefordshire, Shenfield in Essex, and the archdeaconry of Essex. He died in Oct. 1771.

Besides single sermons and charges to the clergy, Dr Rutherford is the author of the following works: — Ordinationes Institutionis Physicarii, in privatis suis Lecturis, Lond., 1742, 4to.; Essay on the Nature and Properties of Virtue, Lond., 1744, 8vo.; A System of Natural Philosophy, being a Course of Lectures on Mechanics, Optics, Hydrostatics, and Astronomy, Camb., 1745, 2 vols.; A Letter to Dr. Middleton, in Defence of Bishop Sherlock on Prophecy, 1750, 8vo.; A Discourse on the Sciences, 1751, 8vo.; Institutes of Natural Law, being a Substance of a Course of Lectures on Grotius De Jure Belli et Pacis, read in St. John’s College, Cambridge, Lond., 1754-56, 2 vols. 8vo. A list of his sermons, tracts, and charges is given in Watt’s Bibliotheca Britannica.

RUTLIUS LUPUS, a Roman rhetorician, who was a contemporary of Quintilian (Quint., Inst. Orat. et. 1. p. 126, Bipont), but of whose life we have no particulars. We know that he wrote or translated a small treatise on rhetoric from the Phigus Sententiarius et Elucubationes, which we learn from Quintilian (ix. 2. p. 152) was taken from a work of a contemporary of the name of Gorgias, in four books. The treatise of Rutlius does not appear to have come down to us in the same state in which it is now divided into two books, whereas Quintilian says that it was entire in one. It is several times quoted by Quintilian, and is still valuable for the quotations which it contains from Cicero.
magister officiorum or palatii, and praefectus urbi. Having occasion to return to his native country, he gave an account of his voyage, in a poem entitled 'Itinerarium', written in elegiac verse, and consisting of two books, of which the greater part of the latter is lost. Rutulius made the voyage in a small vessel of a narrow district in the sea, whose general winged the night and sailed again in the morning. He describes with much beauty, and in the genuine spirit of poetry, the towns, ruins, and various objects of nature and art which he saw, and deeply laments the ravages which had been committed by the fierce and inhuman Catmoss, and the loss of his voyage gives an account of the monks who lived at Carára, and in other parts of his poem makes allusion to the state of Christianity at that time.

The first edition was printed in 1590, Bonon, 4to. The best edition is by Zumpt, published last year (1840). Other useful editions are by Damm, Brandenbt., 1760, 8vo.; by Kappius, Erling, 1786, 8vo.; and by Gruber, Nurnbt., 1804, 8vo.

RUTLANDSHIRE, an inland county of England, bounded on the north and north-east by Lincolnshire, on the south-east and south by Northamptonshire, and on the west by Leicestershire. It is of compact form; the greatest length is from north-east near Essendine, on the road between Rutland and Boroughbridge, to near the road from Uppingham to Leicester, nearly 19 miles; the greatest breadth at right angles to the length is from the bank of the little river Eye near Whisendine, to the bank of the Welland at Tixover, 14 miles. The county is entirely rural, except the small suburbs of Leicester, in 1831, was 18,487; in 1831, 18,385; showing an increase in ten years of 899 persons, or about 5 per cent., and giving 130 inhabitants to a square mile. In size and amount of population, it is the smallest of the midlands counties of England. Compared with the larger counties, it is altogether a small district, containing only about 90,000 acres of land; but as a proof of the state of the cultivation of the agriculture of the county, it may be observed, although there is little more than half that of Middlesex (282 square miles), the next county to it in size; and its inhabitants are not much more than one-third of those of Huntingdonshire (see. 53,152), the next county to it in population. In density of population since cultivated pastures; being next below Huntingdonshire, but exceeding the five counties of Hereford, Lincoln, Northumberland, Cumberland, and Westmoreland. Oakham, the county town, is in the vale of Catmoss, on the western side of the county; the soil is a close-grassed limestone covered with blue. There are no very elevated points in the county; Mantion, between Oakham and Uppingham, is said to be the highest. Uppingham is the county town, and is the district occupied by the lower formations of the oolitic series. The great oolite forms the north-eastern table-land above mentioned, and occupies also the higher ground on the eastern side of the county from Stamford to within two miles east of Uppingham: it is of a red-brown colour, and is covered with the limestone of the district. The oolite is covered with a red or reddish-brown ferruginous sand which separate the great oolite from the subjacent lias. These are covered in all places, especially near their junction with the bed which forms the north-eastern border of the county, by vast accumulations of transported blocks of gravel. There are quarries of good building-stone at Ketton, between Stamford and Uppingham, just on the border of the district; this is the best-grained, and is used in the eastern part of the county. Rutlandshire belongs chiefly to the basin of the Wash. The Welland, one of the rivers flowing into that estuary, skirts the county on the south-east side, between Rockingham and Stamford, separating it throughout from Northampton- tshire. This river is not navigable above Stamford, where it quits the county altogether. The river Guase, or Wash, rises just within the border of Leicestershire, and flows eastward through this county into Lincolnshire, where it joins the Welland just below Stamford. The river Chater also rises in the county, and flows parallel to the Wash: it joins the Welland just above Stamford. The Eye brook

bouds the county on the south-west, and joins the Welland just below Rockingham.

The Wreak, which joins the Soar, a feeder of the Trent, rises in Rutlandshire near Oakham, and flows northward through the vale of Catmoss into Leicestershire; it drains part of the north-west part of the county, which is thus included in the basin of the Humber.

The Oakham canal is a prolongation of the Melton Mowbray navigation, from Melton Mowbray in Leicestershire to Oakham. It follows a circuitous course, passing through the Vale of Catmoss, and has a total length of about six miles, of which about six miles and a half are in Rutlandshire, all on the same level.

The principal roads are, the mail road from London to Melton Mowbray, and the Great North road. The former enters the county on the south side just above Oakham in Northamptonshire, and runs northward through Uppingham and Oakham into Leicestershire. The Great North road crosses the eastern side of the county between Stamford and Grantham. A road from Leicester to Stamford crosses the county from west to east, passing through Uppingham, and following the valley of the Welland; and two roads run from Oakham into the Great North road, one at Stamford, the other at Sprott between Stamford and Grantham.

Agriculture.—The county of Rutland, although the smallest in extent in England, is of some importance in an agricultural point of view. The climate is that of the midlands, and differing in some respects from the other counties of the same district, it is perceived as a proof of the state of the surroundings of counties of Leicestershire, Northampton, and Lincoln. Compared with the larger counties, it is altogether a small district, containing only about 90,000 acres of land; but as a proof of the state of the cultivation of the agriculture of the county, it may be observed, although there is one of the grazing-counties, in which much attention has been paid to rearing choice animals, both oxen and sheep. There are many wealthy proprietors in the county who more or less encourage agriculture in all its branches. The soil is mostly a good quality; and the face of the country is very diversified, affording good sites for house-yards, parks, and pleasure-grounds: and the richness of some of the natural pastures have doubt made it, from an early date, the residence of the rich farmers, who give a return of 6d. or 8d. per acre gross. The rent consequently may fairly be reckoned worth from 50s. to 60s. per acre, including poor-rates and tithes. But no such rent is paid for any considerable portion. The farms were formerly of small extent, but they have been increased by joining two or more into one occupation.

The sheep are chiefly of the improved Leicester breed. There are a few flocks of South-downs; but on the richest pastures the Leicesters are the most profitable, although the South-down wethers, when moderately fat, produce by far the best mutton. This is the reason why many opulent
proprietors prefer them; while the farmers, for profit, keep the Leicester, which fatten rapidly and at an early age. The improved mode of feeding sheep with turnips cut into long strips by a machine, assisted with corn or oil-cake, is gradually gaining ground on the best farms, and is one of the greatest improvements introduced of late years for increasing the numbers of horned and polled sheep. The wool of the three or four best breeds is the same as before, but there is now a greater diversity of colour, and the quality is much improved.

Sheds, calf-houses, and cattle-barns are being built, and the whole character of farming is being improved, which cannot fail to produce rapid advances in all branches of husbandry.

The farm horses are not of the most active kind, although they are large, and some very strong dray-horses have been bought at a very low price and sold off for the town market after having been moderately worked for a year or two. But for general farm-work they are far inferior to the Suffolk or to the active Clydesdale horses. Farmers do not always consider that time is money, and that he who can perform his work in the least time, at the same expense, has more time left for additional work. In harvest, especially, a team which will go with a loaded cart or waggon at the rate of three miles or more in an hour, and trot back empty six miles in the hour, will clear a field twice as soon as those which move little more than two miles in the hour either way.

There being no very considerable dairies in the county, no particular breed of pigs is peculiar to it. The hogs which are fattened are mostly of the Berkshire or Suffolk breed. Some gentlemen and farmers have taken pains to improve their breeds by crosses with the Chinese and Neapolitan; and these two superior breeds have been so frequently used of late years to render the native breeds more prolific and thrifty, that there is very few farmers in the county who will be found who will not give them a trial, without some portion of Chinese or Neapolitan blood in them; and the infusion of a little foreign blood has considerably increased their aptitude to get fat, while some attention to the shape and smallness of the bone has produced a decided improvement in bacon.

The arable land was formerly but indifferently cultivated, as was the case in most parts of the country where grazing was the principal object of the farmer: but by the enclosure of common fields, and the extended cultivation of beet, of which the value for the cattle in winter is now fully appreciated, a much greater quantity of corn is produced than would, at one time, have been thought possible; and by means of under-draining and an improved husbandry, this is very little expense the good crops of turnips, especially the Swedish, is daily increasing.

The plough in general use is one with two unequal wheels attached to the beam, which has of late received the name of the Rutland plough, although it is common to all parts of England. It is a strong and well-made plough; but the best farmers begin to use only two, and find, that, if the ground be occasionally stirred to a considerable depth by the subsoil plough, and heavy scyvers, with four, or even six horses, all the common ploughing is done with the heaviest soils, can be accomplished with a light plough and two horses abreast; and that the work is done better, more rapidly, and at less expense. The course of crops varies according to the nature of the soil; on the lighter soils, turnips, barley, and clovers are succeeded by wheat, with an occasional crop of peas. On the heavier, oats and beans are introduced instead of barley or peas, with a naked fallow. The best farmers avoid two white crops in succession; but those who are tempted, by the apparent profit, to have barley after one, and then peas, and so on, resist it on fine rich soils, find, that what they have apparently gained by a catch crop, as it is called, is dearly paid for in the end, by the deficiency in those which come after, especially the clover, which is so essential in the rotation, in addition to red clover. There is a considerable quantity of coppice-wood, which is cut every twelve or sixteen years; and it is the opinion of some very experienced surveyors, that a well managed coppice, with a few trees interspersed, is much more producible than a close plantation of oaks, however well managed, when the rapid growth of the coppice-wood is taken into consideration. Ash, chestnut, whitehorn, and hornbeam are the sorts to be preferred on a coppice.

In some places allotments of land have been let to cottagers, which, where it has been judiciously done, has added much to their comfort, and stimulated industry by giving employment to the farmers and their families.

The following fairs are held in Rutlandshire:—Oakham, first Monday after Plough-Monday; Monday after February 14; Monday after April 6; May 6; Saturday in Whitsun-week; last Saturday but one in July; Monday after Christmas; Monday after October 11; Monday after November 11; second Monday in December. Uppingham, March 7; July 7.

1. The divisions of the county are as follows:—

| Name       | Situation | Acres in. | Pop. |
|------------|-----------|-----------|-----|-----|
| Aultoe      | North     | 27,900    | 4,725|
| East do.    | East      | 20,206    | 3,456|
| Martin's do. | Central   | 14,580    | 3,779|
| Oakham Sone | West      | 18,140    | 4,320|
| Wrandyke Hundred S and S.E. | 16,390 | 3,425|

| Total       | 97,500    | 19,356   |

There are only two market-towns, Oakham and Uppingham. Oakham, or Okeham, is in Oakham Soke, in the vale of Catmoor. It had an ancient castle, erected probably by Walchelin De Ferrars, a younger branch of the family of Ferrers, and burned by the Normans. The manor and castle repeatedly reverted to the crown, and were again repeatedly granted. Among the possessors of them were: Richard, king of the Romans, brother of Henry III.; Edmund, earl of Kent, brother of Edward II.; De la Warr, earl of Oxford; and the earl of Richmond. Later, Richard II.; Thomas of Woodstock, uncle to the same king; Humphrey, duke of Buckingham, the supporter and victim of Richard III.; Thomas Cromwell, earl of Essex; and George Villiers, duke of Buckingham, the witty and profligate favourite of Charles II. This of the county, the castle, and the castle, in which the assizes are held, and the other business of the county and the town transacted, is a remnant; the other parts are in ruins. The architecture is of late Norman, very early English. The townhouse and the interior of the county-hall are covered with horse-shoes: the lord of the manor being authorized by ancient grant to custom to demand of every person, on first passing through the lordship, a shoe from one of his horses, or a sum of money. These shoes are gilt, and stamped with the donor's name. Among these shoes are given by queen Elizabeth, by the late duke of York, and by George IV., when prince regent.

The number of houses in the parish, including the two only parishes, was 2,920, inhabited by 524 families, besides 29 uninhabited houses, and 10 building. The population was 2,930, about one fourth agricultural. The area of the parish is 3,130 acres. The town consists of nearly-built houses. The church is a large edifice, mostly of perpendicular character. It has a fine tower and spire; the latter is said to have been erected by Roger Flor, who died A.D. 1483. There is a library connected with this church, of about 200 vols. folio, consisting chiefly of the decrees of councils, the fathers, schoolmen, and other divines. There is a school for the poor boys, and a grammar school for the rich endowed grammar-school, and connected with it is a building originally used as an hospital for aged men, but now occupied by the master of the grammar-school and his boarders. There are meeting-houses for Wesleyans, Independents, and Baptists. There is also a house and house of correction for the county in an open spot near the castle.

The Oakham canal affords facilities for supplying the town with coal, and for sending corn to the market from the surrounding districts. The market, which is on Saturday, is a good corn-market; and there are three yearly fairs of antiquated institution, and eight of modern date, for cattle. The assizes and quarter sessions are held here, and the court of election for the county members. It is the official residence of the bishop of Ely.

The living is a vicarage united with the chapels of Langham, Brooke, and Silverstone, of the clear yearly value of...
of 918t., with a glebe-house, in the gift of the dean and chapter of Westminster.

There were, in 1833, twelve day-schools, with 365 children, of which the grammar-school with 48 boys, and a national-school with 94 boys and 30 girls. There were three Sunday-schools, with 235 children, besides the national school, the children of which attended also on Sunday.

Jeffrey Hudson, the well-known dwarf (introduced by Sir W. Hamilton, to his 'Periplus of the Peak'), was born at Oakham, a.d. 1619.

Uppingham is in Martin's hundred, six miles south of Oakham, at the intersection of the Melton mail-road with the cross-road from Leicester to Stamford. The area of the parish is 9,230 acres. It had, in 1831, 342 houses, inhabited by 338 families, and 7 houses uninhabited. The town consists chiefly of one street, tolerably well paved, with an open area in the centre. The houses are in general good, and the appearance of the place is superior to that of Oakham. The church is large, with a lofty spire, and contains several interesting portions. The free grammar-school house is a neat and plain building, at one end of the churchyard; and there is an hospital for poor men. These institutions, which are well endowed, were, as well as the grammar-school and hospital at Oakham, founded by Robert Johnson, archdeacon of Leicester, a.d. 1584. There are two dissenting meeting-houses.

The population of Uppingham, in 1831, was 1727, about one third of the parish. It had, in 1831, 342 houses, inhabited by 338 families, and 7 houses uninhabited. There are two yearly fairs for horses, cattle, and sheep, and coarse linens. Races are held on a course called the Brand, just south of the town. The living is a rectory, the clear yearly value of 667l., with a glebe of 46 acres, and the income of the bishop of London.

There were in 1833 six dame-schools, with 90 children; six other day-schools, with 266 scholars, including the free grammar-school with 32 boys, and a national school with 160 boys and 66 girls; and two Sunday-schools, with 161 children.

**Divisions for Ecclesiastical and Legal Purposes.**—The county is included in the archdeaconry of Northampton, and dioceses of Peterborough. It comprehends the rural deaneries of Alsow, Oakham-Sona, Rutland or Martin's, East Hundred, and Wrindike. These divisions are coincident or nearly so with the hundreds of the same name.

The number of parishes is given in the Population Returns at 51; the number of benefices is given by Mr. Brewer ("Beauties of England and Wales") at 49, viz., 31 rectories, 12 vicarsages, and 6 chapelries.

The county is included in the Midland Circuit; the asizes and quarter-sessions are held at Oakham, where is the county gaol.

Rutlandshire returns two members to parliament; they are elected and the poll taken at Oakham. There is no other polling-station.

**History and Antiquities.**—This county appears to have been anciently inhabited. Under the conquest of the Anglo-Saxons, the Roman conquest of Britain was included in the province of Flavia Caesariensis. A Roman road, generally considered, though Blore disputes it, to be Ermine-street, crossed the eastern side of the county in the line of the present North road, and a Roman station appears to have existed at Great Casterton, which is just within the boundary of the county, in the neighbourhood of Stamford; but antiquaries are not agreed as to which of the Antonine stations it is to be identified with. There are some remains of the ancient fort on the west side of the present village; it was square, and had an area of about 27 acres, and was defended on the south and west sides by the river Wash. Ermine-street may be traced in the form of a raised bank for about five feet high.

Under the Saxon rule this county was included in the kingdom of Mercia. From them it appears to have derived its name of Rutland, from Domesday "Roteland," which was perhaps given first to a part only of the present county. The county of Rutland was crowned with a new name of Edgar Edith or Edith for her life, and, after her decease, to the abbey at Westminster. William the Conqueror however resumed the grant, leaving the tithes to the abbot and monks, and divers fees to the crown.

In the reign of Edward II, Rutland, then first mentioned as a county, was assigned to his queen Isabel as part of her dower. In the reign of Edward II, the crown appears to have possessed East Hundred, Martinslade, and Alsloe. Wrandyke belonged to the Beauchamps, earls of Warwick. Oakham Soko is not mentioned, and is supposed to have been included in Martinslade hundred. An earl of Rutland is mentioned in a charter of Henry I, but nothing is known of him. The first known earl was Edward, eldest son of Edmund of Langley, who was the fifth son of Edward III. The title was inherited by Richard, duke of York, and by his son, a boy of seven years of age, Richard the Prince of Wales. Lord Clifford, after the battle of Wakefield, in which Richard himself fell, a.d. 1460. The earldom was revived by Henry VIII., and conferred on the family of Roos: it afterwards came to the Manners family, in whose favour it seems to have been chiefly directed, of which still many of the decendants maintain some theoretical interest are connected with this county. Wright, in his 'History of Rutland,' mentions that in 1016 a battle of doubtful issue was fought between the Danes and the Saxons, but the account is at least very doubtful. In a.d. 1621, Henry Lo Spencer, bishop of Norwich, assembled a force at Burley in this county to suppress the insurrection of the commons in Norfolk, under John the Lighter or Dyer. [NORFOLK, vol. xvi., p. 270.] And in 1468 (according to Grafton's Chronicle) the Lincolnshire insurgents under Sir Robert Welles or Wells were defeated with great loss by Edward IV., at Hornfield in Empingham parish, in this county, beyond Stamford. It may be well to notice here that Grafton attributes the rebellion to the instigation of the Earl of Northumberland, and makes the Earl of Wells, the father of Sir Robert, the consequence, and not the cause of the rising. [Compare LINCOLNSHIRE, vol. xiv., p. 15.]

The battle is commonly known as the battle of Lose-coat-field, from the fugitives throwing off their coats in order to escape more speedily.

The antiquities of the county are chiefly ecclesiastical. Tickencote, Little Casterton, Empingham, Essendine, and Ketton churches, all on the east side of the county, go back to the Norman period. Tickencote has been a very curious specimen of enriched Norman, but it was rebuilt in 1792, and only the elaborately ornamented arch between the nave and chancel, and part of the groining of the chancel, with the font, remain. Before it was rebuilt, it had attracted much attention, and some antiquaries regarded it as one of early Saxon date. The church at Little Casterton has a nave, aisles, and chancel, with a gable for two bays at the western end: the piers and arches are late Norman, and the form of the capitals resembles the Roman. The other parts of the church are of various late dates. Empingham church has a nave with aisles, and a transept, with a tower and spire of good composition. The piers and arches of the church are late Norman or early English; the chancel, with an apse, and the tower are late Norman. Essendine is a small church, with nave and chancel, and a gable for two bays at the western end: the architecture is partly Norman, partly early English: the south door is Norman, enriched with zigzag moulding and other ornamental details. There are three angels representing the Saviour supported by two angels: there are sculptures on each side of the door. Ketton is a large cross church, with a tower and lofty spire at the intersection: though some Norman features are intermingled, its general character is early English. The spire, which is ribbed at the angles and perforated by twelve windows, is nearly 180 feet high, and of beautiful proportions. Of Pickworth church there remains a beautiful arch or doorway, with carved pillars, which is capital. The north aisle is gaily carved foliage. Ryhall church has a tower and spire of early English, with some singular features.

(Blore's History of Rutlandshire; Beauties of England and Wales; Rickman's Gothic Architecture; Parliamentary Papers.)

**STATISTICS.**

**Population.**—Of 4940 males aged twenty and upwards, only twelve were, in 1831, employed in manufactures, or in making manufacturing machinery. Rutlandshire ranks third in the list of agricultural counties, and of the above-mentioned 4940 males, there were 2763 engaged in agricultural pursuits, namely 1917, as farm labourers, and 846 as wrights, joiners employing labourers, and 424 as occupiers who were not employers of hired agricultural labour.

The population of the county in each of the following decennary periods, was—
### RUT

<table>
<thead>
<tr>
<th>HUNDREDS</th>
<th>TOTAL</th>
<th>INHABITED</th>
<th>FAMILY</th>
<th>BUILD.</th>
<th>UNINHABITED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altoe Hundred</td>
<td>821</td>
<td>989</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>East</td>
<td>667</td>
<td>725</td>
<td>2</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Martins</td>
<td>725</td>
<td>821</td>
<td>4</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Oakham Soke</td>
<td>917</td>
<td>968</td>
<td>10</td>
<td>32</td>
<td>38</td>
</tr>
<tr>
<td>Wrangle</td>
<td>755</td>
<td>785</td>
<td>3</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3935</strong></td>
<td><strong>4191</strong></td>
<td><strong>22</strong></td>
<td><strong>99</strong></td>
<td><strong>99</strong></td>
</tr>
</tbody>
</table>

The income, including money borrowed, was 5864L, and the expenditure including debts paid off, 5610L. The debts amounted to about two years' clear annual income (the proportion of debts for England being equal to 6 years' income), and the proportion of unpaid interest was 3 per cent. of the total debt, that for England being 12 per cent.

The number of persons charged with criminal offences and committed in the three septennial periods ending 1829-32, was 56, 83, and 102, making an annual average in each period of 8, 11 and 15 respectively. The average of the six years from 1834 to 1839 inclusive was 92, the total committals for the above years being 117. The numbers for each year were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1834</td>
<td>465</td>
</tr>
<tr>
<td>1835</td>
<td>556</td>
</tr>
<tr>
<td>1836</td>
<td>655</td>
</tr>
<tr>
<td>1837</td>
<td>792</td>
</tr>
<tr>
<td>1838</td>
<td>766</td>
</tr>
<tr>
<td>1839</td>
<td>766</td>
</tr>
</tbody>
</table>

The average committage results presented by the criminal tables for so small a population as Rutlandshire are calculated rather to mislead than afford information. For example, in 1835 the proportion of persons committed to the total population was 1 in 1292, and for England and Wales 631, but in 1837 the proportion in Rutlandshire rose to 1 in 718, the number of committals being 15 in the former year and 25 in the latter. For the six years the average has been as nearly as possible 1 in 1000, which is a more favourable proportion than prevails in any of the eastern or southern agricultural counties. The number of females committed does not average more than 2, and in 1839 there was not one. In the average years the proportion of instructed criminals in Rutlandshire averaged 59 per cent., which was higher than in any other county, the county of Bedford standing as low as 2 per cent.

### Education

The summary from the Returns to Parliament in 1835, in obedience to circulaires issued to churchwardens and other local authorities throughout England and Wales, might be omitted in the case of this county, a much more complete statistical inquiry having taken place in 1838, under the direction of the Manchester Statistical Society; but for the purpose of comparing the result of the official inquiry with the one last mentioned, the former is given in an abridged form.

<table>
<thead>
<tr>
<th>Class</th>
<th>Schools</th>
<th>Scholars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants' schools</td>
<td>10</td>
<td>173</td>
</tr>
<tr>
<td>Scholars, aged from 2 to 7 years</td>
<td>109</td>
<td>2767</td>
</tr>
<tr>
<td>Daily schools</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>Scholars, aged from 4 to 14 years</td>
<td>2580</td>
<td>2733</td>
</tr>
</tbody>
</table>
The most apparent defect in the official returns arises from the impossibility of ascertaining the number of duplicate entries of scholars who attend both day and Sunday schools, and consequently the numbers who are not receiving any education at all cannot be determined. The above official return for Rutlandshire is believed to be more accurate than for any other county. The corrections are therefore less than they would be in other cases. The following statements are taken from the Report of the Manchester Statistical Society:—The population of the county, in 1838, was estimated at 20,000, and the number of children between 5 and 15 years of age at 5000. Of these 3561 were found to be attending either at day or Sunday schools, leaving 1439, or about 29 per cent., not receiving school instruction. Taking the scholars of all ages, it was found that 1117, or about 5½ per cent. of the population, attended day and evening schools; 1922, or about 9½ per cent. of the population attended both day and Sunday schools; and 1274, or about 6¼ per cent. of the population, attended Sunday schools only. The dame and common day schools were attended by 6½ per cent., and the endowed or charity schools by 8½ per cent., of the total population. Out of 46 parishes and 3 hamlets in the county there were only 7 parishes and the 3 hamlets without a Sunday-school. Out of 140 schools, all but 14 had been established since 1801; 65 schools had been commenced from 1830 to 1838; and 55 from 1801 to 1830. The following "General Summary of Schools and Scholars in the county of Rutland in 1838" is appended to the Manchester 'Report' (p. 315, vol. ii, of the Journal of the Statistical Society of London).

In another "Report" of the Manchester Statistical Society, On the Condition of the Population in Three Parishes in Rutlandshire, in 1839, it is stated that 73 persons per cent. were able to read, and 44 per cent. could write, in one parish, and in the two other parishes it was found that the proportion of the former was 81 per cent., and of the latter 50 per cent. On the whole, Rutlandshire may be regarded as considerably in advance of other counties. In the 'Second Annual Report of the Registrar-General,' the number who signed with marks in attestation of marriages is given as 33 per cent., while in Bedfordshire the proportion was 60 per cent. Little however has been done throughout the county to extend education beyond reading and writing or to develop the intelligence of the people. The Manchester 'Report' states that 'want of books is a very serious impediment to the usefulness of the schools.' The books most commonly found in the cottages in the three parishes which the Society made the subject of a separate inquiry were Fox's 'Martyrs;' Fleetwood's 'Life of Christ;' and Venn's 'Whole Duty of Man.' Few cottages were entirely destitute of books, but they were almost exclusively religious works.

General Summary of Schools and Scholars in the County of Rutland, 1838.

<table>
<thead>
<tr>
<th>AGE</th>
<th>SEX</th>
<th>TOTAL</th>
<th>PER CENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Under 5 years</td>
<td>Between 5 and 15 years</td>
<td>Above 15 years</td>
</tr>
<tr>
<td>Sunday-schools—Church of England</td>
<td>232</td>
<td>2,877</td>
<td>13</td>
</tr>
<tr>
<td>Protestant Dissenters</td>
<td>91</td>
<td>2,280</td>
<td>98</td>
</tr>
<tr>
<td>Total</td>
<td>323</td>
<td>5,157</td>
<td>10</td>
</tr>
<tr>
<td>Returned also as Day or Evening Scholars</td>
<td>134</td>
<td>1,775</td>
<td>13</td>
</tr>
<tr>
<td>Receiving Sunday-school Tuition only</td>
<td>186</td>
<td>1,882</td>
<td>6</td>
</tr>
<tr>
<td>Day-schools—Dame-schools</td>
<td>249</td>
<td>429</td>
<td>277</td>
</tr>
<tr>
<td>Common Boys' and Girls' Schools</td>
<td>77</td>
<td>463</td>
<td>728</td>
</tr>
<tr>
<td>Superior Private and Boarding Schools</td>
<td>4</td>
<td>115</td>
<td>85</td>
</tr>
<tr>
<td>Supported solely by the Scholars</td>
<td>330</td>
<td>1,017</td>
<td>7</td>
</tr>
<tr>
<td>Endowed and Charitable, wholly or in part supported by the Public</td>
<td>154</td>
<td>1,419</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>484</td>
<td>2,436</td>
<td>44</td>
</tr>
<tr>
<td>Evening-schools—Supervised solely by the Scholars</td>
<td>...</td>
<td>36</td>
<td>20</td>
</tr>
<tr>
<td>Connected with other schools</td>
<td>21</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Total Number of Schools and Scholars</td>
<td>670</td>
<td>3,302</td>
<td>91</td>
</tr>
</tbody>
</table>

RUTULI. [LATIN.] RUYSSCH, FRÉDÉRIC, a celebrated anatomist, was born at the Hague, in 1638. His father was secretary of the States-General of Holland. He studied medicine at Leyden, took his doctor's degree in 1664, and then returned to practise at the Hague. In 1665 he published his first work on the valves of the lymphatic vessels, and in the following year he was appointed to the professorship of anatomy at Amsterdam. From this time he devoted himself entirely to the study of anatomy, or rather to the formation of an anatomical museum, for he seems to have regarded the science of anatomy as a pursuit far inferior to the art of preparation-making. In this art he was certainly unequalled by any of his contemporaries, and the accounts given by those who saw his museum, of the perfect state in which the bodies of children and animals were preserved, with all the apparent freshness and bloom of life, if they could be entirely credited, would be sufficient evidence that he has not yet had a rival in the preservation of bodies. In the art of dissecting and of injecting the blood-vessels however, in which Ruyssch was supposed to be equally eminent, he has long been far surpassed; and it is probable that his best preparations of this kind were not superior to those which are ordinarily made at the present day.

By unceasing labour Ruyssch collected a most extensive museum of anatomical preparations of all kinds, for which, in 1698, Peter II of Russia gave him 30,000 florins. It was then conveyed to Petersburg, where, it is said, the greater part has since decayed, and become useless. After selling his first museum, Ruyssch commenced with unabated ardour...
to collect a second, a part of which, at his death in 1731, was sold to the king of Poland for 20,000 florins.

Ruysha's merits as an anatomist have been greatly overrated. In all his works, which make up five large quarto volumes, there is no evidence that he was more than a peddling anatomical artist. Though he claimed many discoveries, those that really belong to him are few and not important; and in proportion to the labour expended in the pursuit of anatomy, few have contributed less to its progress as a science. He did not even publish the modes of making his preparations.

RUYSDAEL, or RUYSDAAL, JACOB. This great landscape-painter was born at Haarlem, in 1635. He was originally brought up to surgery, which he appears to have practiced at an early age, and eventually he adopted painting as his profession. If we may judge from a certain similarity of handling, he probably received the first instruction in his art from his elder brother, Solomon, who was also a good landscape-painter, but his reputation has been lost, or rather obscured, by the superior name of his brother. Solomon was born also in Haarlem, in 1616, and died there in 1679; he was the scholar of Schoeft and Van Goyen. He distinguished himself as a maker of an admirable composition in imitation of variegated marbles.

Jacob Ruysdael became the friend of Nicolas Berghem, and, as has been reported, his scholar; but this, if we may judge from the extreme dissimilarity of their styles, is highly unlikely. Ruysdael was a rather sombre but a finement imitator of nature, and his taste inclined him towards the wild and the secluded; but he displayed a exquisite judgment in the selection of his subjects, and for the power and at the same time the truth of his landscapes he has been much admired. Woods and waterfalls are the prevailing subjects of his landscapes, and he rarely if ever painted a scene without introducing either a cascade or a rivulet. He occasionally also painted marine pieces.

His works, independent of their powerful effect and masterly imitation, are distinguished from those of other masters by the peculiarity that the foregrounds generally constitute the pictures, the distances being introduced simply as accessories to complete the view, and he may be said perhaps never to have produced a single view that was not seen to the last step, his colouring, though warm, as also his foliage, is that of a northern clime, and it is very improbable that he ever visited Italy; he was fond of rather cold and cloudy skies with sudden and powerful masses of light and shade. Ruysdael's works, unlike those of his brother, are not in the French style; his compositions were painted by Ostade, Wouwervans, a Vandenwely, or Berghem.

His works are held in the highest estimation by good judges. Ruysdael had not the special patronage of the principal collections of Europe. The Stag-Hunt, in the Royal Gallery of Dresden, the figures of which are by Van de Velde, is generally reputed to be his masterpiece; but there is a large woody landscape in the Doria gallery at Rome, a title of nobility with a pension. In 1665 he certainly surpassed any of its collection of its class. Ruysdael also etched a few plates in a very bold and effective style, but impressions from them are very scarce. He died at Haarlem in 1641, in the forty-sixth year of his age. The celebrated Hobbes studied the works of Ruysdael.

RUYTER, MICHAEL, born at Flushing in 1607, went to sea at eleven years of age as a cabin-boy, and rose successively until he became a warrant-officer, and, in 1625, was sent to the service of the United Provinces in the Indies; and in 1645 was appointed rear-admiral. In 1647 he attacked and sunk off Salle an Algerine squadron. In 1652 he was employed in the war against England, and while accompanying a large convoy of merchandise he met the English fleet off Plymouth. The combat was not decisive, but Ruyter succeeded in saving his convoy. In 1653 he commanded a division, under Van Tromp, and was beaten by Blake, but he had afterwards an advantage over the English in the Good Spy or Sound. In 1655 he was sent to the Mediterranean to chastise the pirates of Algiers and Tunis. In 1659, being sent by the States-General to the assistance of Denmark against Sweden, he defeated the Swedish fleet, and as a reward for which the king of Denmark gave him the title of nobility with a pension. In 1660 he fought against Prince Rupert of England with no decisive result, and in July of the following year he was beaten by the English. In June, 1667, he entered the Thames as far as the Medway, and destroyed the shipping at Sheerness. In 1671, having broken out between France and Holland, Ruyter had the command of the Dutch fleet which was in opposition to the English; he fought several engagements in the Channel and the German Ocean, without any important result. In 1675 he was sent to the Mediterranean, and fought a desperate battle with the French admiral Duquesne, off the eastern coast of Sicily, in which de Jussieu was killed. Ruyter had the field. He effected a retreat into the port of Syracuse, where he died of his wounds, in April, 1676. A splendid monument was raised to him at Amsterdam, and G. Brandt wrote his Life. He was the first to demonstrate that the western coast of France was a fanatic. Even Louis XIV. expressed sorrow on hearing of his death, saying that "he could not help regretting the loss of a great man, although an enemy".

RYAN, LOCH. [Wigtownshire].

RIBNISK, in the government of Yaroslav, at the confluence of the Rybinsk and the Volga, though a small town with only 3200 inhabitants, is a place of considerable importance. It is as it were the central point of the inland trade and inland navigation of Russia, because it is here that all the rivers that are generally navigated meet, and the Volga vessels to the smaller craft which are to convey them by the rivers and canals connected with the Volga. In one year 1760 large vessels have brought goods to the value of 20 millions of rubles, and about 300,000 small vessels belong to the transport to the amount, in all, of 46 millions of rubles) to St. Petersburg. The number of strangers who visit Rybinsk in the summer is very great.

RICAUT, or RICAUT, SIR P. was the tenth son of Sir John Ricaut, of Hamstead, Essex, the birth of his son is unknown, but he took his bachelor's degree in 1560, at Cambridge. In 1661 he attended the earl of Wchelse as secretary, when that nobleman went out as ambassador extraordinary to Constantinople. During that embassy, when last arrived in Turkey, he made himself acquainted with the manners, customs, and religion of the Turks, and published the 'Capitulations, Articles of Peace, &c., concluded between England and the Porte in 1662 and also The Present State of the Ottoman Empire, as a Plague to England by the Turks, and their Religion, and Military Discipline, illustrated with Figures,' London, 1668, 1676, fol. He was afterwards appointed consul at Smyrna, which situation he held during eleven years, and exerted himself diligently in extending the trade and commerce. In 1683 he was displaced.

On his return to England, Ricaut employed himself chiefly in literary occupations. He published The present State of the Greek and Armenian Churches, Anno Christi 1688, and An Account of the Turkish Empire from 1623 to 1677; London, 1686, 1687, fol., which is a continuation of Knollys's 'History of the Turks,' and contains much information concerning the political resources of the Turkish empire and the manners of the Turks. It has been translated into French, Dutch, and German, and reprinted in several editions of modern Europe, and has been several times reprinted.

In 1685 the earl of Clarendon, then lord lieutenant of Ireland, appointed Ricaut secretary of the province; Leinster and Connaught, and James II. created him a peer of Ireland, a judge of the Court of Admiralty, and a knight. The Revolution of 1688 deprived him of all his employment, but in 1690 he was appointed resident for the Hanse Towns; he then went to reside on the Continent, and remained there till 1700, when he returned to England, and became a subject of the king of England by the attainder of his health, and died on the 26th December in the same year.

Ricaut was a member of the Royal Society of London, and, in addition to his high character as a diplomatist, was celebrated for his knowledge of several languages, as the modern Greek, the Turkish, Italian, Spanish, and French. Besides the works already mentioned, Ricaut published a 'History of the Turks from the year 1675 to 1679,' London, 1700, fol.; an English translation of Garzilli's 'Voyage de la Flotte de la France au Levant' in 1655, 1656, fol.; an English translation of Plutarch's 'History of the Popes,' London, 1655, fol.; and an English translation of 'El Criticón,' of Baltasar Gracian, London, 1681, fol.

RYE, a parliamentary borough, a seaport town, a member of the Cinque Ports, is situated upon an estuary at the southeastern corner of the county of Surrey, and 63 miles south east from London. It is bounded on the east
by the river Rother, the channel of which was suddenly di- 
verted from Romney by the tempest that overwhelmed Old 
Winchelsea in the year 1257, and on the south and west by 
the river Tillingham, which, having received the waters of 
the Brede immediately above it, joins the Rother at 
Rye: the unitted stream enters the sea about a mile and a 
half below the town, and there forms Old Rye harbour.
Rye is supposed to be the Novus Portus of Pilolmy.
The derivation of its name is variously stated: Camden 
derived it from the Brit. rage or Saxon Rheo, a ford; and the posi- 
tion of the town in former years seems to favour the latter 
opinion. The earliest authentic record of Rye is of the year 
853. In the 10th century Rye belonged to the king, and a 
landing near this town, and afterwards took Appuldur. 
Edward the Confessor gave the town to the abbott and 
monks of Fescamp in Normandy; but Henry III., in the 
ifty-first year of his reign (1257), resumed possession of it 
for the better defence of the kingdom by maritime operations, 
and granted to the monastery in exchange the manors of 
Chilenham (Cheltenham) and Selover in Gloucestershire, 
with lands in Lincolnshire. The town is not mentioned in 
'Domesticay,' but it was doubtless included in the hundred 
of Rotutherford, which the British Gazetteer, for each such a county, by a routine 
route, formed part of the manor of Ramese. In the reign of 
Stephen, William d'Apres, earl of Kent, erected a tower 
or small castle on an eminence which commands the rivers at 
their junction, which is still standing. It was purchased 
by Edward the Confessor in 1064, and the top is now 
gaud; immediately below it is a modern battery for eighteen 
guns. This single castle being thought insufficient for the 
defence of the town, Edward III. caused it to be walled on 
the north, but the hollows of the natural rock, at that 
time washed by the sea, being considered a sufficient 
protection on the east and west. There were originally 
three gates, besides a small postern-gate. The 
outside of the castle, the only one still preserved, has a 
lanterned Gothic arch, the brickwork of each side by a routine 
tower. The town was burnt by the French in the 1st 
Richard II. (1377), when the greater portion of the town and 
the beautiful church were reduced to ashes; and again in 
25 Henry VI. (1447), when the old records perished. After 
the destruction of the northern chancel, the church lost 
suffered severely from pestilence. In 1544 there were 462 
persons buried; in 1563 no less than 765 died, of whom 
there were buried in August 165, in September 296, and in 
October 168, or 563 persons in three months; and again, in 
1560, 592 persons died, the majority of whom were carried 
off in the summer months by the plague. In 1572 Rye 
became an asylum for the Huguenots, who were driven 
from their homes by Catherine de' Medici. On the 22nd 
November of the same year, it was burnt by the French, and 
the arrivals continued to increase till 1592, when the French 
Protestant inhabitants in Rye were 1534: they remained at 
Rye till the latter part of the reign of James I., when they 
or their descendants re-emigrated for France.
The condition of Rye has mainly depended upon its har- 
bour. In the sixteenth century the harbour was nearly 
chocked up: an act was passed (2 Edw. VI.) (1548) for 
amending the haven, yet it was not till the storm of 1570 re- 
opened it that the harbour was navigable for trading ves- 
sels. The sea however continued to recede, so that in 
1607 the inefficiency of the port was the cause of great 
complaint. During the whole of that century the sea 
receded, and the bar of beach accumulated at the entrance, 
till the town and the round rye-lands. The 
abandoned, it was determined to form a new mouth by a 
canal running directly south into the sea; this work 
was prosecuted at a great expense till 1778, when the 
new harbour was found to be a complete failure, and was 
abandoned. Without an entrance, the flat-lands around 
and it has been much improved. A wooden pier of 
has been constructed on the eastern side, and embankments 
been thrown up on the western side, leaving an inter- 
changeable bed of land, either of which 
spring-tides is about 17 feet, and of neap-tides from 9 to 12 
feet at the pier-head, whilst the lift in the bay is 22 feet. 
At low-water the harbour is dry. The depth of the channel 
the river decreases gradually to the town, where there is 
the notion of this it is more than 9 feet. The approach from the bay to the en- 
trance of the harbour is very intricate and difficult, espe-
cially for sailing vessels, owing to the sand-banks and the 
tortuous course of the channel. The shingle or stone beach, 
which extends on both sides of the harb-or's mouth, has 
accumulated at the entrance, owing to the winds either from 
the westward or eastward of south, and forms banks or 
exposed (according to the previous of the wind), which, in 
combination with sand, shut out the sea and renders 
the channel crooked and uncertain. The chief trade consists in 
the export of hops, bark, and wool, and in the import of 
coal, corn, timber, and Dutch produce. Lime is also burnt 
from a kiln brought from Dungeness Head, and 
ship-building is successfully carried on.
Rye has never received a charter. It is a corporation by 
precept. The town is not divided into wards. The 
constituents consists of four aldermen, seven burgesses, councilors; 
the style is the mayor, burgesses, and commons; the 
antient town of Rye." (2 and 6 WM. IV., c. 76.) The juris- 
diction extends over nearly one-half of the parish of Rye, 
comprehending 1678 acres out of 2475. The mayor and 
aldermen, assisted by a recorder, hold courts of sessions and 
general gaol delivery for all offences, and a court of record 
for all actions real, personal, and mixed; they have also 
some summary jurisdiction for debts below 40s.
Rye returned two members to parliament from 42 Edw. 
III. till 2 Wm. III., when it was included in the 
Sovereign, since which, in conjunction with Winchelsea and six 
rural parishes, it has returned one member. Rye is one of 
the two ancient towns added to the Cinque Ports before 
the reign of John, and described as 'nobilium membra quinque 
parum.'

The town is pleasantly situated on the northern 
and eastern slopes of a hill, and consists of three principal 
streets running parallel to the sea, intersected by cross 
streets, but the houses are built so as to keep the 
harbour from view. The town hall is a neat brick building supported on arches, with a market-
place beneath. The market-days are Wednesdays for corn, 
vegetables, fish, &c.; and Saturdays for vegetables, fish, 
and meat. Every alternate Wednesday there is a market 
for nearly 100 miles within the diocese of 
Chichester; the church, dedicated to St. Mary, described by 
Jekkes as 'the godliest edifice of the kind in the coun-
ties of Sussex or Kent, the cathedrals excepted,' has 
been patched and altered so as to spoil the general effect. The 
church was added as a school room, and the northern, formerly 
the chantry of St. Nicholas, is blocked out from the body of 
the church. The living is a vicarage, with an average net 
income of 410l. The population of the entire 
parish, in 1831, was 3715, and the number of inhabited 
houses 650. There are two schools, recently united: one 
a free grammar-school, erected in 1636, by Thomas Pea- 
cock, gent., one of the jurats, and endowed with the sum of 
200l. annually; and another endowed by James Saunders, Esq., in 
1708, with a rent 
charge, now producing 115l. 10s. per annum.

(Horsfield's History of Sussex. 4to, 1853; Stockdale's 
Sick of Hastings, &c.; Burrell MSS.; Landawoo 
MSS.; Parliamentary Papers, &c.)
Rye is a plant of the family of the Gramineae, and bears 
naked seeds on a flat ear furnished with awns like barley. 
The straw is solid, the internat part being filled with a pith, 
which, if it causes it to be inferior as fodder, makes it more 
valuable for litter, and particularly for thatching. The value 
of the straw is often nearly equal to that of the grain. 
Rye grows on poor light soils which are altogether unfit 
for wheat, and hence tracts of light sands are often denomi-
nated rye-lands. The grass is not more 
fitable than wheat, which can only be raised there at 
a great expense of marling and manuring. The value of rye 
in those countries where it forms a considerable portion 
of the food of the labouring classes, is from two-thirds to 
three-fourths of the value of wheat. From the 
ascertain the quantities of nutritious matter in rye and wheat, 
Thapper states their real comparative value to be as 64 to 
71. It was formerly raised in considerable quantities in 
the northern part of England, and has been the term 
then named mezel, from the old French word mezel, 
which means mixed. The mezel when ground produced a 
very wholesome and palatable household bread, and it was 
thought advantageous to sow the two sorts together, 
and the wheat either failed or was of poor quality; the rye 
be a crop of the other. This however was an error. No 
doubt the wheat would often fail on inferior soils when the 
rye would thrive; but the reverse was seldom or never the
RYE

EYE

EYE

case; and besides the rye comes to maturity at least a fortnight before the wheat. If the soil is capable of bearing a moderate crop of wheat, it would be much more advantageous to sow one portion of a field with rye and another with wheat; and if meanc bread is desired, the two grains may be mixed in any required proportion. Excellent bread is made of a part of wheat and one of rye ground together, with only the coarse bran sifted out. Rye is at present raised in very small quantities in England. By examining the averages taken for the purpose of regulating the duty on the grain, the quantity of rye sold in the market is insignificant compared with that of other grain. Except at the time when it is sown for the purpose of affording green food for sheep and horses in spring, there is no demand for rye in the markets. In the Return now before us, made January 8, 1841, for the preceding week, the quantity of wheat stated is to be 68,990 quarters, and of rye only 228; and while the average price of wheat was 3l. 12. 9d. and barley 1l. 12. 6d., that of rye was only 1l. 12. 5d., which is much below its comparative value, according to Thomson's experiments, either to make bread of its flour or to distil a spirit from it.

Rye is extensively cultivated on the Continent, especially the Netherlands, where it is the chief grain from which the spirit called Hollands is distilled. It is flavoured with juniper, in Dutch called Genever, whence the name of genet and its contraction gin. When malted it makes excellent beer, one bushel of rye malt being equal to at least one and a quarter of barley malt. The cultivation of rye in England is not so extended as in the continent, and is usually limited to the flat, wet, and sandy soils, where the loam is light and rich, or after turnips and potatoes, in those soils which are not strong enough for wheat. As it is ripe in June or July, turnips are often sown immediately after; and by the manure produced by these, as well as their effect on the following wheat, the cultivation of rye is improved the year after. This is no doubt contrary to all sound theory; but such is the practice in Flanders, and they do not find that their crops diminish in consequence.

In England rye is mostly sown with green crop, and when fed off early in spring with sheep, the land is invigorated, and will bear excellent potatoes or turnips the same year. This practice cannot be sufficiently recommended; and if the rye is sown very early in autumn, it may be fed off in October and November, when sheep-feed is beginning to fail, and the turnips have not yet attained their full size, without any detriment to the succeeding spring produce.

Winter barley and winter oats have been substituted for rye as spring fodder by some farmers; but on land of moderate fertility, where the barley or oats generally profit the winter wheat, which is not the case with barley or oats. The rye which has been fed off very early may be allowed to remain for seed, which will produce more or less abundantly, according as it has been fed off earlier or later. The profit of the farmers from the land for rye is the same as for wheat, except that in very light soils no more ploughings are required than will clear the ground of weeds. If rye is sown after harvest, one ploughing only is usually given. It will thrive in various of the best sorts of wheat, and, as it throws out numerous stems in rich land, it is the more profitable as fodder, although the crop of grain might not be so abundant when the plants are too much crowded.

To have as much green food as possible, the rye is always sown broadcast, the bushels of wheat to be sown in a row, to twenty bushels of rye; but when it is sown on its being more expensive, it does not shoot so early as rye, nor is it so much stronger in the green stem, as is supposed. Oats are invariably sown amongst spring tares, and answer well with them.

There is a variety of rye mentioned by continental authors by the name of Seigle de la St. Jean, or St. John's-day rye, because it grows so rapidly that, if sown about St. John's Day (24th June), it will be fit to sow green by the middle of July, and in favourable seasons may be re-sown again in November, without preventing its giving ample feed in spring, and a good crop of grain at the next harvest. It might be advantageous to introduce this variety into England, if it be not already known. There is no doubt that this kind of the plant, which have a much more vigorous vegetation than those commonly cultivated; and the introduction of them where they are not known is an important benefit to agriculture.

The celebrated agriculturist Du Hamel of the Monceau mentions an individual who had obtained, from one sowing, five abundant cuts of green rye for cattle in two years. If any green plant is cut down before the fructification is completed, it will in general throw out fresh stems; and a very rich soil its blossoming may thus be continually retarded, until the roots become too weak to force successive stems.

When the land is in good heart and clean after wheat-harvest, it may be expeditiously cultivated by means of a strong scarifier, as such that lately invented by Mr. Bedell, or some similar instrument, which opens the soil several inches deep, without turning it. And it is in this way that rye will be found to bear in dry and sloughy plough. This is an immense saving of time and labour, as four or at most six horses will completely stir ten acres of land in a day, which may thus be immediately sown before the wheat is out of the field, or fit to be carried. A week's time in the time of sowing may make all the difference between a crop which can be eaten off before winter and one which will only be fit for the sheep in the succeeding spring. The weeds which may spring up with the rye will be easily pulled out by the hoe, and the rye will never shed their seeds, being mown or fed off with the rye, and the roots ploughed in the next year. The large perennial roots will thus be more easily taken out by the harrows, and all the annual weeds will be destroyed.

The rye has been, and still is, fully admitted in England, very little grown for food or distillation, yet on some poor soils, where wheat and barley are now often sown with a very poor return, and at a great expense of manure, this new grain may give a much greater profit, and would require much less manuring: and where there are not ready means of improving the soil by claying or marling, the cultivation of rye would be found most advantageous; and, by means of a sowing very poor sandy soil, it may be rendered highly profitable.

Rye is subject to most of the diseases which attack the plants of the family of the Gramineæ, such as rust, mildew, burnt ear, and smut-ball. These diseases are described in the article WHEAT. But there is one remarkable disease, which is thought to be peculiar to rye, and which is also one of the most common observed in rye. It is called the ergot, the French name of a cock's spur, which the diseased grain resembles in shape. [Ergot.] By some perversion of the vital functions of the plant, the embryo or germinat instead of growing sound, swells, and generally produces a fungus-like substance, several times the length of a common seed, which rises above the chaff, and has the appearance of a slender pyramid, slightly bent on one side. This substance is hard, and easily broken or cut, and is uniformly of a brown colour, without any detection of it. If it were merely the loss of the grain of which the ergot takes the place, the mischief occasioned by this disease would be comparatively trifling, but this fungus, when taken internally, causes the abortion of the foetus in animals, and a deleterious effect on the animal frame. When taken in any considerable quantity, it produces the most dreadful diseases. This was first observed in France, where a great scarcity from the failure of the crops, accompanied with a more than usual production of the ergot in rye, obtained the poorer inhabitants of certain districts to make bread from diseased rye. The consequences were horrid to behold; their limbs rotted and separated from the trunk before death relieved them from their misery. The ignorant supposed the evil to have been produced without forewarning, by feeding them on ergotted rye, soon showed the real cause. A similar effect is recorded, and supposed to have been produced by the ergot of wheat on a family in the parish of Walsingham, in the county of Norfolk, in 1762. As this was recorded in the "Philosophical Transactions" for 1764, and was mentioned by Professor Henslow, of Cambridge, in a paper on the diseases of wheat, in the "Journal of the Royal Agricultural Society of England" (vol. iii., p. 171.). The appearance of this fungus may be prevented by the subject of experiments in medicine, and it has been found extremely useful in certain cases of contracted labour. It is consequently become an article of commerce as a drug, and imported from the Continent. By its attentive use with the proper and usual medicines, the effect of being in the rye, it might be profitable to cultivate the plant ex-
presumably for the ergot it produces. The seed which grows on the same ear with the ergot might be selected for seed, and a crop of wheat, with an unessential, may be chosen as most likely to perpetuate the disease. The ergot is sold by druggists at from ten to twenty shillings per ounce, so that, if only a pound of ergot could be collected, it would be worth more than the produce in sound grain of an acre of the best land.

At a higher price it will pay retail for picking out the ergot from the rye, where it is infected, and it is easily discovered, before reaping, from its prominence and black colour.

RYE-GRASS, sometimes called Rape-Grass, is one of the most common of the artificial grasses; it is of the family of the Gramineae of the genus Lolium. There are several varieties, some annual and others perennial, some producing a strong juicy grass, and others a diminutive plant. These varieties arise chiefly from differences of soil, climate, and culture. Even the most luxuriant the rye-grass performs a very essential part, especially the perennial sort, which, mixed with different varieties of clover and other grass-seeds, produces a rich and close herbage, which may be either mown for hay or detached. In the course of two or three years the land is so much recultivated by the extension of the roots, and by the dung and urine of the animals, that, without dung from the yard, it will produce one or two very good crops. When clover is sown and rye-grass in succession, there is generally a crop of rye-grass the year following, and in the second year the grass is frequently sown with it. It adds to the weight of the hay, and the stems of the rye-grass are a good corrective to the richness of the clover, when they are given to horses in a green state; but when the hay is intended for the London market, it is better to precede the clover by a crop of rye-grass, as the traders and carmen prefer the pure clover hay, thinking it more nutritious. Some farmers also who cultivate their land on the Norfolk system, have a prejudice against rye-grass, as being unfavourable to the succeeding crops of clover and fodder. Accustomed to having a sward of rye-grass, instead of clover (because the clover, having been too often repeated, fails in the end), they often take peas or beans between the rye-grass and the wheat. This accords with theory; for when the rye-grass completes its fruitation, it is of great service to the wheat; it has a depressant effect on the soil similar to that of a white crop, and therefore a leguminous crop should succeed it. Many farmers, without being able to give any reason, assert, from experience alone, that wheat taken after rye-grass is more subject to accident or failure than after red clover. This is not the case when the rye-grass has been disputed, but in the convertible system generally adopted in Scotland oats are usually sown when the grass is broken up, because an abundant crop of rye-grass is dangerous. This is the point in the rye-grass that requires stirring to produce a good crop of wheat, which is taken in preference after beans or early turnips.

Different varieties of rye-grass have been recommended at various times; one which goes by the name of Facey's rye-grass is much cultivated in New Zealand. Another is Agrostis stolonifera, or Agrostis erecta. This is the best for fine grass to be cut for hay, the stems are strong, and it is the most useful variety of rye-grass for the pasture. The Italian rye-grass, well known in the South of France, in Switzerland, and in Germany, is a native of Lombardy, where it grows most luxuriously and rapidly by means of irrigation. There is no grass which so soon forms a water meadow. It has been brought into notice in England within a few years, in consequence of some parcels of the seed having been brought over by individuals who admired its qualities; and it has borne the cold and wet winters of this country. It is very serviceable to the milk and mutton breeder, and where a moist land it grows most rapidly and luxuriantly. It will bear several cuttings in a season. The writer of this article has had two perfect crops of seed from the same plants in one year, the first in June and the second in October, both set by the seed itself, the plants of the first season being cut down in the following March and the cultivation of rye-grass think highly of it. This grass grows much more rapidly in spring than any other grass, and is so much relished by cattle, that they scarcely allow a single stem to spring up. As the growth appears in autumn and winter, the milk is often much enriched with it, and will give much early green food in spring. It may be a question, whether this is preferable to sowing rye; but it affords a variety, and on some soils may produce earlier and more abundant food for lambs. When Italian rye-grass is sown by itself, and allowed to go to seed, it becomes thin after the first year, from many of the plants dying off; it may therefore be prudent to mix some other kinds of grasses with it, which will supply its place where it is worn out. It is an excellent practice to sow Italian rye-grass on old meadows and pastures, at the time when they are cultivated with composite or earth. If they are well harrowed or scarified, and the rye-grass sown before the earth goes over them, the succeeding crop of hay will be much increased in quantity and improved in quality. On water meadows, which require renovation, this grass is invaluable, being early, rapid in growth, and very abundant when irrigated. We have seen hay made in a few months from a meadow sown with Italian rye-grass in March. This was at Mr. De Fellenberg, at Hofswyl, near Berne, in Switzerland. Mr. J. Rodwell, at Alderton Hall, near Woodbridge, in Suffolk, cultivates the Italian rye-grass for seed to a large extent, and with great success.

RYE-HOUSE PLOT. [RUSSELL, LORD WM.] RYE, SPURRED. [ESEOT.]

RYMER, THOMAS, the learned editor of the great collection of documents relating to the transactions of England with foreign powers, popularly known as 'Rymer's Fodera,' was one of many sons of Ralph Rymer, of the neighbourhood of Northallerton, who had rendered himself obnoxious to the Royalists in the Commonwealth times in that country, and been banished therefrom by the northern insurrection of 1663, was thereupon executed. Thomas was born in 1638 or 1639, and educated under an excellent schoolmaster at the grammar-school of Northallerton, where he was class-fellow with the learned Dr. George Leight. He was admitted to St. John's College, Cambridge, and was entered of Gray's Inn in 1666.

He does not appear to have attained any eminence in the law. He rather devoted himself to polite literature, till he was made the historiographer royal, and appointed editor of each country's bibliographical works. He published in 1677, entitled 'Edgar, or the English Monarch.' This was followed in the next year by his letter to Fleetwood Shepherd, 'The Tragedy of the Last Age considered and examined by the Presbyterians, and the Lollards and Common Sense of all Ages.' In 1683 appeared his translation of the Life of Cicero, by Plutarch, which is found in the collection of the 'Lives translated into English by several Hands.' In 1684 he published a tract on the antiquity, power, and decay of Parliament, which was reprinted in 1714, on occasion of the expulsion of Richard Steele, Esq., the member for Stockbridge. In 1693 he published 'A Short View of Tragedy; its Original Excellency and Corruption; with some Reflections on Shakespeare and other practitioners for the same purpose.' He published in 1694, a book entitled 'Shakespere's tragedies in a manner ludicrously absurd.' In 1694 appeared his translation of Mons. Rapin's 'Reflections on Aristotle's Treatise of Poesie.' There are other minor treatises by him, among which is probably to be reckoned the 'Apology of the Greater Brit. encum sub signo Veritas, 1681.'

On December 23, 1692, he was made historiographer royal, a post which had been held by Shadwell and Dryden. The salary was 2004, per annum. There was at that time a scheme for publishing a corpus of the documents which remain connected with the transactions between England and other states. It was intended that it should be a large and comprehensive work, honourable to the English nation, and designed to instruct the nation. The work was sent to all of all other countries. The patrons of this magnificent design were Montagu, who was afterwards earl of Halifax, and Lord Somers. The execution of it was committed to Rymer. His duties were twofold: first, to collect the instruments and documents, to be published itself, and to provide the necessary volumes and chronicles in the depositories of public records, particularly the Tower of London and the Chapter-House at Westminster; and, secondly, to print accurate copies of them. The work was published in quick succession, the later volumes being carried through the press by Sanderson, who had assisted Rymer almost from the beginning.

The work did not disappoint the expectations of the public. It entirely changed the face of the histories of our own country, as may be seen by Rapin's History, and it was hailed with great satisfaction by all the historical writers of Europe.

Large as the work was, there have been three editions of
A fourth was undertaken by the Commissioners on the Public Records, in which it was proposed to incorporate other documents, which had been discovered since the time of Rymer's edition; this extended only to the close of the reign of Edward III.

There are in the British Museum a great number of transcripts of documents made under Rymer's direction not used by him. Notwithstanding his appointment of historiographer, and whatever remuneration he might receive for his labours on the 'Pseudo,' Rymer became exceedingly poor in the latter part of his life, and died December 14, 1714, in Arundel Street, not far from the Strand, and was buried in the church of St. Clement Danes.

RYNCH.E.A. [Scolopacide.] RYNCHOPS, the name assigned by Linnaeus to a genus of aquatic palmpede birds. The word would be more correct if it were derived from the lower parts of the leg demended of feathers, or many toes united by a wide membrane. Rynchos appears in twenty-fourth order, containing the well-known bird which has the bill straight and compressed, immediately before the Dicrora (Colymbus, &c.). Mr. Davie places it among his family Longipennes, or Macrotères, in the order Palmipedes. Illiger also places it among his Longipennes (in company with Sterna and Larus), in his order Natatora.

Cover places it also among the Longipennes (order Palmipedes), immediately after the Terns and Noddies. M. Vieillot gives it a position among the fourth family (Peleagans) of his first tribe (Teleopodes) of his order Natatora.

In M. Temminck's method it appears in the order Palmipes, near the Terns and Gulls. Mr. Vigors observes that Phaeton [Tropic Bird], which belongs to the Telecidae, bears a considerable resemblance in general appearance and habits to the Sterna of Linnaeus; and he entitles the family of Laride by means of the last-mentioned genus, with which, he remarks, Rynchos most intimately accords in habits and external characters, notwithstanding the disimilitude of the bill.

Mr. Latreille places the genus together with the Terns and Noddies, at the end of the Longipennes, the third family of his Palmipedes.

The Prince of Canino arranges the form at the head of his family Longipennes, in the order Anseres, immediately before his subfamily Comorina. In the Birds of Europe and North America he makes Rynchosopyla the first subfamily of the Laride, and places it immediately preceding the Sterninae. One genus only (Rynchos) belongs to the Rynchosopyla.

Mr. Swainson (Classification of Birds) makes Rynchos a subgenus of Sterna, which last he places at the head of the family Laride, and he arranges Rynchos between the subgenera Phaenopt and Gavia. Mr. G. R. Gray (List of the Genera of Birds) arranges Rynchosopyla, with its single genus Rynchos, as the third subfamily of the Laride, placing it between the subfamilies Larina and Sterintreea.

Genetic Characters. Bill longer than the head, straight or nearly so, compressed, and in form resembling the blade of a knife, truncated, and with the appearance of having been broken at the point; upper mandible much shorter than the lower, and with a groove into which the lower mandible is received; nostril usual, median. Feet moderately long, slender. Wings very long; the first quills longest.

The extraordinary structure of the bill in this bird immediately fixes the attention. In appearance it looks, at first sight, like a worn or imperfect organ; in reality it is an instrument, at first adjustment as applicable to the purposes which it has to execute. Buffon, as too frequently his wont, condemns an organisation which he did not understand and indeed could never have accurately examined. The bird named ['Scissor-bill'], this elegant but basty writer, 'can neither bite on the side of the bill nor pick up anything before it, nor peck forwards its bill being composed of two excessively unequal pieces; the lower mandible, which is elongated and projecting (like a sword) beyond all proportion, much exceeds the upper mandible, which only falls upon it like a razor on its back. In order to reach anything and seize it with so defective an organ, the bird is reduced to skin the surface of the sea as it flies, and plunges the lower part of the bill plunged in the water so as to catch the fish below when it is the bird passes. This is from marâtre, or rather from this necessary and painful (péniib) exercise, the only one which could enable it to live, that the bird has received the name of Cigare d'eau (out-water) from some obsera. In its name of 'Scissor-bill' has been intended to point out the manner in which the two unequal mandibles of its bill fall one upon the other; of these, the lower, hollowed out into a gutter with two elevated trenchant edges, receives the upper edge as it falls, and, to plough it with the lower part of the bill, is much longer than the upper mandible, which has a narrow groove or channel into which the upper edge of the lower mandible slips. Yet Buffon, who quotes Catesby, gives the erroneous description above noticed.

Example. Rynchos nigra.

Description. — Male. — About 18 inches in length; the closed wings extend beyond the tail four inches; the stretch 44 inches. Length of the lower mandible 4 inches; bill extends beyond the red, tinged with orange, and tipped with black. Upper part of the head, neck, back, and scalp black; wings the same, except the secondaries which are white on their inner vanes, and also tipped with white. Tail forked, broad. Legs and feet moderate, feathers about 6 inches and a half shorter than the exterior ones, all black, broadly edged on either side with white; tail-covers white on the outer sides, black in the middle. Front, chest, and neck below the eye, throat, breast, and all the lower side of the legs and feet of the same colour.

Female only 16 inches long, and 39 in stretch; much the same, except the feet and legs which are white and centrally covered with black.

There are oblique strie on the lower mandible, which become most apparent in the dead or emaciated specimen.
These birds are common far inland, along the course of the Rio Paraná; and it is said they remain there during the whole year, and that they breed in the marshes. During the day they rest in flocks on the grassy plains, at some distance from the water. When heavy with grass, it is said, a small vessel in one of the deep creeks between the islands near the Paraná, as the evening drew to a close one of these scissor-bills suddenly appeared. The water was quite still, and these birds, generally so tame, did not appear to be disturbed until a little fish was rising. The bird continued for a long time to skim the surface; it would dive, rise again in a graceful manner up and down the narrow canal, now dark with the growing night and the shadows of the overhanging trees. At Monte Video, I observed that large flocks remained in the coast-line, and that, when the head of the harbour, in the same manner as those which I observed on the grassy plains near the Paraná. Every evening they took flight in a straight line seaward. From these facts I suspect that the Rhynchops frequently fishes by night, at which time many of the lower animals come nearer at hand to the surface than during the day. I was led by these facts to speculate on the possibility of the bill of the Rhynchops, which is so pliable, being a delicate organ of touch. But Mr. Owen, who was kind enough to examine this organ, has brought one of which I examined the structure, and the muscle attached to it, the cutting edge (August 8, 1837) that the result of the direction of the Rhynchops, comparatively with that of the head of the duck, is not what you anticipated. The facial or sensitive branches of the mandibles are very small; the third division in particular is filamentary, and I have been able to trace it beyond the soft integuments at the angles of the mouth. After removing with care the thin horny covering of the beak, I cannot perceive any trace of those nervous expansions which are so remarkable in the lamellibranchia of aquatic birds, and which in them supply the tooth-like process and soft marginal covering of the mandibles. Nevertheless, when we remember how sensitive a hair is through the nerves situated at its base, though without any of these expansions which might be safe to deny altogether a sensitivefaculty in the beak of the Rhynchops. (Zoology of the Voyage of H. M. S. Beagle.)

But it appears that this organ is not merely useful as a sensor, but that it is equally available as an oyster-knife. M. Lesson says:—Toothless beaks, which in the bill of Rhynchops are covered with a mucous secretion. I have observed in the small pools; the Bee-en-eiseaux, well aware of this phenomenon, places itself near those mollusks, waits till their valves are opened a little, and profits immediately by the occasion to plunge the lower and tranchent blade of its bill between the valves which it immediately closes, then lifts the shell, beats it on the beach, and cuts the ligament of the mollusk, which it then swallows without obstacle. Many times have we witnessed this highly perfected instinct. (Manuel d'Ornithologie.)

Mr. Darwin seems to think this use of the bill very improbable; but he gives no reason that ought to weigh against the direct testimony of so good an observer as M. Lesson, for whose accuracy in many cases we can vouch. Indeed, though Mr. Darwin quotes Wilson as declaring that he does not believe the report of its frequenting oyster beds and feeding on those fish, he acknowledges the existence of the report in the United States, and seems neither to be aware of the passage in Catesby above quoted, nor of the 'visible cumbrous' lift of Linnæus.

But, if we are to reason upon this use of the bill, Mr. Owen's account of the absence of nerves from its anterior portion comes in aid of M. Lesson's evidence. The insensibility of the blade of the lower mandible would be a necessary condition for its undergrowing the bill, and gripping it with the whole force of the adductor muscles. A lamellibranchial bird could support the pain of such a situation; and if one of the ducks should by any chance put its bill into a vire, it would not be very ready to repeat the experiment. M. Lesson further states that the bird flies slowly, and at great distances from the coasts of Conception (Chili); and that, with the gulls and other sea birds, it forms bands so extensive that the coast is thickly strewed with white and brown, long moveable black scars, which obscured the heavens from the banks of the Penco to the isle of Quiriquina, a space of twelve miles (Manuel d'Ornithologie).
Mr. Nuttall states that the Cut-water, or Black Skimmer, is a bird of passage in the United States, appearing in New Jersey (to the north of the sea-coast of which he believes it is unknown) from its tropical quarters early in May; and he thinks that it probably passes the breeding season along the whole of the southern coast of the United States. In New Jersey it 'resides and breeds in its favourite haunts, along the low sand-bars and dry flats of the strand along the immediate vicinity of the ocean. Their nests have been found along the shores of Cape May about the beginning of June, and consist of a mere hollow scratched out in the sand, without the addition of any extraneous materials.

The eggs are usually three in number, oval, about one inch and three quarters to two inches by one inch and a quarter, and nearly pure white, marked all over with large,umber-brown blotches and dashes of two shades, and other faint ones appearing beneath the surface. In some eggs these particular blotches are from half an inch to an inch in length. As the birds, like the terns and gulls, to which they are allied, remain gregarious through the breeding season, it is possible to collect half a bushel or more of the eggs from a single sand-bar, within the compass of half an acre; and though not very palatable, they are still eaten by the inhabitants of the coast. The female only sits on her nest during the night, or in wet and stormy weather; but the young remain for several weeks before they acquire the full use of their wings, and are during that period assiduously fed by both parents: at first they are scarcely distingusihable from the sand by the similarity of their colour, and during this period may often be seen basking in the sun, and spreading out their wings upon the warm beach.

The pair, retiring to the south in September, or as soon as their young are prepared for their voyage, raise but a single brood in the season.' (Manual of the Ornithology of the United States and of Canada, vol. ii.)

The same author states that this species is met with in the equatorial regions of America, where it is resident as far as Surinam, but never penetrate into the interior, being, properly speaking, an oceanic genus.

Rynchops nigra.

M. Lesson remarks that, though this bird closely approaches the species belonging to the Antillean, it is still possible that it may be distinct from it.

RYOTS, the name by which the cultivators of the soil in Hindostan are designated. The social and economical condition of the ryots presents several peculiar features, which form an interesting subject of inquiry for the political economist.

The ryots pay rent out of the produce of their land to the sovereign proprietor, and, so long as they pay the rent demanded of them, have a claim to the continued occupation of the land. This indeed is the condition of the cultivators of land, not only in Hindostan, but in all Asiatic countries. In speaking then of ryots, we speak of the cultivators of land throughout Asia.

The economical condition of the Asiatic cultivator may be described as being made up of the three following circumstances:—1. He is an hereditary occupier, or, in other words, has an hereditary claim to the occupation of the land which he cultivates. 2. The amount of rent which he pays is, in practice, determined by the sovereign power. 3. There exists a number of classes intermediate between the hereditary occupier and the sovereign, all entitled to various portions of the revenue which is yielded by the land, but none having any proprietary right. The number of these intermediate classes, arising out of the tendency of all offices connected with the land, and the benefit hereditary, has contributed greatly to the ignorance prevalent among Europeans of the position of Asiatic cultivators.

Such being the general features of the economical condition of the ryot, his actual position necessarily depends upon the amount of rent which he is required by his sovereign, and the manner in which the rent is paid.

The amount of rent was fixed by the laws of Menu at a sixth, an eighth, or a twelfth of the crops, according to differences in the soil, in the degree of labour necessary to cultivate it, and, in general, in accordance with the times of urgent necessity, of war or invasion, the same laws allowed the king to take even so much as a fourth. (Institutes of Menu, c. iii., 139; c. xii., 118, 120.) A sixth part of the produce had come to be the uniform tax in Hindostan, when the Mohammedans became its masters. (Successors.) But we find in Strabo, that when Alexander invaded India, a fourth of the produce was generally taken as rent. The despotic sovereigns of the East did not allow the ryot the freedom to observe the time, and openly violating them, at other times exalting them by a resort to indirect taxation. Indeed before the Mohammedan period there are instances of oppression by Hindustan governments, under which the ryots were allowed to retain portions of their crops by paying a tax, and not carefully observing the laws, openly violating them, at other times exalting them by a resort to indirect taxation. Indeed before the Mohammedan period there are instances of oppression by Hindustan governments, under which the ryots were allowed to retain portions of their crops by paying a tax, and not carefully observing the laws, openly violating them, at other times exalting them by a resort to indirect taxation. Indeed before the Mohammedan period there are instances of oppression by Hindustan governments, under which the ryots were allowed to retain portions of their crops by paying a tax, and not carefully observing the laws, openly violating them, at other times exalting them by a resort to indirect taxation.

The form in which the rent is paid has even a greater influence on the condition of the ryot than its amount. In ancient times the rent was always paid in produce. Whenever, in later times, it has been demised in money, the life of the ryot has been ruined. The ryots, believing himself of immediate difficulty is borrowed at a high rate of interest. The immediate difficulty is thus got rid of at a great sacrifice, and the ryot becomes dependent on the money-lender. In villages where money-payment is adopted, the money-lender is generally the party contriving to the government for the rents (the Moharjum); and were he suddenly to leave the village, taking with him his capital, the village would be ruined.

The agency by means of which the rents are collected, though less important than the form of payment, has also a considerable influence on the condition of the ryot. An account of the system of agency through which the ancient Indian governments collected their rents from the ryots, and of the modifications which this system has undergone under the British sway, will here best be noticed.

Under the ancient Indian governments, the agents of the prince to whom districts were assigned transacted immediately with the ryots, either singly or in villages. The latter mode was the more general, but the government levied a certain sum on each village, and left it to the villages to settle the individual quotas among themselves. The villages were so many little republics or corporations, governed in the following manner:—There was a head of the village (adhati), originally elective, but afterwards hereditary, who united in his own person the magistracy, the supervision of the police, and the duties of collecting the revenue, a registrar (Curumam), who kept the accounts of cultivation, transfer, rents, contracts, receipts, and disbursements; an officer of revenue, number of officers of occasional Brumins for the service of the gods as well as for education, handierifalmen, inferior ministers of police, &c. The full complement of these officers was twenty-four; but all villages did not contain number of officials. An assessment of land were made to all these officers, which they held tax-free. Fees paid by the ryots furnished additional profits.

As regards the payment of rents, there were two kinds of arrangement prevailing in the villages. In some villages the land was cultivated by the cultivated, but in others the cultivated had a share of the producet assigned, according to certain fixed rules; these were called bycherry (brotherhood) villages. In others each ryot cultivated separately his own portion of land, and paid rent for it separately; these were called by the name of pattedyar (partnership) villages.

The heads of villages paid the rents collected to the heads of districts (des adhurs); these again to the heads of
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S.

S is the chief sibilation of the English alphabet, and is employed to represent two different sounds, as in this and these. The word she, however, would seem to justify the addition of a third sound. Again; this in the words old, so often pronounced oad, has modified the pronunciation of the preceding consonant. 

The modern Greek alphabet, whereby those of Europe are derived, a common symbol is employed, with and without an affixed dot, to denote s and š. The symbol referred to has for its name a word which also signifies tooth or teeth; and if we will to mind that the so-called Phoenician and Semitic alphabets give older forms of the Hebrew letters that those now used, it will be easily believed that the symbol in its original shape [Alphabet, p. 382] was the representation of two or three teeth; an opinion which would agree with the fact that the sibyls are all formed by means of the upper teeth, and the sound šk by the upper and lower brought together. This explanation is confirmed by the considerations that in emitting the last-named sound the teeth are not only the sole organs employed, but more than usually exposed to view by the retraction of the lips. But for the strong evidences thus furnished by the Hebrew alphabet, the form and power of the letter might have been readily derived from an imitation of a hissing snake.

The letter š is subject to the following interchanges, many of which have been previously noted.

1. with z, as in the Hebrew alphabet, and in the Greek language in which the šs, Tz̄ótos, Z̄wia, take the forms ζός, ζωος, λεωνία. Hence το ζωοσ, το ζωος, etc.
2. with d, as both in the Attic forms φίδος, κεννόδος, φίδος, were by the Dorians written φαῖς, κεννός (regularly enough from the present: φαῖς, κεννός), Φαῖδος, ἑρ. In the Attic, on the other hand, the words δίς, δῶς, λέξ, wester, λέξις, seen, appear in English as that, what, it, its, etc., signify.
3. with t. Thus again the Attic forms φιδιοί, κεννόδοι, φιδίοι, were by the Dorians written φαῖς, κεννός, (regularly enough from the present: φαῖς, κεννός), Φαῖδος, ἑρ.
4. with x. Thus the Greek island Zæczëtos was the mother city of Seguntum in Spain, and no doubt gave its name to it. In fact, the MSS. of Livy (xxi. 7), with one exception, scarcely worth mentioning, appear to have all got {Oriandoi a Seguntu ineśu dicøur, not Zæczëtos. But the most abundant evidence of the interchange is to be found in the Somericshet dialict of our own tongue.

5. with th. Witness the Berlin pronunciation of all Greek proper names formed from English words, e.g., sleep, stay, sneeze, snow, have for their German equivalents schlaf, schlaef, schneiwer, schnee, etc.
6. with c, and a. See those letters.

7. a. X.
8. with n. See N.
9. a. r. See R.

10. S often appears before an initial consonant, where it is doubtful whether the letter form be that with or that without the sibilant. Thus the Greek στοφός, αυσφός, ευφός, correspond to the Latin tegō, funda, vespa. So στοφός and ευφός would be found upon close examination to be the equivalents of the Latin crassum and crassus, and ευφός to differ from evasura only in the fact that the latter is a frequentive verb. The Greek possesses within itself the double forms στοφος and μεσφος, αυσφος, κρασφος, κρασφος, κρασφος, κρασφος. The English language contains numerous examples of the same variation, as in tell, swell, stumble and stumble, Pike and science.

The German as well as our own tongue not unfrequently, and often the Latin are without that letter. Thus the Greek ἔλεος (root έλαιος or ήλαιος), the Latin claudo or claudi-o, and clavis, the German schleiss-en, and the English slide are all of one form. Comparatively the same forms of the words signifying same.

11. The sound zσ in the beginning of words is often degraded by the loss of the sibilant or ζ, so, both to the Latin uves and uesæ correspond the Greek ζς, ζς, the German des, and the English sweet. Those who doubt the connection here assumed between uves and uesæ, may, as regards form, compare clavis and claudio, or vindicis with what must have been its older form, duligint, while the connection in meaning will be readily established by the common comparison of advices with medias, unpleasant but valiant, as in Lucretius, (i. 935). Sed veluti pueris abstineth, &c. Again sopor and somnus (sop-nus) of the Latin correspond to the Greek ςωμιος, ςωμιος, and the German schlafer, and the English sleep; sopor and somnus in Latin, to the Greek στεψαι and στεται, and the German schlafener as prefixed to sohn, weter, &c.; the Latin sud-or, to the Greek ῥαιδρος, the German schweiطر and English sweat; the Latin sui, sibi, &e, to the Greek of, although the Greek has also allied words beginning with ψφ. The Latin soror, German schwestern, English sister, have lost their correlatives in Greek. Lastly this interchange will perhaps account for the fact that the river Oder has two antient names, Suecæ and Piaedrias, which have been the cause of much confusion in the geography of antient Germany. Indeed the mouth of the river is still called Novemvire.

11. S is interchangeable with ps, šš with šs, and w with ws. For the last we need only refer to the Doric use of ἐδο for ἐτο. Instances of the second interchange occur occasionally in Greek and Latin. Ψσ, the mistletoe, is written in Latin vicus; ψαρνα, ludicrously put down as a primitive in some scholiasts, is of course only the superlative of the preposition ψι, for ψιτος. The Latin mistico has for its participle mistus as well as mistus (= mistius). The tendency to this interchange accounts for the term ⸇θ, for ⸇θ is never found in the best MSS. of the best authors. But the Attic-Axum and English affix the mistaken substantive of these metathesis. Thus the former language has the double forms ψιςτος or ψιςτος, a weep: ἐπις or ἐπις, treatural; whence the name of the aspen tree); ἐπις or ἐπις, a lock (Orimm, Deutschen Grammatik, p. 201); also ρος or ρος, a frog; ρος or ρος, a fish; τίς or τίς, a tusk; ας or ας, ander; αξιος or αξιος, to ask; τικς, p. 206). Hence it will be seen that it is a mere accident if in our own tongue case and ws have been rejected as vulgarisms in favour of ask and so. There still prefers the ws and ws. Thus a Kentish count, isan rather than ship of hay. May we not in this way establish the identity in name of several of our rivers, as Axe, Exe, Exh, and Usk p.

12. S is often lust. Inattention to this fact is the cause of much confusion in the grammars of the Greek language. Thus the neuter nouns in συστικι must once have had a corresponding σι in the genitive, γενεσις, γενεσις, &c. afterwards γενος, γενος. Hence the retention of γ in the vocatives (γενος, γενος). This has been extended to the cases, as γενος, γενος, γενος, etc. (See Journal of Education, vol. iv. 333.) Above all, the neglect of this letter in the original (as here assumed) forms of certain present tenses leads to a perpetual anomaly in the derived forms. Thus from κλεις we should have without any irregularity κλεφτος, κλεφτος; from γενος without difficulty γενεσις, as well as the Latin gus-tus, gus-ta-re; from κλεις, κλεφτος, in which the sibilant corresponds, as it so often does, to the guttural in liga-re, lice-re, and the English light from lice. The Latin language in such cases changes the sibilant into an r; but even this language is not at all unwilling to discard an r, particularly at the end of words, as in the double forms magis and mago, vidtis and eideris, ηπας and ηπας, grær for grærus. Nay, even the neuters of adjectives seem to have lost the final s of the nominative in this way. At any rate poeti is used for poeti as a neuter nominative as well as poeti. The third person of the Latin poeti may possibly owe its occasional long quantity (pouetit, Hor.; sibiti, Hor.; rebati, Ovid; &c.) to this, but this is only a conjecture. The orthography ending in ies, for as the other perfects of the indicative as well as those of the subjunctive and infinitive of the active verb, to say nothing of all the passive perfects, are evidenced by the addition of a final s, so purrpetus and purrpeturant contain in the two last syllables the almost unaltered forms of ies and ies, and seem to justify the idea that purrpetus is a corruption of purrpetus, i.e. purrpetus. As to forms, we might compare this corruption with what we have now observed in the French.

The French language abounds in examples of the loss of the sibilant. Thus from the Latin anius, magister, master,
quadragessima, are derived, first, anse, maistre, nostre, carte, and then, according to the modern orthography, fine, maistre, nostre, cartum, to say nothing of the silent s in such words as 'tele, est, etc.'

A. DE MIRANDA

SAAD-ED-DEEN (Khoye Saad ed-deen Mohammed Efendi), the most celebrated of the Turkish historiographers, was born in the early part of the sixteenth century of our era. A Persian, he was born in the household of Sultan Selim I, and was highly esteemed by that ferocious monarch, whom he attended in his last moments. His son Mohammed received his education among the pages of the imperial palace, and having devoted himself to the study of Moslem traditions and jurisprudence, he became a mueddina, or professor in the college attached to the great mosque of St. Sophia. The talents and learning which he displayed in this capacity gave him high celebrity; and he was appointed by Selim II, in 1578, khoy, or preceptor to his son Mourad, the heir apparent, who then held the government of Magnesia. The death of Selim, in December, 1574, called Mourad to the throne; and Saad-ed-deen was nominated cadisheker, or military judge; but he compromised his interests, and foresook his imperial pupil, who had recourse to his advice in matters of government so constantly as to excite the jealousy of the vizirs; and an attempt was made to ruin him by representing the erection of an astronomical observatory, which the sultan had founded at his instigation, near Top-khana, as an evil omen for the stability of the empire. But though the observatory was demolished by the superstitious fears of Mourad, the favour with which he regarded Saad-ed-deen was unimpaired; and Mohammed III., who succeeded in the absence of the caliph, the nominal head of all the faithful, the heir to the throne, and the sultan his father, with the management of the most secret diplomatic relations of the empire; the Khoye-Efendi (as Saad-ed-deen is frequently termed by Oriental writers) even attended Mohammed in the Hungarian campaign of 1596; and the great victory of Kaffa was secured by the influence of his exhortations, which prevented the sultan from abandoning his field at the moment of extreme peril. He however incurred a temporary disgrace immediately afterwards, by his intrusiveness in the cause of the fallen vizir Ceilas; but he was speedily restored to favour, and on the death of the mufti Bostan-Zadah, March, 1598, was raised to the highest ecclesiastical dignity by the sultan, in spite of the opposition of the grand vizir Hassan, who proposed the elevation of the celebrated poet Baku. He did not however long survive his exaltation, dying suddenly in the mosque of St. Sophia, as he was preparing for prayers on the anniversary of the birth-day of the prophet, October 2, 1599 (not 1600, as stated by Mr. A. A. M. Hamlin), and was interred in the cemetery of the mosque of Ayub. The author of the celebrated 'Taj-jal-Towarik,' or imperial historiographer, is entitled Taj-jul-Towarik, or the crown of histories, and gives a full and copious narrative of the history of the empire, from its foundation in 1599 by Othman, to the death of Selim I. in 1520; the materials are principally drawn from the previous works of Nasiri, Moulana-Edriss, and Kemal-pasha-Zadah; but its chief merit, in the estimation of the Turks, consists in the florid and elaborate beauty of the diction, in which the author was unsurpassed by any other Turkish historian. Sir W. Jones himself has already spoken of its composition and the richness of its matter, it may be compared with the finest historical pieces in the languages of Europe; but the meaning is too often concealed by a cloud of rhetorical tropes, and it is impossible to forget in the perusal of the work that it is the production of a courtier. It is singular that this valuable work has never yet been printed at the imperial press of Constanti- nople; but MS. copies are frequent in European libraries, and the celebrated translation was published by Messrs. Veacesco Bruttii (4to, part 1, Visana, 1646; part 2, Madrid, 1652), under the title 'Crónica dell' Origine e Progressi degli Ottoman, composita da Saedino Turchio, e tradotta in Italiano, the Latin sections having been translated by Kollat, and by Grangene de la Grange. A Turkish abridgment of the work, with a continuation, was published in 1699 (A.M. 1100), with a dedication to Sultan Mustapha II., by Saad-Efendi of Larissi; and the resemblance of name has often led to this work (which served as the basis for the inaccurate compilation of Cantemir) being confounded with the great history of Saad-ed-deen. (See Von Hammer, in Journal Asiatique, January, 1884.) Besides this great work, Saad-ed-deen was the author of the 'Selim-Haseb,' a history of Selim I., or rather a collection of anecdotes of that prince, related to him by his father Hassan-Jan; the compilation, which is divided into fourteen sections, a double column, 82, with 21 leaves, was probably written in a demotic legat by Sbeibhi, who notes his death in 1574.

(Von Hammer, Histoire de l'Empire Ottoman; D. Bel- belot; Biographie Universelle; Journal Asiatique.)

SAAD, or (as his name is written in full in Arabic or Persian) Sheikh Mustafa Edris Saadi Maahriyan, the first part of the name being a title of honour, the second two words his epithet, and the last expressive of his being a native of the city of Shiraz, where he was born in the year of the Hegira 871 (A.D. 1465-6) and died, probably from surfeit, over his imperial pupil, who had recourse to his advice in matters of government so constantly as to excite the jealousy of the vizirs; and an attempt was made to ruin him by representing the erection of an astronomical observatory, which the sultan had founded at his instigation, near Top-khana, as an evil omen for the stability of the empire. But though the observatory was demolished by the superstitious fears of Mourad, the favour with which he regarded Saad-ed-deen was unimpaired; and Mohammed III., who succeeded in the absence of the caliph, the nominal head of all the faithful, the heir to the throne, and the sultan his father, with the management of the most secret diplomatic relations of the empire; the Khoye-Efendi (as Saad-ed-deen is frequently termed by Oriental writers) even attended Mohammed in the Hungarian campaign of 1596; and the great victory of Kaffa was secured by the influence of his exhortations, which prevented the sultan from abandoning his field at the moment of extreme peril. He however incurred a temporary disgrace immediately afterwards, by his intrusiveness in the cause of the fallen vizir Ceilas; but he was speedily restored to favour, and on the death of the mufti Bostan-Zadah, March, 1598, was raised to the highest ecclesiastical dignity by the sultan, in spite of the opposition of the grand vizir Hassan, who proposed the elevation of the celebrated poet Baku. He did not however long survive his exaltation, dying suddenly in the mosque of St. Sophia, as he was preparing for prayers on the anniversary of the birth-day of the prophet, October 2, 1599 (not 1600, as stated by Mr. A. A. M. Hamlin), and was interred in the cemetery of the mosque of Ayub. The author of the celebrated 'Taj-jal-Towarik,' or imperial historiographer, is entitled Taj-jul-Towarik, or the crown of histories, and gives a full and copious narrative of the history of the empire, from its foundation in 1599 by Othman, to the death of Selim I. in 1520; the materials are principally drawn from the previous works of Nashiri, Moulana-Edriss, and Kemal-pasha-Zadah; but its chief merit, in the estimation of the Turks, consists in the florid and elaborate beauty of the diction, in which the author was unsurpassed by any other Turkish historian. Sir W. Jones himself has already spoken of its composition and the richness of its matter, it may be compared with the finest historical pieces in the languages of Europe; but the meaning is too often concealed by a cloud of rhetorical tropes, and it is impossible to forget in the perusal of the work that it is the production of a courtier. It is singular that this valuable work has never yet been printed at the imperial press of Constantinople; but MS. copies are frequent in European libraries, and the celebrated translation was published by Messrs. Veacesco Bruttii (4to, part 1, Visana, 1646; part 2, Madrid, 1652), under the title 'Crónica dell' Origine e Progressi degli Ottoman, composita da Saedino Turchio, e tradotta in Italiano, the Latin sections having been translated by Kollat, and by Grangene de la Grange. A Turkish abridgment of the work, with a continuation, was published in 1699 (A.M. 1100), with a dedication to Sultan Mustapha II., by Saad-Efendi of Larissi; and the resemblance of name has

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The works of Sadi, collected by Ahmed Nasir Ben Saltan, the Grand Vizier of the Bostan, with a biographical sketch of Sadi, and an essay on the works and style of Sadi, from the writings of others, is a mode of writing which the Eastern imaginative writers much affect. The Gulistan is divided into eight chapters: on the morals of kings; on the morals of dervishes; on the excellence of contentment; on the advantages of temperance; on love and youth; on indecency and old age; on the effects of education; and rules for conduct in life. The first seven chapters consist chiefly of moral stories, some of them apparently from real history, others fables, Celebes in some degree bearing a resemblance to the Chinese characters having been interwoven in its texture. The last chapter is rather a collection of apothegms, though a part of this also is narrative. These stories are not connected by a general thread of narrative, as is the case with most of the works of Saffran, but having been general and subordinate stories which connect the histories of the Arabian Nights and the Fables of Pâpêy; they follow one another without any link, except that of their allusion to a common subject.

translated into French by Du Ryer, who was French consul at Alexandria, Paris, 1634; into German by Olearius, who, in his preface, acknowledges the assistance of an old Persian literato named Hakwind, and mentions an earlier German translation of Haidor, on the order of this book, by the translator of the Fables. The translation is spirited and poetical, and published at Silesia in 1654, and a Dutch translation from the German appeared at Amsterdam in the same year. Olearius also translated the Bostan (a somewhat similar collection to the Gulistan) but all in verse into English, in a volume published in England by Gladwin, London, 1898; and by Ross for the Asiatic Society. There has also been a more recent French version than that of Du Ryer from the original by the Abbé Gaudin (1799). This translation is spirited and poetical, and published at Paris. The whole works of Sadi, in the original Persian and Arabic, were printed at Calcutta, in 2 vols. small folio, edited by Harrington (1791). The text of the Gulistan appeared first in the edition of Genetius, at Paris, in 1603, with 28,589 inlaid pages. Gladwin published the text at Calcutta in 1806, which was reprinted in London in 1809. The text, with the translation in parallel columns (by Jas. Dumoulin), was printed at Calcutta in 1807, and there have since been more than one lithographed edition. Of the three, the first 1807 edition, and the second 1860 edition, are considered the best for the purpose, from the extraordinary beauty and clearness of the type (no unimportant matter when Persian letters are in question), and the accompanying Latin translation. A good Life of Sadi is given in the introduction to the reader will also understand the other. Salmon has given a brief notice of the work, and another in the Persian of Dowlet Shab; and in the collection of the 'Asiatique Journal' several excellent versions of the text, accompanied by the translation, from collected copies, and by critical notes. The Gulistan is one of the best texts-books for learning Persian, and the other works of Sadi are equally good.
established in Cadiz. His grandfather, Juan de Cervantes, was corregidor of Osuna. His mother belonged to the illustrious family of Barajas. Very little is known of the early life of Cervantes, except that he received his first education at the expense of his birth, and with very scanty prospects of talent. Having attained the proper age, Cervantes repaired to Salamanca, where he entered himself as a student at the university, and remained two years. He then went to Madrid, where his parents placed him under the tuition of Juan de Retana, a learned man, who filled the chair of belles-lettres in that city. Under him Cervantes seems to have made considerable progress. He himself informs us ("Viaje al Parnaso," p. 54) that he composed several romances or ballads, besides a pastoral called "Floma," and which was performed on a musical instrument at his wedding. On the death of Isabella of Vailoa, wife of Philip II, there appeared, among the rest, two poetical compositions by Cervantes, whom he calls "our dear and beloved pupil." In 1568 Cervantes entered the household of Cardinal Aquaviva, then at Madrid, and accompanied that prelate on his return to Rome. He remained with him one year, after which he entered the army, and served as a volunteer under Marco Antonio Colonna, the commander of the papal forces against the Turks. He greatly distinguished himself in the battle of Lepanto (Oct. 7, 1571). Though suffering at the time from intermittent fever, he took an active part in the combat, and received three arquebus wounds, two in the breast, and one in his left hand, which maimed him for life. He was admitted to the court of his master, and in 1573 was transferred to the office of First Secretary in the household of Don Juan de Foix, successor in command, the Marquis of Santa Cruz, until 1573, when he revisited his native country, and spent some time at Madrid among his friends and relations. Having been ordered by the command of his master to go to the Low Countries, Cervantes embarked with his elder brother Rodrigo, also a soldier, on board the Spanish galleon El sol (the sun). On the 26th Sept. however, the galleon was suddenly surrounded by an Algerine squadron, under the command of Arnaud Soutiel, and after an obstinate defence, boarded and took it, and carried his prize into Algiers. The crew and passengers were sold as slaves. Cervantes, who had fought with desperation on the boarding of the galleon, was reserved by Maim for himself. The relation to be expected of Cervantes and Gay, Cervantes has given us in his novel "El Cafetivo" (the captive), and which have also come down to us from undermined and impartial sources, display so much gallantry and magnanimity on his part, that they cannot be read without calling forth our admiration.

After many bold but unsuccessful attempts to regain his liberty, by which he ran great risk of losing his life, Cervantes was redeemed in 1580 by the Fathers of Mercy, established for that purpose at Algiers, who paid to Hassan Agra, then his master, a considerable sum, and the news of this was raised among his friends and relations. On his return to his native country, Cervantes, being destitute of all resources, again resumed the military profession, and served in three successive expeditions against the Awarens. It was not till his return to Spain, in 1584, that he appeared as an author, having soon after published his "Galateas," a pastoral romance in prose and verse, in imitation of "La Diana" of Montemayor, a species of composition much in fashion at that time. In this romance Cervantes personified himself, as well as the lady of honor, Doña Catalina Palacios de Salazar, whom he married in the same year (1584), under the names of Elecio and Galatea. He next devoted all his attention to the composition of dramas, of which he wrote no less than forty-five, and which were all acted with considerable applause. These are however all lost with the exception of two, "El Tinto de Argel" (Algierine dealing), and "La Numinosa." But notwithstanding his theatrical success, Cervantes must have been in his circumstances very much depressed. At length, the purveyorship having been abolished and his office suppressed in 1596, Cervantes earned a scanty livelihood by becoming agent to various municipalities, corporations, and wealthy individuals; but for traces of his pen exercised during this interval, and with the exception of two burlesque sonnets (estrombotes), one of which was intended to ridicule the situation, Cervantes' arrival of the Duke of Medina at Cadiz, after this town had been plundered and abandoned by the Earl of Essex, we hear of no other production of his genius. It is probable however that during his stay at Seville he wrote some, if not all, of his "Novelas Exemplares," which have been generally published. From 1600, when he left Seville, to 1602, when we hear of him at Valadolid, there is a gap in the history of this great man, which all the diligence of his biographers has hitherto failed in filling up, it not being known where he resided or what he did. It is quite possible that he spent his time supplying the deficiency by supposing him to have been engaged as tithe-collector in La Mancha, and they add, that whilst fulfilling the duties of his office he was put in prison by the alcalde of Argamasilla, a small town in that part of La Mancha, where he was, in the latter part of his life, confined, and where he acquired the character of the "Don Quixote" in confinement. The accuracy with which the country of La Mancha and the manners and customs of its inhabitants are described in that work, is certainly in favour of the conjecture that he resided some time there, but Navarrero ("Viaje de Cervantes," p. 93) has shown that the report of his imprisonment rests on no other foundation than vague tradition. However this may be, Cervantes was an early 1602. Three years after he published the first part of his "Don Quixote," he left Seville for Madrid, where he was received with public honor. Lope de Zuniga y Solomana, seventh duke of Béjar, Though the work excited no great attention at first, it suddenly came into vogue, and was eagerly read by all classes of society. No less than four editions of it were printed as early as 1605. Cervantes passed the rest of his days under the care of the court of Madrid. In 1616 he was accordingly engaged by the duke of Lurana, the master of Philip III, to write an account of the festivities, balls, fights, religious ceremonies, and so forth, with which Lord Howard, ambassador of James I, was received at Valladolid, and afterwards at Madrid. Cervantes followed it, and he continued to inhabit that city to the end of his life. In 1608 he brought out a current edition of the first part of "Don Quixote," and in 1613 his "Novelas Exemplares" (Exemplary Tales), twelve in number, by which he endeavored to account for his literary labors. In 1614 he published his "Viaje al Parnaso" (Journey to Parnassus), a work which cannot properly be ranked in any particular class of literature, but which, next to "Don Quixote," is the most exquisite production of the immortal author. This work however being intended as a satire upon the best poets of his time, some took offence at it, and became Cervantes' bitterest enemies. One, among others, published, under the assumed name of Alonso Fernandez de Avelar, a work called "Galateas," a pastoral romance which was strongly censured by the court of Madrid with particular abuse (Tarragona, 1614). This probably hastened the publication of the second part, which was sent to press early in 1615, with a dedication to his patron the Conde de Lerma. His other works are a collection of comedies and 'entremeses' (interludes) written in its sprit and introduced by Lope de Vega, but which were never acted (Mad., 1615, 4to.); and a novel entitled "Pereales y Signe-munda," composed in a style very different from that of his other works, and certainly the least successful of all his productions. (Mad. and Bar., 1617.)

Cervantes died at Madrid on the same day as his great contemporary Shakespeare, on the 23rd of April, 1616, being then in his sixty-ninth year. He was buried without the Church of San Pablo in the Capilla de San Lazaro in the Calle del Humilladero, where his daughter Doña Isabella had four years before taken the veil. But the monks having removed to another convent in the Calle de Cantareres, the old one was pulled down, and the remains of Cervantes were for some time in the Calle del Humilladero, but some monuments have been erected in Madrid to the memory of the great man: one, in the Plaza de las Cortes, consisting of a beautiful bronze statue upon a square pedestal of granite, on the sides of which are bas-reliefs representing subjects taken from "Don Quixote," the other being an alabaster marble over the door of the house in the Calle de Francia, where he lived and died.

His works have been too often analysed to render it necessary here to indulge in upon their merits. His first publication, "Galateas," is beautifully written, and pleasing in its details, but not original; as a work, it is not in the same mould as other pastoral written before he
time. Cervantes had imagination and invention; he always wrote with purity, frequently with elegance; but he was not a poet: his mind was too comprehensive, his concentration and perfect ear for harmony which form poetry. His plays therefore are, generally speaking, bad. But his masterwork, "Don Quixote," is perfect in all its parts. The conception and execution are admirably simple, and one page a highly philosophic mind, the noblest sentiments expressed with inimitable simplicity, and a perfect knowledge of the human heart. Godwin said, "At twenty, I thought "Don Quixote" laughable; at forty, I thought it clever. Now, now, I think it most admirable, and own that the world whole world." Of his "Novelas," or "Tales," it may be said that they are not only interesting and amusing, but perfectly moral. The "Voyage to Parnassus" is in many respects a piece of art, and the weapon of satire is handled dexterously, yet without vulgarity.

The Life of Cervantes has been written at great length by some of the most eminent Spanish authors: Father Sarcento, Maynas, Los Rios, Fernandez, and Navarrete. The last has prepared no little for light, in giving the most minute incidents of the life of Cervantes, and has produced a work which, accompanied as it is by many original documents, leaves nothing to desire. The editions of "Don Quixote," published in and out of Spain since the death of the author, have been numerous as to render it impossible to give anything like a correct list of them. We shall therefore mention only a few of the best:--Madrid, 1780, 4 vols, 4to., with engravings on copper; London, 1781, by Bowle, 6 vols, 4to.; Madrid, 1797, by Pellicer, 5 vols, 4to. Royal Academy of History, 5 vols, 8vo.; a new edition with a full commentary and critical notes by the late Don Diego Clemencen, is now in course of publication. As to translations, it is well known that within a few years after the publication of "Don Quixote," it was translated into almost every European language, and that no nation on the Continent has so fully appreciated its standard merits as our own, since we possess no less than eight different English versions besides several other works made after Cervantes. Thomas Skelton, who translated it, London, 1620, 2 vols, 4to. Edmund Gayton, next published his "Pleasant Notes upon Don Quixote," London, 1654, fol. J. Philips was the next who translated it, London, 1687, fol. Motteux (Peter), a Frenchman, has published also a version, London, 1712, 4 vols, 12mo. Osell (John), London, 1725, 4 vols, 12mo. Thomas D'Urfe, London, 1729, 2 vols, 8vo. Jarvis (Charles), London, 1742, 2 vols, 4to. Smollett, London, 1725, 2 vols, 4to. Wilmot, London, 1732, 2 vols, 8vo. By far the best translation of "Quixote" is that of the late Thomas Jefferson, who has left it in a state of the Semitic languages. The first letter in Cervantes, por Navarrete, Madrid, 1819: Pellicer y Saforada, Vida de Miguel de Cervantes, Madrid, 1843.

SABA, a small island in the West Indies, belonging to the Dutch, is situated in 17° 40' N. lat. and 63° 20' W. long. The coast rises in perpendicular masses to a considerable elevation, and at a distance the island appears like a steep round rock. The shore is too steep to allow of landing, except on the southern side, where an artificial path has been made, which however is intricate, and admits only one person at a time. By this path a small place is reached which is built in a secluded valley. The circumference of the island does not exceed nine miles, and its area is about ten square miles. The small portion of it which is cultivable is appropriated to the growth of cotton, which the inhabitants work into stockings, for sale as well as for their own use. The common vegetables of the West Indies come to perfection. The population does not exceed 500. 1900.

SABA. [Saba.]

SABADILLA. [Cevadilla; Veratum.]

SABA (Saba), a people of Arabia Felix, on the border of the Red Sea, in the northern part of the modern Yemen. They are described by Diodorus and Strabo as the most numerous, and, together with the Gerraebi, as the richest people in Arabia. Their country produced frankincense, myrrh, cinnamon, and balsam in abundance, but was also infested by deadly serpents. The inhabitants were esteemed as living an idle life, on account of the abundance of the produce of the country, but at the same time said to have carried on an extensive commerce with Syria and Mesopotamia, both with the productions of their own country and also with those of Ethiopia, to which they sailed in boats made of skins. The capital of their country is called Sabae by Diodorus, and Meraba by Strabo, and is said to have been situated on a mountaneous shore, quite distinct from the plain which the king resided, who might do anything that he pleased, except leaving his palace; and if he did, says Diodorus, he was stoned to death by the people, in pursuance of an ancient oracle. (Strab. xvi, p. 778; Diod. Sic., iii, 46, 47; Plin. vii, 52.)

The country of the Sabaei is mentioned in the Old Testament under the name of Sheba (NAB), and is spoken of as a rich in incense, spices, precious stones, and gold (1 Kings, x, 2; Jer., vi, 20; Isa., vi, 6; Ps. lxxi, 13), and as carrying on an extensive commerce with the other nations of Asia (Isa. xxxii, 19; Jer. vii, 5; Ezek. xxvii, 15), and as being well-to-do with cattle and sheep (Ezra, vii, 6; Esth. ii, 5). The queen of Sheba, who visited Solomon (1 Kings, x, 1-13), is supposed to have come from this country, and not from Ethiopia, as Josephus relates (Ant. Jud., viii, 6, sec. 5), who has confounded Sheba with Saba (Sheba), which, as he tells us in another part of his work (ii, 10, sec. 2), was the ancient name of Meroe. The Sabaei who are mentioned by Isaiah (xlv, 14) as men of stature are probably the Ethiopian and not the Arabian people, and answer to Herodotus's description of the long-lived Ethiopians, who were 'the tallest and handsomest of all men' (Herod., iii, 20).

The capital of the Sabaei was called Saba, according to Strabo, from the founder of the city made in its immediate neighbourhod. It is said to have been a reservoir to which the inhabitants of the mountains that surround the city gave water from a spring, so as to receive the water from the mountains. Every family is said to have had a certain portion of this water distributed to them by aqueducts, and the spring was reckoned s holy to the inhabitants, and every one of them had his houses built upon it. But at length, say the Arabic writers, God being highly displeased at their great pride and insolence, and resolving to humble and disperse them, sent a mighty flood, which broke down the mound by night while the inhabitants were asleep, and carried away the whole city with the neighbouring towns and people. This inundation is said to have happened in the third century before the Christian era; but if such were the case, it would appear from the account of Strabo that the Sabaeans had again recovered a large portion of their former prosperity.

(Sabra, c. 34; Sale's Preliminary Discourse to the Koran, sect. 1; Pococke, Specimen Historic Aramum, p. 57; Edrisi, Geographia Nubetiana.)

SABAISM was the name given to a religious system which antiently prevailed to a great extent in Arabia and Mesopotamia. Sabaismus is frequently confounded with the Sabaei, and is sometimes described as the religion of the people; but it is certain that the two words are not written differently in the Semitic languages. The first letter in Sabaism is Tsade (ת), and consequently the word would be written more correctly Tsabism.

The religious books of Tsabism were written in Hebrew, and are referred to by early Arabic writers, but none of them are known in Europe. It appears that the Tsabists believed that the souls of wicked men would be punished for their sins for an indefinite time, and that they would afterwards be allowed to exist in a world of perpetual misery. They were obliged to pray three times a day, at sunrise, noon, and sunset; and to observe three annual fasts, one of thirty days, another of nine, and a third of seven. They offered many sacrifices, but ate no part of them. They abstained from beans, garlic, and some other
pulses and vegetables. They were accustomed to go on pilgrimage to Haran in Mesopotamia. (Prideaux, Connection of the History of the Old and New Testament, vol. i., p. 243, edition of 1681; Sale's Preliminary Discourse to the Koran, sect. i. D'Herbelot, Bibliotheque Orientale, s. v. 'Sabi'; Hyde, Religio Veteran Persarum; compare also an Exкурsus to the third volume of Genesis of fabrics, 'On the Astral Worship of the Chaldeans.')

Sabbath as a religious system no longer exists, but the name survives, although it is incorrectly applied to the Mandaeans, or Christians of St. John, as they have been called. The name of Teshuwan has been given to this sect by the Arabs, as they are accustomed to apply the term of 'Teshuwan' to the different religious systems which are found principally at the mouths of the Euphrates and near Bagdad, but they are not Christians, and the name of 'Christians of St. John' has been given to them in consequence of John being the name of the founder of their sect. From the manner in which John the Baptist is mentioned in the sacred books of the Mandaeans, it appears that they supposed him to have been the founder of their religious system, and that his doctrines were corrupted by Christ. Their sacred books have been translated into Latin, and a part of it is given by Silvestre de Sacy, in the Journal des Savans, Paris, 1819; but they are written in such a mystical style that it is exceedingly difficult to understand their meaning. There are three books—1. 'The Book of Adam, the Father of All,' 2. 'The Book of the Last Days, or the New Baptist,' and 3. 'The Kholaste,' or Ritual. They are written in a peculiar character, which bears great resemblance to the Syriac or Western Arabian; but the language in which they are composed more nearly resembles the creation of the world in six days is followed by these words: 'And on the seventh day God ended his work which he had made; and he rested on the seventh day from all his work which he had made. And God blessed the seventh day, and set it apart; because that in it he had rested from all his work which God created and made. (Gen. ii. 2-3.) These words seem to imply that the seventh day is to be observed by all the rational creatures of God as a day of worship in acknowledgment of their Creator, and as a day of rest for the Creation. When the days of the week during the patriarchal period, though some have supposed that there is a reference to it in the intervals of seven days observed by Noah in sending the raven and the dove out of the ark. (Gen. viii.) It is next met with at the time of the Exodus, under the form of (from יבגש, to cease from labour), where rest from labour is the peculiar character attached to the day. (Exod. xvi.) In the passage referred to, it appears to be spoken of as an institution already known, but this has been disputed. It was still more expressly enjoined upon the Jews at the giving of the law on Mount Sinai, when the reason assigned in Genesis for its institution was repeated. (Exod. xx. 8-11.) The Mosaic laws respecting the Sabbath are contained in the following provisions: besides the rest on Saturday, Exod. xxii. 12; xxx. 16-17; xxxiv. 21; xxxv. 1-3; Levit. xix. 3, 30; xxiii. 2; Numb. xx. 32; 36; xxviii. 9, 10; Deut. v. 12-15. It was a day of divine worship, though as to what that worship consisted God himself does not say. The Sabbath was to be an additional sacrifice besides the daily one, and a holy convocation of the people. This part of the institution was intended, like many others of the Mosaic laws, to keep in the remembrance of the people their allegiance to the God they distinguished from the idolatries among whom they dwelt. (Exod. xxx. 13, 17.) Its other feature was rest from labour, which was to be observed not only by every Israelite, but by resident strangers and beasts of burden. This rest had partly a religious character, but also a political and social, for it was the day which created the heavens and earth in six days, and rested on the seventh. For this reason a wilful violation of the rest of the Sabbath was punished by death, as it was an act of rebellion against God. A second object of this rest was, of course, to afford leisure for the religious services of the day; and a third was the refreshment of man and beast after the labour of the week. (Exod. xxiii. 12.) Moses does not, however, define the meaning of the term 'sabbath,' but it is evident from several passages in the Pentateuch that it was peculiarly all work of a servile character that was forbidden. Thus there is a special commandment given to man on the Sabbath (Exod. xx. 10), compared elsewhere to other prohibitions (Exod. xxxiv. 21), and there were prohibitions against kindling fire (Exod. xxxiv. 4) or preparing food on the Sabbath (Exod. xvi. 5, 22-30); the people were severely reprimanded by Moses for going out of their tents to gather the manna on the Sabbath (Num. xvi. 32-36); and the people were put to death by the express command of God for gathering sticks on the Sabbath. (Num. xvi. 32-36.) This peculiar feature of the Jewish Sabbath was intended constantly to remind the people of their deliverance from their servile condition in the land of Egypt, as Moses states in his rehearsing of the Law, where the reason annexed to the fourth commandment in Exodus is omitted, and its place is supplied by the following words: 'And remember that thou wast a servant in the land of Egypt, and God brought thee out thence through a mighty hand and by a stretched-out arm; therefore the Lord thy God commanded thee to keep the Sabbath-day.' (Deut. v. 15.) All bodily labour which was necessary for the service of God formed an exception to this commandment, as is seen from the following words of Isaiah (chap. viii. 13): 'If thou refrain from thy foot from the Sabbath, from doing thy pleasure on my holy day; and call the Sabbath a delight, and holy of the Lord honourable; and shalt honor him (or it), not doing thine own way, nor finding thine own pleasure, nor speaking thine own words, then shall follow a promise. The Sabbath was reckoned, like the Jewish day in general, from sunset to sunset. The Sabbath of later times added many superstitious and supererogatoryobservances to the Mosaic law of the Sabbath, such as the prohibition of travelling further on that day than twelve miles, or, as it afterwards settled, two thousand cubits, that is, about one mile. For further information on this point the reader is referred to Lightfoot (Works, ed. Pitman, Index, art. 'Sabbath').

The word Sabbath was also used by the Jews as a general name for their religious festivals, and also as equivalent to the 'Lord's Day' (Acts. xx. 13; Deut. xxx. 9; Matt. xxvii. 8; Luke. xxiii. 12.)

The first teachers of Christianity abolished the Sabbath, but introduced a similar institution in its place, the observance, namely, of the first day of the week as a day of rest and of religious worship, in commemoration of God's resting on the seventh day, and also more especially of the resurrection of Christ. Hence it was called 'the Lord's day' (η Κυριακή ημέρα), just as the ordinance by which Christ's death was commemorated was called 'the Lord's Supper.' The evidence on this point is insufficient evidence in the New Testament for such an institution, that the change of the day from the seventh to the first day of the week is an insuperable difficulty, that the Sabbath was a purely Jewish institution, but before that it is not binding upon Christians. The chief difficulties in this discussion appear to have arisen from a mistaken view of the question, as if it were, not whether the Christian church possesses any Sabbatian institution, but whether the Sabbath was not kept in certainases, such as the Gallican and the Benedictine, which is not continuously and regularly observed upon the attention. As a day of rest, if needed at all (and it is generally granted that such is necessary), it is needed by
every one who wears the human body. Its appointment is
costly with the creation of man, and long before the giving of
the Jewish law. These facts seem to prove that it was
intended to be perpetual, which appears also to be indicated
by those words of Christ (Mark, ii. 27), 'The Sabbath was
made for man,' that is, not for the Jews merely, but for the
long.] 297

But if so, can the time or character of its observance be
changed? To determine this question, it must be remem-
bered that the Sabbath is not a moral, but a positive insti-
tution. It was instituted for a religious purpose, obligation
for man to worship his Creator, and though it be
cessential to the maintenance of such worship that it be
observed at fixed intervals of time, yet there is nothing, as
far as we can tell, in the nature of things to determine what
the period shall be. The appointment was of a second
eventh day for this purpose can therefore rest upon nothing
but the express command of God; and this also seems to be
declared in the text just quoted, 'the Sabbath was made
for man, and not for the Sabbath.' It is therefore,
like all positive institutions, susceptible of any change which
the altered circumstances of those for whose benefit it was
intended may make desirable, provided that such change
be made by competent authority. Now the rest of the
Sabbath is equal to the seventh day of the week it falls.
Its religious purpose, as commemorative of God's
creating the world in six days and resting on the
seventh, appears to be sufficient answered by its observance
every seventh day. But, as a religious institution, it was
introduced for a religious purpose, and was observed in
reverence of the peculiar character of the religion of
those who were to observe it, and hence it is susceptible of
any change which may make it better adapted to express
that character. Thus under the patriarchal dispensation it
was a festival day, purely for religious purposes, as opposed
to idolatry; and therefore it was observed on the
doay on which God rested after finishing the creation :
to the Jews, God was known further as their deliverer from
the land of Egypt, by which act they were constituted a
separate nation, and observed a separate Sabbath, as
observed, but with the additional character of strict abstinence
from all servile labour. The great fact of Christianity is
the resurrection of Christ, which was effected by the power of
the same God who created the world; this occurrence took
place on the first day of the week; and to keep it in
reminiscence we observe that day as our stated time of
religious worship; or, as Bishop Horsey states the matter,
'By keeping a Sabbath, we acknowledge a God, and declare
that God is the Holy One, the Holy One of the calyx; 
which fact, when set forth, is an act of protest against idolatry,
and acknowledge that God who in the beginning made the heavens and the earth: and
by keeping our Sabbath on the first day of the week, we pro-
test against Judaism, and acknowledge that God who,
having made the world, sent his only begotten Son to redeem
mankind.'

If this argument be considered sufficient to prove that the change
from the seventh to the first day of the week is in
association with the genius of the Christian religion, it still remains to be shown
whether, as a matter of fact, the change was made upon
the authority of Christ and the Apostles. There is no direct
command in the New Testament thus to set apart the first
day of the week. But, on one occasion, Christ
in arguing with the Jews upon the mode of observing the
Sabbath, solemnly claimed for himself the prerogative of
being Lord of the Sabbath-day (Matt. xii, 8; Mark,
ii. 28; Luke, vi. 5, xxii. 5; John, v. 9), which seems to
imply that the Lord of the Sabbath-day must form part of his religion. He seems, in fact, to announce
the fundamental principle of his Sabbath in the words,
'I will have mercy rather than sacrifice.' (Matt. xii. 7.)
But the actual celebration of the day was
merely to the event occurred which it was designed to com-
memorate, namely, the resurrection of Christ. Now

after that event we find the disciples met together for reli-
gious worship on the first day of the week, and again on
the following Sunday at Bithynia (Acts, xx. 7). In the
week (John, xx. 19, 24; Acts, i. 20). In Acts (xx. 7)
time assembling of the disciples, on the first day of the
week, to break bread (that is, to celebrate the Lord's
Supper, one of the most important parts of the Christian
worship), is spoken of as if it were customary, and on
the occasion referred to, Paul preached to them.

In the First Epistle to the Corinthians (xi. 20), Paul
commands the contributions for needy Christians to be held on
the first day of the week. John expressly mentions
the Lord's day as a time spent by himself in religious exercises
(Rev., i. 10). These allusions are perhaps scanty, but they
are as much as we could expect, if the first Christians
consulted the observance of the day with the idea that the
inference generally drawn from them is borne out by the
voice of Christian antiquity. Pliny, in his celebrated letter
to Trajan respecting the Christians (A.D. 107), says that
they were not wont to meet on a cer-
tain day before daybreak for religious exercises (ibid.,
vol. i., p. 217, 218). Some of the early Christians, especially con-
verts from Judaism, observed the Sabbath as well as the
Lord's day, but this practice was not countenanced by the
Apostles nor by the earliest Christian writers. (Cohors,
ii. 18; Lardner, ibid.) In examining the Fathers on this
subject, it is necessary to remember that the Christian festival
is always called by them the Lord's day, and not the
Sabbath; where the latter word is used, it refers to the Jewish
sabbath, on which we observe it.

The Sabbath is used in the New Testament as a type of the
eternal rest of heaven: 'there remaineth a rest (or Sabbath-
keeping, σαββαταποστημια) to the people of God.' (Heb., iv.
9.) Some understand this passage of the Christian Sabbath.

Psalm 132. Verse 8. For this book's Works, see the Index; Horsley's Sermons, 21, 23; Wardlaw On the Sabbath; Winer's Biblical Lexicon; Ruthworth, art. 'Sabath.'

SABBATIA, a genus of North American plants, be-

coming to the natural order Gentianaceae. They are
known by a 5-12-parted calyx, rotate 5-12-parted corolla,
noting on its capsule, revolute anthers, stigma with
two straight arms, becoming at length spirally twisted, and
a one-celled capsule, with the valves turned a little inwards.
There are several species, the whole genus being charac-
terised by the possession of a pure bitter principle, and
on this account they are extensively used in North Ame-
rica, in intermittent and remittent fevers, and as tonics.
The species most commonly used is the S. angustifolius,
it attains a height of one or two feet, and is known by its
erect, squar, winged stem; opposite, heart-shaped, 5-nerved,
smooth, acute leaves; terminal flowers; angular, tubular,
5-parted calyx; 3-parted corolla, with segments twice as long
described, and usually of a greenish capsule. It grows in damp wet soils, in the United States, and is common in moist meadows among high grasses.

SABBATINI, FRANCISCO, a Spanish architect,
was born at Palermo, in 1722. Having completed his studies in
architecture and mathematics, he made his choice of architecture as a profession, and visited Rome for
the purpose of perfecting himself in it. On leaving Rome
for Naples, he was employed as the second overseer of the
works at the palace of Caserta, under his father-in-law,
Luigi Vanvitelli, the architect of that immense edifice.
While thus employed, the king bestowed upon him a
commission of lieutenant in the artillery, and charged him
with the erection of the cavalry barracks near the Ponte
Maddalena, and the arsenal at Aranjuez. When, on the
death of his brother Ferdinand, the king succeeded to
the throne of Spain as Charles III., in 1778, Sabatini settled
at Madrid, where, besides being extensively employed in
his profession, he rose to considerable military rank, being
made a lieutenant-general in 1790, and in 1799 a full
engineer in 1792, and had various appointments and dis-
tinctions conferred upon him. He made some additions and
alterations at the royal palace of Madrid, and also at
No. 1258.

P. C.

C. Q.
skill and judgment in his profession, and of an unusually
correct taste.

SADELLA. [Tusculum.] -
SAELL, [Tusculum.]

SAELLIAN, an heretical Christian sect, which arose
about the middle of the third century. They were the fol-
lowers of Sabellius, an African bishop or presbyter, who
resided in the Pentapolis of Cyrene. They held that
the Father, the Son, and the Holy Spirit are but
one person in three names, namely, the
Father; that Christ was a mere man, but that he resided
in him a certain energy proceeding from God, or a portion
of the divine nature; and they likewise deemed the Holy
Spirit merely a divine energy, or an emanation proceeding
from God. They illustrated their doctrines by comparing
God to the sun, the Word to its illuminating power, and
the Holy Ghost to its warming energy. They were success-
fully opposed by Dionysius of Alexandria, but continued for
a long time to be an important sect. (Lardner's Credibility
of History of Heretics; Neander's Kirchengeschichte; Mo-
sham's Ecclesiastical History.)

SA'BIA, a genus of plants named by Mr. Colebrooke from
the Indian name, saip, of one of the species. It is usually
referred to the natural family Tincutaceae, but it is now at-
tested as an anomalous genus to the group Anacardiaceae
which is separated from them. The genus was found origi-
nally in the Silhet Mountains, whence it extends to Nepal and the
more northern part of the Himalayas, where it is found at consid-
erable altitudes. It consists apparently of having
a calyx small, five-lobed; petals five, lanceolate; filaments
five, shorter than the petals inserted at the base; anthers
round; ovary superior, round; style short; stigma simple;
drug, red, purplish, and of a dark blue colour. The species
forms a large genus, and is usually classed among shrubs
or climbers. It is naturalized in Europe. (Neurath:
alternate leaves suited to the shrubbery of this country.

SABINE. [LOUISIANA; MEXICAN STATES].

SABINES, SABINI, SABINA, SABINUM. [Hist; Ro-
man Law.]

SABINIANUS, a Roman citizen who was elected bishop of Rome
after the death of Gregory I., or the Great, a.d. 604. He
had been employed on a mission to the court of Phocas, the
surer of the Eastern empire. He is said to have shown
himself unanimously and fond of building, and to have thereby incurred
the popular hatred. If such was the case, he was
very different from his predecessor, who was very generous
towards the poor. Sabinius died in about eighteen months
after his election, a.d. 605, and was succeeded, after a va-
cant period of a year, by the young Liberius, also a Roman
of whom was acknowledged by the imperial court of
Constantine as primate of the whole church.

SABINUS MASSURIUS. [Roman Law.]

SABINA, AULIA, a Roman citizen, who was a consular
praetor, and a friend of Ovid. He followed the poet
in such spots of poetry of which Ovid had left specimens in
his 'Heroides.' All we know of him is that he died at
an early age, and that he wrote a series of Epistles (Heroides),
supposed to be addressed by heroines to heroines, and to be
the answers to those epistles which Ovid had addressed to
the heroes in the name of the heroines. The Heroines of
Sabinus, according to Ovid (Amor. i. 15, 27, &c.),
were—
Ulysses to Penelope, Hippolytus to Philetra, Menes to
Eleus, Demophon to Phyllis, Jason to Hymetis, and
Phaon to Sappho. (Comp. Ovid., Ex Post., iv. 16.)

There are extant only three Heroines, Ulysses to Penelope,
Demophon to Phyllis, and Paris to Ceneus, which are
generally ascribed to Sabinus. It has been doubted, by G. Voss,
whether the poems really belong to
Sabinus; but J. Ch. Jahn (De Pudl. Ovid. Nasom. et A.
Sabina Epistulis Distatis, pars. i. Lips., 1826) and all
modern editors of Ovid have maintained that they belong
to Sabinus. They are however of very great inferiority to
the poems of Ovid; the style is deficient in animation, and
the poet's imagination seems to have been very limited.

The works of Ovid are generally pruned at the end
of the works of Ovid, and also in the separate editions of the
Heroides. See Ovid, Poems, (Soane.)

The poems which are extant are a valuable introduction
on the poems of Ovid and Sabinus.

SABLE. [Earl.] -

SABLES D'OLONNE. [Vendes.]

SACHUT (Sagueute, Fr.), the name formerly given in
England to the Trombones, which see.

SACHUCHAROMETER, an instrument used principally
in the operations of brewing and making sugar. It serves
in the operations of brewing and making sugar. It serves
to indicate the density of the liquid extracted from malt, or
the degrees to which the juice expressed from the sug-
eric pulp is concentrated. A system is employed for undergoing the process
of crystallization; and an instrument of the like kind, called
a lactometer, is employed to exhibit the density of milk.
Both of them are formed on the same principle as the hy-
drometer. They are measured in degrees of the specific
gravity of various liquids and mixtures, and are employed
for determining the purity of liquors, the degree of refine-
ment of oils, the density of the less dense of two waters,
and the volume and weight of the whole are
such, that when the instrument is immersed in water it
sinks till the top of the stem but little above the surface.
The line at which the surface of the water cuts the stem is
called the zero of the scale; and the graduations on the
right in a vessel containing the saltness matter, the
number of the division at the surface expresses the density
of the liquid by the number of pounds of avoirdupois which
will occupy the stem in the vessel. The balance is
employed in order to show the weight of an equal volume of the liquid.
The lowest graduation on the first face of the stem is
numbered 20; and if the density of the liquid be such that the
instrument floats with that division at the surface, so
that the stem of the instrument will sink till it touches
the stem will sink till a point near the top at the
surface, and a division at that place is numbered 20
on the second face. The graduations on this second face
serve to indicate all densities from forty pounds to sixty pounds per barrel.

The instrument made by M. Drage is supplied
with divinity of 50, 120, 200, &c., and are of iron, which are numbered from 50 to 120, to represent degrees of
a Fahrenheit's thermomcter; this is placed upon a scale
of wood, which is graduated so as to show the specific
gravity of the liquid, that of water being 1000, the quan-
tity of the liquid will be expressed by the graduation
taken up with the work in making, and the number per cent. of gallons of proof spirit which might be made from
the work. Having found the temperature of the water by
a thermometer, and its density by the number on the scale of
the floating-sachrometer at the surface of the liquid, that
degree of temperature on the ivory scale is put in co-
cidence with the density of degree on the box-wood scale,
and then, opposite to any other degree of temperature on the
very scale will be found, by inspection on the other scale,
the specific gravity, &c., corresponding to that temperature.

A more simple instrument of the kind is sometimes
made of glass.

For the general purpose of determining the specific gravity of any substance, the principle of the lactometer and
sachrometer, the best instrument is one which consists of a glass
cylinder about seven inches long and three-quarters of an
inch in diameter. It has at its lower extremity a stopper
carrying a small cup in the form of an inverted cone, and its upper end is drawn out into a long neck or tube, which is terminated at the upper extremity by a
small cup. About the middle of the stem a mark is made,
and, in order that the instrument may be enabled to float,
it will be filled with a liquid which has a density equal to
the specific gravity of the liquid, and it will be a ball of glass containing mercury, is placed in the lower
cup.

To find the specific gravity of the liquid, let W be the
weight of the instrument, including the containing weight in the lower cup, and let W be the weight when
water is put in the upper
upper cup. A rule is to

"Sink the liquid in the bottom cup, take the mark on the

mouth of the stem of the instrument as a mark"
comes to the level of the surface: also let \( w \) be the weight which will cause the instrument to sink in distilled water till the same mark comes to the surface. Then, since the volumes of the immersed part of the instrument are the same, and the weights of the instrument, including the ball, is the lower, and the additional weights in the upper cup, are two to part of the other character, \( W + w \) and \( W + w' \) are to one another in the same ratio as the specific gravities of water and of the liquid. Therefore \( W + w \)

\[
\frac{W + w}{W + w'} \]

expresses the specific gravity of the liquid, that of water being unity. Though the determination of the specific gravities of some of the use of a saccarimeter, as it may be sometimes convenient to employ the instrument for this purpose, it will not be improper to state here the means by which the determination may be made; the weight of the solid being supposed to be less than \( w \).

Place the instrument in distilled water, the ball of mercury being in the lower cup, and put the solid in the upper cup, with as much additional weight (\( p \)) as will sink the whole to the mark above-mentioned on the stem; then \( p - w \) is the weight of the solid. Next, place the solid in the lower cup, and, because it will lose weight by being immersed in the water, let \( p' \) be the additional weight which must be placed in the upper cup, in order to sink the instrument down to the mark; then \( p' - w \) (the weight lost by immersion) is the weight of a volume of water equal to that of the solid. Consequently \( \frac{w}{p'} \) expresses the specific gravity of the solid, that of water being unity.

**SACCHARUM**, the name of a genus of plants of the natural family of Gramineae, and also of that of the well known product Sugar. The derivation of the name from saccharos, a spiclet, is not well understood by the Indian authors. The name (σακχάρος, σακχάρον, and σακχάρον) occurs in Greek authors, though it has been supposed, apparently on insufficient grounds, that the saccarum of the ancients was not our sugar, but some other unknown substance, which by others has been supposed to be Sauvatore. This opinion, promulgated by Salmisius, it would be unnecessary to reply to, if it had not been adopted by the illustrious Humboldt, as well as by Spengel, in his 'Commentaries on the Climate of China,' to which the Indian name probably refers. The sugar seems to have originated from the generic term kusb having been applied by the Arabs to the bamboo-reed, as well as to the stem of the sugar-plant, which is distinguished as Kusb at Shukur. Sugar and tabasseer are both Indian productions, and are cultivated by the natives of the Indian coast. The only point therefore to ascertain is the period when they became known to other nations. The Arab authors on medicine and Materia Medica, though much neglected, afford considerable advantages in such inquiries. We know that the products of the British colonies into that country actually made the translations from Greece into Arabic; and we have lately had the most satisfactory evidence that Hindoos physicians were, at the same time, present at the court of Harun-al-Raschid. We may therefore place some confidence in the names and synonyms employed by Arab authors. The term Saccarum is mentioned in early Sanscrit works on medicine, and was therefore introduced by the Arabs into their own. The name in Saccarum is Twak-kishra, which is, no doubt, the word for sugar, and is borne even in the name of a caste of sugar-cane cutters. The word jaggery must be derived, as sugar-cane from shukurt 

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and' All these are too similar to the Greek word (σακχάρος) to fit for any other origin, and there is nothing very remarkable in sugar being known in the Greek, as well as in the Indian, name. Other instances may be adduced of sugar being called honey, especially at earlier periods, when the Indian name of sugar was not known. Nearchus, as quoted by Strabo (iv. p. 894. Col.-Ch.), calls it honey of canes: it is mentioned by Theophrastus as sugar from reeds or canes; while Herodotus (iv. 193) states that the Lygantes, or Gyanites, besides having honey prepared by bees, had a fluid from the same, which was confined to be sugar which was supposed to have been sugar in some of its forms. Dr. Harris inquires whether the term shukur, so frequently employed in Scripture, translated 'sweet drink, and always coupled with wine, be not sugar? The production of the refinement of sugar, and the custom of using it as a sweetening agent, antient date, as Beckman observes, and as may be seen in the case of indigo. The sugar-cane was introduced by the Saracens into the South of Europe, but the people were not ascertained. Gibbon says they introduced it into Sicily soon after they got possession of the island. About the year 1420 sugar was much cultivated by the Portuguese in Madeira. In 1503 we read of sugar being imported from the Canaries, and in 1566 sugar-canes were carried thence to Hispaniola in the West Indies. But, besides the Indian cane, another, and a much more prolific kind, that of Othebite, was introduced into the West Indies about 1794, and about the same time, or in 1796, the China sugar-cane was introduced into India. The object of these particular introductions was therefore to have had independent means, that is, distinct plants from which they could extract sugar; and, as history shows, they did so at very early periods. [Stoga,]

the genus Saccharum contains numerous species of plants which are usually easily distinguished by their highly ornamental nature, by the light and feathery or rather silk-like inflorescence. The species are widely distributed through the tropical parts of the world. The genus is distinguished from the former by its serrate and serruliferous leaves, the other stalked, articulated at the base, two-flowered, the lower flower not with one palea, the upper perianth with two paleas. Glumes two, membranous. Palea transparent, awl-like; those of the perianth of flowers light brown, unequal. Spikes three, Ovary succulent; styles two long; stigmas feathered with simple dentated hairs. Scales two, distinct, obscurely two or three-lobed at the point. Caryopsis smooth.

**Saccharum**, the best known species, or that yielding sugar in India, is cultivated in all parts of that country, and several varieties are known. It was introduced into the South of Europe and the Canaries, and thence into the West Indies. Another species, introduced from China, was cultivated by S. eerbes, and is also cultivated throughout India, and is still so to some extent, as the canes are large, rich in juice, and hard enough to resist the attacks of the white ants. Within the last few years, the Othebite sugar-cane has been introduced from the West Indies, and rapidly takes the place of the indigenous species. It is no doubt the same species that was many years since introduced into the West Indies. It is probably the 'Cane de Haile' of Tussac, or Saccharum violaceum. Some of the species of Saccharum, owing to the size of their cuticle, are so durable, that they are employed in India for thatching, such as S. canaliculatum and S. cylindricum. This is the case with S. spontaneum, which also makes good mats. The natives of Bengal make their pens of the bow stems of S. semicarnosum and of S. fuscum. The latter, as well as the culms of S. porcereum, are also used for screens and light fences, and other economical purposes.

**SACCHETTI, FRANCO.** This eminent contemporary of Boeacceo, who was distinguished, like him, though in less degree, as an Italian poet, was one of the school of the Ghibellines, followers of the Emperor, and versiers of a prose style in the language. The precise date of his birth is not known, but Bottari has fixed it about 1333, for which he alleges various proofs derived both from Franco's own writings and other circumstances. His father was a citizen of Lucca, and his mother of that city. He is most considerable in Florence. He appears to have received an education of a superior kind, and to have been well versed not only in polite literature, but in severer studies; for he is seen by Poggio, in one or two of his works, where he identifies the principles of the classical science of astrology, and inveighs against that false and mistaken deviation which substitutes superstitious observances for genuine piety. Literary studies however were to him rather relaxations from more serious duties, as the chief occupation; for he was actually engaged in public life, and
at various times, filled many important offices which were conferred on him by his fellow-citizens. From what he says in one of his canzoneti, it appears that in the earlier part of his life he visited 'Savonia, for he describes the rude unpollished habits and manners of the people; and his residences of see Florence again. It is probably therefore that he was engaged there in commercial affairs, in which he attained the custom for Florentine and other Italian merchants to establish themselves in foreign countries. In 1385 he filled the post of one of the magistrates of the town of Pisa, and two years afterwards was chosen, against the inclination, as ambassador from the republic to Genoa, but he escaped that honour by happening at the same time to be elected podestà, or chief magistrate, of those cities: he held the office, first at San Miniato, and, in 1396, at Faenza, which latter he accepted merely because its emoluments were of consequence to him in his then straitened circumstances.

The cause of his death is as much matter of uncertainty as that of his birth. Crescenzi bemi makes him live till after 1410, while Bottari conjectures that he must have died shortly after the beginning of the century. He was thrice married: first, in 1334, to Felicita, daughter of Nicolò Scacci, who was greatly beloved by him and bore him eight children; secondly, in 1387, and lastly in 1396, when, supposing him to have been born in 1335, he was in his sixty-first year, which is one of the reasons brought forward by his biographer for assuming that he could not have lived much longer than that. It is certain now that this poor little incident in itself is one of the most inexcusable circumstances. By his first wife he had several children, of whom only Filippo and Niccolo survived him. The latter, who was gonnaloniere at Florence in 1415, was to be preferred to Faenza, a matter which must have caused serious literary contention among his contemporaries, which circumstance has led some writers to confound the grand-father and grandson, or rather to attribute the works of both to the same individual, whom they describe as an enemy of the oratorian, and author of the three novelle.

Although his sonnets, canzoneti, capolitii, and other metrical compositions obtained for him great reputation as a poet among his contemporaries and his countrymen, it is chiefly by his 'Novelle' that the elder Scacci is now known as a writer. He is singularly circumstated that all the 'Novelle' of the 'Novelle' that had previously been quoted as authorities for the language in the dictionary 'Della Cruci,' and spoken of by critics as next, both in style and merit, to those of Boccaccio, they existed only in manuscript copies until 1514, when they first issued from the press, edited by Bottari. The collection originally consisted of three hundred tales, but of that number only two hundred and fifty-five remain. They do not show much invention, nor indeed do they correspond to their title, being in part narratives, but mere anecdotes, whose matter is frequently very trivial, owing to which their interest now consists almost entirely in their relating to historical personages, and in their throwing light upon many customs and other obscure matters. Some of them have been appropriated and adapted by modern writers; Bürger, for instance, has taken Scacci's fourth novella, and transformed it into his popular comic ballad entitled the 'Emperor and Abbot,' without mentioning the source of it.

Scacci mentions a comic poem entitled 'La Battaglia delle Vecche colle Fanciulle,' existing in manuscript in the Gaddi Library, as attributed to Scacci, merely observing that he had never been able to procure a sight of it. This poem is said to have been written in two cantos, and consisted of only one hundred and thirty stanzas in rimas ottave, printed at first for the time at Bologna in 1819, and dedicated to Lord Byron; and has since been reprinted in the 'Scelta di Poesie Giovani,' published by Bettoni at Milan, 1833. As this work, supposed to have been written about 1324, and it may be allowed to entitle Scacci to the honour of being considered the father of Italian heroic-comic poetry.

SACCHETTI, GIAMBATTISTA, was born at Turin, where he studied architecture under Juvara, who, in his last illness, recommended him as his successor for carrying into execution the designs for the new palace at Madrid. He was accordingly summoned to that capital by Philip V. in 1736. The original design by Juvara was upon a most extraordinary scale, the plan forming altogether a square of 1700 feet to the side; but as the king insisted upon the new edifice being erected on the precise site of the former one (destroyed by fire in 1734), notwithstanding all remonstrances and advice to the contrary, both on the part of the architect and of many other individuals, Juvara's design was laid aside altogether, and his successor had to prepare an entirely new plan, in which the plan was greatly detailed, being reduced to a square of 470 feet. Even thus abridged, the present edifice (begun in April, 1737) is a vast pile, and one of unusual loftiness; for, owing to the great declivity of the ground, the height in some parts is about 150 feet, and in others reaching 250 feet, so that the magnificence of the buildings is certain to be imposing and crowded. This important work occupied Sacchetti so much as to leave him little leisure for anything else of importance, except completing the façade of the palace of St. Ildefonso as designed by Juvara. He was also director of the public school of architecture at Madrid; and of the Academy of St. Ferdinand being established, 1752, he was complimented with the honorary title of director in it, being excused, on account of his other avocations, from attending to its duties. Ill health at length compelled him to resign the professorship, and he died at Madrid on the 17th of February, 1782, previously to his death, which did not happen till December 3, 1764.

SACCHI, ANDREA, one of the greatest masters of the Roman school of painting, was the natural son of a certain Lucio, a notary, and was born in the vicinity of Rome, 1599. He acquired the rudiments of his art from his father, who, perceiving the ability of his son, placed him at an early age in the studio of Albano, with whom he so much delighted that the latter took him into his family and made him the most promising of all Albano's scholars, and in a short time surpassed his master also, whom, while still his pupil, he excelled in every respect.

Sacchi enjoyed a local reputation while very young, and upon the death of his master, Cardinal Santi VIII, in 1623, through his interest with the Barberini family, he was appointed to execute one of the great altar-pieces of St. Peter's; and he painted a large picture for the altar of Gregory the Great, representing the performance of a miracle by that saint. The picture has since been placed in the church of N. S. della Croce; a work of great dignity and execution. He also executed for Cardinal Bertini, the nephew of Urban VIII, Santi, for the church of the Great Master in Rome. He painted many other works for the same cardinal, who was a grand lover of art.

His next great work was St. Romualdo relating his vision to five monks of his order, which is considered Sacchi's masterpiece, and, notwithstanding its remarkable simplicity of composition and colour, has been generally pronounced to be one of the four finest works in Rome. The scene is in the valley of Camaldoli in the Appennines, and the saint is represented seated at the foot of a great tree: the monks are standing in simple and attentive attitudes around him; all the figures are similarly attired in white, but the shadow of the Umpire, the curtained robing, and the pall surround, the Death of St. Ann (also engraved by Frey); the murder of Saint Antony; Saint Joseph; Saint Andrew; and eight pictures from the life of John the Baptist, for the church of San Giovanni in Laterano; and others of less importance.

Considering the great powers of Sacchi and the age to which he lived, he produced remarkably few pictures. It was a maxim with him that the merit of a painter consisted not in executing much of moderate merit, but in a few pictures of real excellence; he was so detested by his dilatory habits. He spent much of his time in contemplating the great works of his favourite masters, and of the pictures in Rome those which he most admired were the Transfiguration by Raphael, the Communion of St. Jerome by Dominichino, and St. Peter healing the Cripple by Cigoli (since destroyed). When reproached for his inactivity, he used to reply that Raphael and Annibale Carracci
had disheartened him and filled him with despair. His admiration of Raphael amounted to absolute veneration; his contemporary Passeri relates that occasionally when some one of his scholars had shown him a study from that great painter, he had been led away from the consideration of the design before him by the splendor of the great powers of the designer, and has passionately exclaimed, "What! they would make me believe that Raphael was a man; no, he was an angel." And when he made a tour through the north of Italy, subsequently to his painting the St. Raphael altarpiece for the Collegio di San Filippo Neri, he asked Lombard and the Venetian masters, being much struck with the delicacy and richness of effect of Correggio and Titian, he expected to feel a deficiency in the works of Raphael upon his return to Rome; but immediately he saw the Mass of Bolsena in the Vatican he exclaimed, "here I find not only Titian and Correggio, but Raphael also."

Saccchi's manner of execution was very broad, and his coloring subdued and perfectly harmonious; his compositions are pure and grand; and his skill and taste are equal to all the works of antiquity. He preferred the style and proportions of the Antinous to those of any other antient statue; and he was as profound in the theory as in the practice of his art. Saccchi died in 1661. He had many imitators, and notwithstanding the rivalry of Pietro da Cortona and the opposition of Bernini, he formed a numerous and celebrated school. Nicolas Pusinelli attended his academy, but his greatest scholar was Carlo Maratti. He is said to have been the leader of the faction which was opposed to the imitators of Cortona. [Roman School of Painting.] (Passeri; Lanzi; Fiorillo.)

SACCUSI, ANTONIO GASPARO, a composer, who strains once resounded in every lyceum in Europe, but of whom little more than the name remains, was born at Naples, in 1735, and there educated, at the Conservatorio di Santa Maria, under the once famous Durante, who himself is now nearly forgotten. So successful were Saccusi's studies, that the money they had been engaged to compose an opera for Milan, whither he proceeded for the purpose; but there the prima doma made so sudden and so deep an impression on the public that he determined to spend the time that ought to have been bestowed on his work, which at length he was compelled to begin and finish, we are told, in four days. This was L'Oisla d'Amore, an opera that pleased not only the public, but the critics. Saccusi was so happy as to be the first of that operatic company to go to London, and finally to Paris, in which cities his numerous operas were performed, but with most success in the last, where he set his music to French words for the Académie Royale. The Parisians, Dr. Burney tells us, almost adored Saccusi; and when he died—overwhelmed with debt and exhausted with gout—in 1786, he was honoured with a splendid public funeral, at which Piccinni, once his rival, now his pensive rival, spoke his eulogy.

SACCOILABYUM, a genus of plants of the tribe Vandoeae and family of Orchidaceae, now extensively cultivated in both houses and gardens, developed by the author for his nursery and estate. This is an Asiatic genus, found in the Indian archipelago, the Malay peninsula, and thence extending north along the Himalayas; and the range of Charles Balat's Atlas. It is found on trees, as well as in the southern latitudes. The genus consists of caulescent epiphytes, with two- or three-leaved conical leaves, which are often oblique at the apex. The flowers are axillary, and either racemose or solitary.

SACRED ... [MRBOK, vol. vi., p. 514; KODDENTIA, vol. xx., p. 62.] SACR MORBUS ('ιησος Νέος), a term applied apparently by the antients to more than one disease, as Athenaus (Deipnosoph., lib. viii., § 339) speaks of "μετά ἑκατέραν εἰσπερακτίαν," and Herodian is said on De Sancrisco Laertius (De Vit. Philosoph., lib. ix., cap. i., § 6 and 7) to have called Arrogance by that name: τὸς τοις ἐπιστατομένων ἄνδρας. Generally however it is merely used as one of the numerous names of epilepsy ('ἐπιληψις), and this is the explanation given by Hesychius and Suidas in voc. It is first used by the author of the treatise Περὶ ἑτερός Νέον, "De Morbo Sacro," which is published among the works of Hippocrates (tom. i., p. 587, ed. Kühn), though it was probably written by one of his successors in the Dogmatike school: (See Gruner, 'Censoria Libr. Hippocr.' Vratislavia, 1772, 8vo., § 44, p. 162; and Ackermann, Hist. Liter. Hippocr., cap. Fructuose, Hist. Gr., ed. Harle, and Kühn, 'De Morbo Sacro'.) The term is also found in Aretaeus ('De Causa et Sign. Diurn. Morb., lib. i., cap. 4), Theophrastes Nonnus (Epit. de Curat. Morb., cap. 36), Artemidoros (Onomasticon, II., cap. 12, where see Reiss's note 32), and others. The meaning of the word, however, and several derivations of it are mentioned by Aretaeus (loc. cit.): 'There is,' (says he, in Dr. Reynolds's Translation) 'a sort of ignominy too in the character of epilepsy, for it seems to attach itself to those who are affected with it, and hence the disease is termed 'sacred,' or it may be from other reasons, either from its magnitude (for what is great is 'sacred'), or from the cure not being in the power of man but of God, or from the notion that a demon has entered the patient, or from all put together, that it has been so called.' The author of a treatise 'De Morbo Sacro' seems to have considered the origin of the term to have arisen from the belief either that this disease proceeds more immediately from the anger of the gods, or that it is more wonderful or more dependent on divine assistance; as he refutes all these opinions at some length. (See also Galen, Comment. vii. in Hippocr. Epist., lib. viii., tom. xvii. B., p. 341, ed. Kühn.) The other meaning of the word is also supported by the author of the 'Schol. MS. in Gregor. Nazian. in Basiti Excerpt.,' quoted in Gaiford's Suidas: τὸν μεμοιρήσατο τοὺς λαμπαδίους τοὺς τὴν ἀνάμνησιν τῆς τεκνίας τοῦ τούτου, τὸν ἐκείνουν ἐνιακόν ὡς ὄκτα, ἐκφύσατο οὐκ ἡ τοιαύτη ἡμείσς, ἔστων ἵνα μεταμεληθῇ. It is also indirectly supported by the analogous expressions ἡ τὴν μνήμην ἅνεικόν (Homéer, Odys., lib. vii., v. 167), ἵνα δέχηται (see Athenæus, Deipnosoph., lib. vii., § 17-20, pp. 282-4), and especially by the anatomical term ἐνίακας, of which the etymology is the most probable interpretation. Caluius Aurelianus gives the following interpretations: 'Appellatur Epilepsia sacra passio,' sive quod divinissim putetur immensa; sive quod saecul comitem quae est sacra (which is supported by Apuleius, Epist., p. 58, ed. Price); sive quod in capite et corpori quod multorum philosophorum judicii saeculorum templum est partis animae in corpore natum (which is the reason given by Theophrastes Nonnus, loco cit.); sive ob magnitudinem passiones, sive sacrae vocatur (which is called Morbus Chron., lib. i., cap. 4, p. 291, ed. Amman.) Of all the explanations that have been proposed, perhaps that which derives the term from the disease being supposed to be under the more immediate direction of the gods is the most probable both in itself and also as being that which Galen preferred: it is also indirectly confirmed by two popular names mentioned by Leo in his 'Synopsis Medicin.' lib. ii., cap. 2 (ap. Ermerins, Anec. Med. Gr., Lugd. Bat., 1610, v. 49); and if this is not the real meaning of the term, it must have been applied 'ob magnitudinem passionis,' for none of the other derivations bear the slightest marks of probability."
years after. To Sacheverell Addison inscribed in a very affectionate dedication his 'Paradise to the Muse,' written in 1694, when he intended to enter into holy orders. Sacheverell himself also cultivated both English and Latin poetry; several of his pieces in Latin verse (some ascribed to his pupils, but others with his own name affixed to them) are contained in the 'Missus Anglicus,' and to the author of a translation into rhyme of part of Virgil's 'First Georgic,' dedicated to Dryden, which is printed in the third volume of Nicholls's 'Collection of Poems.'

Sacheverell became a fellow of his college, and appears to have been highly esteemed and successful as a college tutor. The Whig accounts of him indeed are full of stories to his disadvantage in this as in every other part of his career, but they have all the air of the inventions or exaggerations of party malice. Among other things it is asserted that he was refused ordination by Dr. Lloyd, bishop of Lichfield and Coventry (afterwards of Worcester), on the ground of his deficiency both in divinity and classical knowledge; but afterwards, it is added, he was, on the recommendation of the bishop of Oxford, admitted into holy orders by this same Lloyd, 'with particular marks of favour.' He took his degree of M.A. in 1686, of B.D. in 1707, and of D.D. in 1708. The first living he held was Cancock in Staffordshire, but in 1706 he was appointed to the command of St. Saviour's, and while in this situation that he delivered his two famous sermons, the first at the assizes at Derby, on the 15th of August, 1709, the second before the lord-mayor at St. Paul's, on the 5th of November in the same year, both being preached in both in December following brought under the notice of the House of Commons, which passed a resolution denouncing them as 'malicious, scandalous, and seditious libels, highly reflecting upon her majesty and government. Basset, the dean of the Protestant Established Church in Wales, is said to have been a convert and instigator to the sermon, which the author of the Constitutions of the Oxford, vol. iv., pp. 149, 150, Swift's Journal, Four Last Years of the Queen, and other works; Duchess of Marlborough's Account of Her Conduct. A note in Howell's State Trials, vol. x., p. 14, informs us that in 1707 he married Jane, daughter of Thomas Darby, 'James II.' p. 184;" but Harris wrote no Life of James II., nor can we find Sacheverell mentioned in any of his other Lives.)

BACHS, HANS, whose real name is said to have been Jacob Johann, is one of the most eminent poetical geniuses that Germany produced during the period of the Reformation, to the doctrines of which he became a convert, and assisted the cause of Protestantism by his pen. This most prolific as well as original and highly gifted writer, was born 1581, at Altenburg, where, after studying at the Latin schools, he was put to be instructed in the business of a shoemaker.

About two years after he entered his apprenticeship to his father, he seems to have been before this a popular nickname of Godolphin. After various preliminary proceedings, the trial commenced before the House of Lords in Westminster Hall on the 27th of February, 1710, and lasted till the 50th of March, on which day the judges, like their predecessors, acquitted Sacheverell guilty; and three days after, sentence was passed, adjudging him not to preach for three years ensuing, and ordering his two sermons to be burnt by the common hangman. The populace, who had espoused the cause of the accused, considering him, with the great majority of the clergy, as the champion of the church, celebrated this impotent conclusion of the affair with bounties and other rejoicings both in London and all over the kingdom; and when, in May following, he set out to take possession of the living of Salatin in Shropshire, to which he had been presented, his journey to Oxford, and thence to Banbury, Warwick, and Wrexham to his preferment, was a continued triumph; which was prolonged as he returned to London through Bristol, Oxford, and Bridgeport, and other towns. It is admitted on all hands that nothing had so much effect as this affair of Sacheverell's in influencing the general election which took place this same autumn, and the immediate consequence of which was the overthrow of the ancient and his colleagues.

On the expiration of his sentence, in March, 1713, Sacheverell preached at St. Saviour's church, on the Christian triumph, or the duty of praying for our enemies, and again in November, he having added 'Sacheverell's long durng sermon, which he sent me,' says his friend Swift in his Journal to Stella, under date of 4th April; "it is the best sermon since his suspension has expired, but not a word it upon the occasion, except two or three remote hints."

"I had told him the bookseller had given him 100l. for the sermon, and intended to print 30,000. 'I believe,' says Swift, 'he will be confoundedly bit, and will hardly sell one half.'" Of his St. Paul's sermon Burnet states that about 40,000 copies were supposed to have been printed and dispersed over the nation. The fever had now probably somewhat cooled; but the popular enthusiasm of which he had been the object, and which had produced such decisive political results, had necessarily made Sacheverell a person of importance, at least for a short time longer. Within a month after the removal of his suspension, the queen presented him to the valuable rectory of St. Andrew's, Oxford, which he had purchased in 1706. He never appeared again in the public pulpits except in a dedication prefixed to a volume of posthumous sermons by the Rev. W. Adams, published in 1716; but he is stated to have made some noise in the world by his sermons and law-suits with his parishioners—a sort of stimulation which his system possibly required after his having pleased so remarkably a part in the greater field of national affairs. He was also suspected of being concerned in the alleged plot of his friend Atterbury, who is believed to have written the defence which he delivered on his trial. He died at Oxford, 1 April 1699, at 500l. at his death, which took place 5th June, 1724. (State Trials, vol. x., pp. 1-593; Parliamentary History, vol. vi., pp. 845-847; Burnet's History of his own Time, i. 537, &c.; Boyer's History of the bis Church and Religion, vol. iv., pp. 149, 150; Swift's Journal, Four Last Years of the Queen, and other works; Duchess of Marlborough's Account of Her Conduct. A note in Howell's State Trials, vol. x., p. 14, informs us that in 1707 he married Jane, daughter of Thomas Darby, 'James II.' p. 184;" but Harris wrote no Life of James II., nor can we find Sacheverell mentioned in any of his other Lives.)

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About two years after he entered his apprenticeship to his father, he seems to have been before this a popular nickname of Godolphin. After various preliminary proceedings, the trial commenced before the House of Lords in Westminster Hall on the 27th of February, 1710, and lasted till the 50th of March, on which day the judges, like their predecessors, acquitted Sacheverell guilty; and three days after, sentence was passed, adjudging him not to preach for three years ensuing, and ordering his two sermons to be burnt by the common hangman. The populace, who had espoused the cause of the accused, considering him, with the great majority of the clergy, as the champion of the church, celebrated this impotent conclusion of the affair with bounties and other rejoicings both in London and all over the kingdom; and when, in May following, he set out to take possession of the living of Salatin in Shropshire, to which he had been presented, his journey to Oxford, and thence to Banbury, Warwick, and Wrexham to his preferment, was a continued triumph; which was prolonged as he returned to London through Bristol, Oxford, and Bridgeport, and other towns. It is admitted on all hands that nothing had so much effect as this affair of Sacheverell's in influencing the general election which took place this same autumn, and the immediate consequence of which was the overthrow of the ancient and his colleagues.

On the expiration of his sentence, in March, 1713, Sacheverell preached at St. Saviour's church, on the Christian triumph, or the duty of praying for our enemies, and again in November, he having added 'Sacheverell's long durng sermon, which he sent me,' says his friend Swift in his Journal to Stella, under date of 4th April; "it is the best sermon since his suspension has expired, but not a word it upon the occasion, except two or three remote hints."

"I had told him the bookseller had given him 100l. for the sermon, and intended to print 30,000. 'I believe,' says Swift, 'he will be confoundedly bit, and will hardly sell one half.'" Of his St. Paul's sermon Burnet states that about 40,000 copies were supposed to have been printed and dispersed over the nation. The fever had now probably somewhat cooled; but the popular enthusiasm of which he had been the object, and which had produced such decisive political results, had necessarily made Sacheverell a person of importance, at least for a short time longer. Within a month after the removal of his suspension, the queen presented him to the valuable rectory of St. Andrew's, Oxford, which he had purchased in 1706. He never appeared again in the public pulpits except in a dedication prefixed to a volume of posthumous sermons by the Rev. W. Adams, published in 1716; but he is stated to have made some noise in the world by his sermons and law-suits with his parishioners—a sort of stimulation which his system possibly required after his having pleased so remarkably a part in the greater field of national affairs. He was also suspected of being concerned in the alleged plot of his friend Atterbury, who is believed to have written the defence which he delivered on his trial. He died at Oxford, 1 April 1699, at 500l. at his death, which took place 5th June, 1724. (State Trials, vol. x., pp. 1-593; Parliamentary History, vol. vi., pp. 845-847; Burnet's History of his own Time, i. 537, &c.; Boyer's History of the Church and Religion, vol. iv., pp. 149, 150; Swift's Journal, Four Last Years of the Queen, and other works; Duchess of Marlborough's Account of Her Conduct. A note in Howell's State Trials, vol. x., p. 14, informs us that in 1707 he married Jane, daughter of Thomas Darby, 'James II.' p. 184;" but Harris wrote no Life of James II., nor can we find Sacheverell mentioned in any of his other Lives.)
complished by a single composition, such as the 'Elegy in a Country Churchyard,' and 'Julius von Tarent',—productions that immortalize the names of a Gray and a Lessing. For the student who is desirous of tracing the formation of the language and literature of Germany, the works of Sachs possess considerable interest independent of their intrinsic merit. But, however, to be fairly appraised, must be considered with a view to his country and time. They display great shrewdness, liveliness, and keenness of satire, together with a steady manliness of tone. But they also frequently offend both modern taste and modern ideas of decorum. For in that respect is the very reverse of refined immorality. Nor is this to be expected, for, as might indeed be expected, they are overlaid with a great deal of mere garish prose, unresolved, by any charm of versification. Another great fault is, that all the accusations are much in the same strain, stamped by the same manner; wherefore it has been remarked, that two or three of his pieces serve to render us acquainted with the whole. Yet it is easier to point out faults and imperfections of the kind above mentioned, than to estimate such a writer critically. As a matter of fact, that Goethe imitated Hans Sachs in his 'Faust,' his character is thus summed up in the 'Retrospective Review': 'If three requisites are to be looked for in poetry— invention, expression, and sentiment—Sachs shall find all these blended in Sachs. He is an inventor of fantastic story; his manner is lively, poetical, fresh, and brilliant; his expression rich; his language choices (?), harmonious (?), and teeming with new phrasesology full of character and point and beauty. But these are the requisites of the author, or the decorations, is the fidelity of colouring with which he exhibits the characters and times which he paints.' This last remark must be taken with great limitation, and with reference only to the manners of his own age, for his anachronisms against historic costume and probability are hardly startling—Semiramis and Cleopatra, Agrippina and Clytemnestra, appear together in the same piece. In fact, according to his own confession, he was acquainted with neither Greek nor Latin, and knew the works of the ancients but very imperfectly, and such as he procured. Yet, though excluded from the learned languages, his reading was remarkably extensive. After all, whatever imperfections criticism may allege against the writer, biography has none to record against the man; save those which are common to humanity in general. He uniformly employed his pen with the best of motives—to reform and instruct; and not only was his personal character irreproachable, but the amiable bonhomie of his disposition secured to him for the appellation of 'Honest Hans Sachs.'

SACHLEVEN [or ZACHTLEVEN], CORNELIUS, was born at Rotterdam, in 1666. It is not known under what master he studied, but it is apparent that he was a clever pupil. He gained great reputation by painting subjects from low life in imitation of Brouwer. His corps-de-garde are much praised for their judicious grouping and truth to nature. He painted also the interiors of farm-houses, and the sports and recreations of the villagers, in the style and manner of D. Teniers. Though much inferior to the two great artists whom he chose for his models, his works have considerable merit, and are found in the best collections.

SACK, a Spanish wine of the sweet kind, in French, vin sec. It is called sack in an article by Bishop Percy, from an old account-book of the city of Worcester: 'Anno Eliz. xxxiii.', Item, 'for a gallon of claret wine and sack, and a pound of sugar.' Other instances have been found. See the various notes on the translation of Shakespeare's 'Henry IV.' It is the same wine which is now named Sherry.

Falstaff calls it Sherry sack, that is, sack from Xeres in Spain. Blount, in his 'Glossographia,' describes it thus 'Sherry sack, so called from the King of Spain, who by that name is meant.' It was imported into Spain, where that kind of sack is made, Ritson pretended that the old sack of Falstaff's time was a compound of sherry, elder, and sugar, but he produced no good authority for the assertion. The chief difficulty about sack has arisen from the later importation of sweet wines from Malaga, the Canaries, &c., which were at first called Malaga or Canary sacks; sack being by that time considered as a name applicable to all sweet wines. Sweet wines were so early imported, as in his 'Logothetis,' p. 102, 'I read in the reign of Henry VII., that no sweet wines were brought into this realm but Malasymes,' and soon after (p. 103), 'Moreover no sacks were sold but Rumney, and that for medicine more than for drink; but many many kinds of sackes are known and used.'

One of these sweet wines still retains the name of sack. It is little used, but being proverbial for sweetness, it has caused some misunderstanding as to the original sack. Falstaff calls this sack, 'a sweet sack,' as in the 'Wild-goose Capering' of Beaumont and Fletcher, and also of a personage, in the 'Miseries of Informed Marriage,' that he 'lies fitting himself with sack and sugar in the house, while his brothers are fain to walk with lean porces abroad.'

The further proof were wanting that Falstaff's sack was not a sweet wine, but was actually Sherry, it is abundantly furnished by Dr. Venner's work, entitled 'Via recta ad Vitam longam,' published in 1637. After discussing medico-legally the propriety of mixing sugar with sack, he adds, 'but what I have spoken of mixing sugar with sack must be understood of Sherie sack; for to mix sugar with other wines that in a common appellation are called sack, and are sweeter in taste, makes it unpleasant to the palate and fulsome to the stomach.'

But the derivation of sack from sec may not be quite certain. Douce, in his 'Illustrations of Shakspere,' says, 'Ponet's 'Treatise of Politike Power,' 1556, 12mo., and Cotgrave, in his Dictionaire, make sack to be vin sec: This plausible derivation, though wholly receivable in the case of a foreign traveller, in speaking of the Tartar Kounsia, a preparation of mare's milk, had not informed us that she should not choose to partake of it out of the goat-skin sacke in which it is carried, 'as the Spaniards,' says she, 'do their wine; which by the by is a practice so common in Spain as to give the name of sack to a species of sweet wine once highly prized in Great Britain.'

(Guthrie's 'Tour through the Crimea,' 1809, 4to., p. 229; Nares's 'Glossary,' s. v. 'Sack'; Douce's 'Illustrations of Shakspere,' vol. i., p. 417.)

SACKATO. [SODAN.] SACKET'S HARBOUR. [NEW YORK.]

SACKVILLE, THOMAS, EARL OF DORSET, was born in the year 1566, at Beckhampton in Sussex. He was the only son of Sir Richard Sackville, the representative of a very antient family, who had been high in office under Edward VI., Mary, and Elizabeth. After studying some time both at Oxford and Cambridge, and taking the degree of A.B. in the latter university, he proceeded to the Inns of Court, and was called to the bar. Shortly afterwards he was elected a member of the House of Commons. His youth, though passed in dissipation and extravagance, was not only mispent but wholly wasted. He was written at an early period of life, and were the first fruits of his vigorous and fertile mind. At the time of his father's death, in 1566, he returned from the Continent, which he had visited after his marriage. In the same year he was created Lord Buckhurst by Elizabeth, and having on a
sudden reformed his habits of profuseness, received from that time various marks of royal favour. In 1570 he was sent on an embassy to France, to treat of the marriage then proposed between the queen and the duke of Anjou; and in 1571 he was employed as ambassador extraordinary to the United States of the Netherlands, to adjust the differences between them and the earl of Leicester, whose anger he drew upon himself in the discharge of this duty, and was in consequence imprisoned till the death of his formidable enemy. In 1576, which event he was at once restored to Elizabeth's confidence, and filled a variety of state offices. In 1598, on the death of Burghley, he was made lord treasurer, which situation he held during the next reign till his death, April 19, 1598, leaving a gap in the court which his great sagacity fully appreciated by two royal personages of very different character. His letters, many of which are preserved in the Cotton collection in the British Museum, show that he was distinguished by the qualities which befit a statesman, and they confirm the judgment of his contemporaries.

His poems are—the tragedy of 'Ferrerox and Perrox,' called in a later edition 'Gorbusce': 'The Induction,' or poetical preface to 'The Mirror for Magistrates,' together with the preface to 'The Duke ofon the Hare,' in the poet's collection. Of these 'The Induction' possesses great merit, and reminds us of the poems of Spencer, to which, though inferior in richness of imagery, it bears great resemblance, more than it has been supposed. The latter is hardly more creditable than the former. It is to be added however that some incon sistency seems to have existed in the orders delivered to him, which may have given rise to a sitting in a man without superior greatness, without gross cowardice or willful and predetermined treachery of trust.

SACRAMENTS and TRANSUBSTANTIATION. 'No religion,' wrote Barrow of the Christian, in the nervous language of the time, 'can be purer from superstition or alloy or freer from useless incumbrances than that, the ritual observances it enjoined being as very few in number, in nature simple, and easy to observe, so evidently reasonable, very decent, and very useful, able to instruct, to sanctify, and to fill the heart with devotion.

Most religious denominations will agree in the truth of these remarks, although, as in the case of the doctrine of justification (the cornerstone of individual Christianity), various shades of interpretation have obtained currency; the church of England has adhered to the particular form of the Sacraments (the entrance and centre of Christian fellowship), the greatest diversity of opinion prevails.

The Christian Sacraments are not merely certain high points, but the highest stage in the church’s membership. For the Christian church being but the outward visible representation of the internal fellowship of the faithful with Christ, and with one another; this twofold element of the church is most fittingly corresponded to by the institution of external visible signs, intended to produce an effect or grace. Such are the Sacraments, a term used to express 'Sacramentum,' by which the Greek mysterion is rendered in the old Italian versions, and also in the Vulgate.

With regard to the number of the Sacraments, as is well known, two opinions are current among Christian communities,—the Greek and Romish churches holding the number of seven, while all other Catholic bodies limit the number to two. The history of this difference may be briefly stated as follows. The term Sacrament was applied by the Fathers to the mystical doctrines of religion, as the Trinity, the Incarnation, and, in some instances, to the ordinances of religion in a wide sense. In a certain sense the seven-fold division of the church may be said to arise from the abatement of the lax terminology of some of the Fathers. The title of Sacraments is by her limited to seven actions—baptism, or the sign of our spiritual birth; the eucharist, in which our spiritual life is nourished; confirmation, for the remission of the sins of childhood; confirmation, for the remission of the sins of childhood; consecration of persons; ordination of Church officers; the administration of the sacrament of the lapsed; extreme unction, as a preparation for death; matrimony, for maintenance of the race of mankind in general; and orders, for that of the race of God's ministers.

Without entering into the controversy on this subject, it will be sufficient to observe that the number of seven, as asserted by the church of Rome, is very far from being sanctioned by the uniform assent of ecclesiastical practice. Antecedently to a very modern and (that of Florence) the number of seven had never before been settled.

The two sacraments then, held by all Catholic bodies (save at his own request, recalled to England, where he demanded, and with some difficulty obtained, a court-martial, by which default the victory was rendered less decisive than it might have been, he was insulted by his commander, and,
nions) the number is properly limited, are those of baptism and the Lord’s supper. It is asserted that on the basis of two sacraments only, those of baptism and the Lord’s supper, the sacrament being admitted, by direct command, those two sacraments, of which alone the authority is unquestionable. An indirect argument in favour of this more restricted view may be drawn from the statements of the Reformers, not treating the relative value of the several sacraments. For although the authorities of that church are consistently anxious to prove the entire number of seven to be equal in rank, the dignity which they directly attribute to the eucharist, and that which is indirectly deduced from it, the same is not alleged as an involuntary assent to the doctrine of the opposite party.

The principal feature of the scheme of salvation provided for man is faith in the Saviour; that is, the faith of Christ is second, as to the object of faith, of this Christian faith is not confined exclusively to the doctrine, or the person, or the sufferings and death of Christ; but it comprises within its range the entire system. It consists in a perfect devotion to Jesus; in an internal union with him, and spiritual imputation of him, in which man appears as a new creature, both as regards knowledge, feeling, and action. The symbols of this faith, and the acts by which an obligation to it is expressed, are the two Christian ordinances to which the acceptance of it is required.

I. Like the other sacrament, that of baptism is based on a Jewish custom. An examination of the antiquities and ritual of that people establishes this fact not generally known. Baptism denotes the rite of admission into the responsibilities of God’s covenant. It is a ceremony dependent on the acceptance of the Son of God, resulting in an entrance into fellowship with him; consequently, an appropriation of all that Christ bestows upon believers. By baptism is expressed the twofold relation of man,—to his previous condition, which he regards as one of sins and separations from God; and to his spiritual death with Christ, in that he appropriates by faith the work of redemption, which was completed by his death; and to his rising again to walk in newness of life through faith in his resurrection, the pledge of his own future one. For example, the apostle Paul shows in the case of Peter, and his Jewish co-religionists, that the entrance into the Christian church was derived from the Synagogue: that if all this be united with his declarations concerning infants, and his kingdom, and the entrance therein,—it must be confessed that either our Lord declared infants capable of inheriting what they never could attain to, or that having so declared, he willed them to be qualified by a Christian adoption of a rite already familiar. ‘As for baptism of infants,’ writes Archbishop Usher, ‘it is sufficiently warranted by reasons of Scripture, though not mentioned in the apostolical church, especially in the early Christians. That infant baptism, from the time of the apostles, was ordinarily practised in the church, rests on very valid proof. In support of this, Origen, Cyprian, and Tertullian may be fairly quoted.

II. The various opinions respecting the exact import and appropriate benefits of the Lord’s supper are of high antiquity. The difficulties connected with the question are increased by the general adherence to the words of Scripture, which are not observable for any other reason. The non-existence of a dogmatical theology during the first ages of the church is well known, which renders it unnecessary to look for exact scientific definitions throughout that period. But, concurrently with the uniformity of practice, there have been adopted to, there have been found a variety of interpretation, corresponding with the peculiar views of what may be considered the three principal schools of early Christian theology.

The church of Asia Minor, as also some great Origenists in the West, professed views of the holy eucharist which the church of Rome and the Lutheran have (to a certain extent) pleaded as the sentiments of antiquity supporting their own. Such were those of Irenæus, Justin Martyr, Irenæus, Hilary of Poitiers, Cyril of Jerusalem, Gregory of Nyssa, Ambrose, Chrysostom, and Theodoret. The common point of agreement among these writers is the communion of the body and blood of Christ in a high spiritual sense generally. But a considerable difference of opinion is observable among them. For example, some expressions of Cyril of Jerusalem are directly and strongly opposed to the tenet of transubstantiation, which Gregory of Nyssa is not unfairly quoted as supporting.

The views of the church of Africa, as expressed by Tertullian, Cyprian, and Augustine, differed as a whole from those just named. The African doctors may be considered as regarding the eucharist as an active and efficacious symbol.

The third party, that of the school of Alexandria, applied in some measure its usual allegorical views to this sacrament. But even in the absence of all approach on the part of these Fathers to corporeal views, a leaning to the sentiments of the church of Rome is observable in some portions of their writings.

Each of the many designations by which this sacrament

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was known until the close of the fourth century, bore some reference to the original object of its institution. This may be traced throughout the various expressions—breaking of bread, communion, Lord's supper, eucharist, oblation, commemoration, and procession. Of the ancient propriety of these, antiquity cannot be adduced with fairness in support of the literal interpretation applied by a large body of Christians to the words used by our Lord in his institution of this sacrament. John of Damascus, the principal writer of the Eastern church, and one of the Fathers, a literal change of the bread and wine into the body and blood of Christ. The figurative interpretation put upon the words of Christ by a council at Constantinople in A.D. 734, was denied at the second council of Nice in 787, where it was declared that the nature of the bread and wine was not changed into anything but images at all, but the real body and blood. Theophylact and Euthymius Zigabenus coincide with John of Damascus.

But it was reserved for the Western church to carry out into its remote consequences the doctrine of a materialism which, in common with her Eastern sister, she ultimately came to maintain. Great discrepancy of expression on this subject may be found in the writings of Western theologians anterior to the times of Charlemagne; the utmost however that can be said of the elements was not to be regarded as purely symbolical. But it is undeniable that a strong tendency to transubstantiation (as it was afterwards termed) is throughout discernible. This doctrine was maintained during the ninth century by Peter Lombard, and more precisely and obdurately by Abelard before. He was opposed however by Rabanus Maurus, and Ratramn or Bertram (whose sonner and more scriptural views many centuries later found an echo in our own Ridley), and also by the suspected ingenuity of Scotus Eriugena.

Various instances of opposition to the doctrine of tranubstantiation subsequently occurred; but, supported by authority like that of Sylvester II. (the famous Gerbert), it remained with ground. During the eleventh century it had become an article, to dissent from which was heretical; although a doctrine substantially the same with that held by the Anglican church at the present day was preached by doctors such as Alfric, and although an archbishop of Siena, Leutherius, advanced opinions regarding the eucharist similar to those which involved Berengar of Tours in controversy with Lanfranc, and drew upon him the hostility and condemnation of popes and councils.

In this condition the dogma of transubstantiation passed into the hands of the reformers; it is whose cause the ingenuity was devoted to establishing and explaining what became the centre and support of the theurgical pretensions of the hierarchy of the middle ages. The term transubstantiation is probably introduced into the scientific vocabulary by Hildebert of Tours. The dialectical talents of Lombard, Alexander Hales, Albert, and Aquinas were vigorously employed on this subject. It was invested with legal authority by Gratian. Finally, the doctrine became, as it is, the matter of the Council in 1215. Even Occam assented to its truth, and it was subsequently ratified at Trent. Among the numerous controversies connected with the different theories on the subject, the more modern opinions are marked by a tendency to regard the eucharist as a purely symbolical rite. For transubstantiation Luther substituted (probably through the effect of Occam's writings) a corporal local presence, commonly called consubstantiation. There appears an inconsistency of this continuity with the theory for his theory. He had abandoned the sacrifice of the mass and the theurgical pretensions connected with the real presence which made this dogma of such importance to the church of Rome. Luther's great object was to preserve this sacrament from being degraded to the same unscriptural subjective views (as he conceived) with which it was neced by Carstadt and his party. This evil would be best remedied by a bold assertion of the objective dignity of this sacrament, divested of the superstitious additions with which it was invested in the sacrament of the Lutheran doctrine of the eucharist. What has been said will suffice to show how ungrounded is the charge sometimes brought against Luther—that he threw away the substance of the bread and wine—his adherence to scholasticism in this respect contrasts strangely with his uncompromising hostility to that philosophy respecting the fundamental dogma of justification by faith, Zwingli, on the other hand, together with a corporeal and local presence, rejected all notion of a spiritual presence and grace. But the opinions of Calvin shortly afterwards superseded the colder ones of Zwingli, many of whose followers, to quote the sentence of the 'sects,' naked signs and figures to the Anabaptists of those times, where they rested, till again revived by the Socinians, who afterwards handed them down to the Remonstrants.

The point of divergence between the adherents of Luther and Calvin was the priority of the Lord's Supper to the Sacrament, a point upon this former party held, according to the earlier Augsburg Confession and the Form of Concord, that the body of Christ was contained in, with, and under the sacramental bread. The others held the doctrine only of a real spiritual feeding on the body and blood of Christ, not that the body and blood were invisibly eaten, nor that it was truly present in the church, but merely temporarily with the reception of the outward elements. In the opinion of Waterland, Calvin relied upon Zwingli's scheme, steering a kind of middle course between the extremes. He appears to have taken his ground with good judgment; and had he been built as carefully upon it afterwards, no fault could have been justly found.

The late Bishop Lloyd considered that the Anglican doctrine was saved from the error of Calvin. The third and fourth clauses of the twenty-eighth article respecting the manner and means after and by which the body of Christ is taken in that sacrament, would seem to support this view. But the words of Waterland may be fairly quoted to illustrate the expression of the Anglican teachers on this subject: 'Our divines who came after Calvin had some advantage in point of time, and a greater still in the rule or method which they pitched upon as most proper to proceed by. The sum in point is, that in the sacrament the body of Christ is all eucharist is feeding upon the body broken and the blood shed under the signs and symbols of bread and wine; the result of such feeding is the strengthening or perfecting of grace in the soul, p. p. speaking, we feed upon the body as dead, and we receive it into closer union as living, and both in the eucharist when duly celebrated.'

SACRED WAR. [Philipp., p. 74; Procl.] SACRED, in the sense of made to God, to which the thing offered is wholly or partially destroyed. It is generally supposed that sacrifices were instituted immediately after the fall of Adam, when God made with him what is called the covenant of grace; and that on this occasion the sacrifice was a sheaf of corn and a young bullock, a part of the covenant. This supposition is founded on the fact that God said Adam and Eve with the skins of beasts; and since animal food had not yet been given to man, it is thought that these beasts must have been slain as sacrifices. 'So presents, the animals,' says the testament, 'meet with sacrifices as a divine appointment. (Gen. i. 1-3) All over the world sacrifices have been found in some form or other, which is another proof of their great antiquity. But even if we were to accept the theory of their being offered as sacrifices, it is evident that they have also been offered as the means of gaining the favour and assistance of God, and of expressing submissiveness and gratitude to him. They may be divided into two classes, bloody and unbloody. In the heathen world human sacrifices have been very generally prevalent, apparently from a notion that human life is the most precious thing that can be offered to the divine Being. Sacrifices form a large part of the Jewish law. [Mozia.] Christians believe them to have been abolished since the death of Christ, since, as Paul argues in his Epistles, the Holy Spirit has taken the place of sacrifices, and that which has for ever made atonement for the sins of men. Valuable remarks on this subject will be found in the writings of most eminent theologians; but such notices are too numerous to be included here. See especially the article 'Sacrifice,' in Charles Taylor's edition of Calvin's Dictionary to the Bible.

SACRILEGE is ' the felonious taking of any goods out of any parish-church or other church or chapel.' By the common law it is a Ra a. 60. It seems to have been entitled to the benefit of clergy at the discretion of the ordinary. But even if it were not excusable by the common law, yet the statute 23 Edw. III. c. 3, 'De Clerico,' comprehended this as well as other emus, and with it 'the perturbing of all church mansions and places as well secular as religious.' Afterwards, by the statutes of 23 Hen. VIII., c. 1, and 25 Hen. VIII., c. 3, coverd by
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S and 6 Edw. VI., c. 10, all persons not in holy orders were excluded from the benefit of clergy who on an indictment for robbing any church, chapel, or other holy place were convicted, stood mute, or peremptorily challenged more than twenty of the jurors: and by 3 and 4 W. & M. c. 9, the same consequences followed upon their outlawry. It seems however that no sanctiagle was within these statutes which was not accompanied by an actual breaking of a church, &c. But by 1 Edw. VI., c. 12, all persons in general were deprived of their clergy for the felonious taking of any goods out of any parish-church or other church or chapel in England, and it is perhaps not of challenging more than twenty: and by 3 and 4 W. & M. c. 9, upon such a challenging, as well as upon a conviction, &c. upon an indictment, whether in the same county wherein the sanctiagle was committed, or in the other county.

It seems that sanctiagle was the only felony at common law which deprived the offender of the privilege of sanctuary.

The present state of the law of sanctiagle depends on the statute 7 and 8 Geo. IV., c. 29, s. 10, which enacts that 'if any person shall break and enter any church or chapel, and steal therein any chattel, or having stolen any chattel in any church or chapel, shall break out of the same, every such offender, being convicted thereof, shall suffer death as a felon.'

But by 7 and 8 Geo. IV., c. 55, s. 10, the same protection was extended to meeting-houses and all places of divine worship.

By statute 5 and 6 Will. IV., c. 81, the punishment of death was abolished, and transportation for life for any term not less than seven years, or imprisonment with or without hard labor, for any term not less than six months, was substituted in its place. These penalties were again altered by 6 Will. IV., c. 4, which limited the term of imprisonment to three years, and gave to the court a discretion as to whether to award any period of solitary confinement during such term. But now, by 7 Will. IV., and 1 Vict., c. 90, s. 5, no offender may be kept in solitary confinement for more than one month at a time, or three months in the space of one year.

So in the Nineteenth Century, an eminent English mathematician of the thirteenth century is mentioned, with Roger Bacon. He was the second anniversary of the death of that great mathematical and philosophical man, who, according to Bacon, who has claimed him for a native of Scotland without any satisfactory evidence, he was admitted a member of the University of Paris in the year 1221, where he afterwards greatly distinguished himself as professor of mathematics. All the biographies, &c., &c. He was one of the greatest of his age, and he ought not to be supposed that he lived the great part of his life at Paris, and that it was certainly that he was some few years at Oxford, where he is said by Whetstone, to have lectured before large audiences with great applause. He returned to Paris in the year 1256, as appears from the inscription on the tombs of the Mazarine convent at that place. As an author, he is more distinguished by a few elementary works which he left behind him, and which obtained a most extended popularity, than for much originality of talent. His treatises De Sphaera Mundi, which is merely a paraphrased translation of a portion of Ptolemy's Almagest, continued to be used in the schools for nearly four centuries; it was printed for the first time in the year 1472, passed through more than twenty editions, and was commented on by several first-rate astronomers. In 1448 he composed a tract, De Computo Ecclesiastico, which contains the common rules of that science; a curious colophon, which Wallis and Vossius give from old MS. copies, is our authority for the date of his death. It seems highly probable that this was a tract De Algorismo, one of the earliest known works on arithmetic in which the Arabic numerical notation is employed. This latter work, which is very common in manuscript, has been recently printed in Halliwell's 'Rara Hibernica.' 1842, Paris, and a note is attached to it by an arabic translation of the Arabic text preserved in manuscript in the Ashmolean library at Oxford.

SACRAM, os (ασυμεος), a name used by some of the oldest medical writers large in the ore, which is now attached to it. Galen himself sometimes means to designate by this term the ος κοκυξίς as well as what is now called the os sacrum (See 'De Usu Part. Corp. Hum.' lib. xii. cap. 12); in other passages he restricts its meaning to the modern signification, as also do Rufus Ephesus ('De Corp. Hum. Part. Appellat.' p. 59, ed. Clinch.) and Julius Pollux ('Onomast., lib. ii., cap. 4, § 182). The signification of the name is doubtful; some suppose it to have been given by a word ὁδός, 'road,' in allusion to the sacrum, or as it has been sometimes called, the back bones, in allusion to the bones of the back, and to the road, or path, which passes over them. Others again, suppose it to have been derived from the root, or the word, ὅς. (See 'De Usu Part. Corp. Hum.' lib. xii. cap. 12, p. 60.)

The most probable derivation however appears to be from the sense of 'greatness' sometimes signified by the word ὅς, 'great.'

The name was also applied to the place in Asia Minor, and to the city in Phrygia, in consequence of its size. (See SACK, Ancient and Modern.)

SACRIFICE, is the sacrifice of the death of one innocence for another. (See Sacrifice.)

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It seems to have been called by various names by the old anatomists, viz. ἱερὸς ἱερών, (Galen,) 'De Uso Part. Corp. Hum.' lib. xii. cap. 12, p. 60, &c., oi ταῖς ἱεραῖς ('Anonymous Isag., lib. ii., cap. 33), πρὸς ἱεράς (Jul. Pollux, loco citato, &c.) and perhaps the first of these rather confirms the opinion that the epithet ὅς, sacram, also was applied to the bone in consequence of its size.

SACY, ANTOINE ISAAC SILVRE DE, was born at Paris, 21st Sept., 1758. His father Jacques Abraham Silvestre practised as a notary in that capital. At the early age of seven De Sacy lost his father, but his mother took great care of his education, which, owing to the delicate state of his health, was directed by a pensioner of a monastic order. He entered a monastic order. His progress in classical studies was very rapid, and appears from his intimate acquaintance both with Latin and Greek literature. At the age of twelve he became acquainted with Dom Bertheau, a Benedictine of St. Michael at Reims, and thenceforward he received, through the medium of such Arabian historians as have written on the Crusades, and who inspired him with a taste for Oriental languages. Having finished his classical studies, De Sacy applied himself to the study of Arabic, and, by a process not without danger, he learned the Syrian, Chaldee, and Samaritan, and thenceforth he devoted himself to the study of Arabic and Ethiopic. With these labours De Sacy combined the study of the Italian, Spanish, English, and German languages, with all which he made himself well acquainted. He was a member of the Royal Society, and on the death of that of Persian and Turkish, two languages which, being then very little known in Europe, required new investigations on his part. De Sacy's first literary labours were directed towards biblical researches. In 1760, at the age of twenty-three, he undertook the examination of a Syro-Arabic MS. in the Bibliothèque Royale, which contained a translation of the Fourth Book of Kings, and he made some notes on the subject which appeared in Eichhorn's 'Biblical and Oriental Repertory' (Laydren, vol. vii., p. 227, et seq.). In 1762 he published a memoir on the Miracles of Moses in the collection of Oriental literature. In 1763 he published a memoir on the miracles of Moses, in the collection of the Royal Library; and therein is so valuable of the collection entitled Notices et Extraits, &c. which does not contain some notice by him of a Persian or Arabic work. Among his contributions the most remarkable are his 'Biographies of Persian Poets' (vol. iv.), and a notice on the Arabic works relative to the conquest of Yemen by the Othomans in the sixteenth century (vol. iv.). Shortly after he wrote his admirable Memoirs on various antiquities of Persia, and deciphered the Pehlevi inscriptions of Nakhsh-Rostem, near the ruins of the ancient Persopolis. He also wrote a history of the Mamelukes of Egypt, and the Mongol kings, together with an abstract of their history translated from Mirkhond. The whole was published in 1793, in one vol. 4to. During the revolutionary period De Sacy withdrew with his family to a small country-house that he had bought, and devoted himself to the study of Oriental literature. Among his labours at that time are his 'Researches into the Religious Tenets and Customs of the Druses,' which however were not published till shortly before his death for 1795. A series of pamphlets in Arabic-English languages being instituted by a decree of the Convention, De Sacy was appointed Professor of Arabic. He then gave all his attention to the composition of an Arabic grammar, which he compiled chiefly from the works of native grammarians; and about the same time (1797).
lished his 'Principles of General Grammar,' of which a third edition appeared in 1815, Paris, 12mo. In 1805 De Sacy was appointed Professor of Oriental literature at the University of Paris and in 1807 he was appointed to the same chair at the University of Glasgow. In 1814 he published his 'Chrestomathie Arabe,' and he published his 'Chrestomathie Hebraique,' and a selection of extracts from various Arabic writers, both in prose and verse, by far the most valuable work for the use of students that had yet appeared. In 1810 his Arabic Grammar, the first of its kind almost entirely labor, was published, as well as his translation of Abd-al-latif's account of Egypt (Relation de l'Egypte, &c., 4to, 1810). About the same time he published a 'Memoir on the Orthography and Meaning of the Koran' (Not. et Ét. de l'École, vol. viii.), and was likewise one of the most zealous contributors to the 'Magasin Encyclopédique,' the 'Mines de l'Orient,' and the 'Annales des Voyages.' On the return of the Bourbons in 1814, De Sacy, who had received from the Imperial government the title of baron, became a member of the Chamber of Deputies, and was also appointed a member of the Council for Public Instruction. He took a prominent part in the constitution of the Asiatic Society of Paris, of which he was the first president. In 1816 he published, under the title of 'Galilée,' the first French edition of the text of the Koran, with Moallakah (or suspended poem) of Lefebre, with a French version and critical notes. In 1819 appeared the 'Pend-Namesh' (Book of Counsels) in Persian and French, with corrections, and as a whole of the work on the Koran and Hariri, in Arabic, with a commentary also in Arabic, was his next publication, the edition being made with so much care that it met with a ready sale even in eastern countries. In 1826-27 De Sacy published a new edition of his 'Chrestomathie Arabe,' with corrections and additions, and in 1829 he added a supplementary volume, entitled 'Anthologie Grammatically Arabe.' The second edition of his Arabic Grammar appeared in 1831. In 1832 Louis-Philippe elevated De Sacy to the peerage, and appointed him one of the Honorary MSS. of the Senate, and Perpetual Secretary to the Academy of Inscriptions. De Sacy's last work was his 'Exposé de la Religion des Druses,' which appeared at the beginning of 1839, in two volumes, 8vo. On the 19th of February of the same year, as De Sacy was returning from the Chamber of Peers, where he had taken an active part in the debate, he fell in the street in a fit of apoplexy. He was removed to his house, where he died on the following day, in the eightieth year of his age. His portrait is engraved to the group of this distinguished scholar. He not only contributed to extend our knowledge of every branch of Oriental literature, but it was on his recommendation that professorships of Chinese, Sanscrit, and Hindostanee were established in Paris, and that he managed the business of the Russian and Prussian institutions for Oriental studies were raised to their present eminence. A very able paper, giving an account of De Sacy's life and writings, was read on the 23rd of June, 1836, before the Academy, by M. Reinaud, who was his personal friend. It has since been published under the title of 'Notice Historique et Littéraire sur M. le Baron Silvestre de Sacy.'

SADDUCEES (Zaddōnēo), one of the four Jewish sects at the time of Christ. Their origin is unknown, for little dependence can be placed on the Rabbinical tradition which makes them the followers of Zadok, a disciple of Antigonus Soecoe. They denied the existence of any spiritual beings except God, and believed that the soul died with the body, and that nothing was necessary for salvation: from the 23; Acts, xxiii. 8). In consequence of this disbelief in a future state of rewards and punishments, they were inexorable in punishing crimes. They rejected the doctrines of predestination and reprobation, maintaining that men were saved by their own: without assistance or hindrance from God. They rejected the traditions of the Pharisees, and adhered to the text of the Mosaic law. They have been accused of rejecting all the books of the Old Testament except the Pentateuch and the Pauline documents. Josephus, on which this charge is founded, does not sustain it. Though inveterately opposed to the Pharisees, they united with them against Christ. During the period to which the New Testament refers, they seem to have been the stronger party in the Sanhedrim, and some of their body were high-priests, as Caiphas and Annanias. It seems that they considerably modified their opinions in the course of time, so as to become the friends of the resurrection; and that at last they were only distinguished by their rejection of tradition, from which circumstance they obtained the name of Caranites, in the eight century A.D.

SADDUCEANS, Antiq., xiii. 9, 10, 6; xviii. 1, 4; Jewish War, ii, 8, 14; Plutarch's 'Connection'; John's Biblical Antiquities; Calmet's Dictionary; Winer's Biblical Realwörterbuch.'

SADDLER, ARTHUR RALPH, the eldest son of Henry Scorer, Esq., was born at Hackney in Middlesex, in 1597, where his family had been for some time settled. In early life he gained a situation in the family of Thomas Crosswell, earl of Essex, who introduced him to the notice of Henry VIII., by whom he was employed in the disposal of the religious houses, and he had his full share of their spoil. In 1537 he commenced a long series of diplomatic services in Scotland; in the first instance, chiefly with the view of detaching that country from its close alliance with France, and persuading king James V. to imitate he- 

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ment was decorated with the king of Scotland's standard, which he had taken at Pinkie.

The transactions of Sir Ralph Sadeler's most memorable emblems are recorded in 'Letters and Negotiations of Sir Ralph Sadeler,' &c., printed at Edinburgh, 1720, 6vo., from MSS. in the Advocates' Library: but a more complete collection was published of his 'State Papers and Letters,' edited by John Clifford, Esq. of Tixall, his descendant; in 1699, in 3 vola. 4to. From this and other sources, 'The Life of Sir Ralph Sadeler,' by Mr. (afterwards Sir) Walter Scott, with historical notes: to which the preceding account is principally indebted.

COPO, born at Modena in 1477, studied at Ferrara, and afterwards at Rome. He applied himself especially to the Greek and Latin classics, and became a distinguished scholar. Leo X. appointed him one of his secretaries, together with Bembo, and afterwards made him bishop of Capodistria in the county of Avignon, but still kept him at Rome. After Leo's death, his successor, Adrian VI., who had no partiality for learned men, neglected Sadeler, who repaired to his diocese of Capodistria. When Clement VII. ascended the pontifical throne, in 1523, he appointed Sadeler his secretary. But Clement's tortuous and selfish policy disgusted Sadeler, who asked and obtained leave to return to his diocese, and accordingly he left Rome about a month before Bourbon and his band sacked the city. Afterward, when in larger council, the rest of the cardinals had retired, he learned commentary on the Epistle of St. Paul to the Romans. Some expressions in this commentary, which referred to the abstruse doctrines of predestination and grace, were considered heterodox at Rome, and his work was prohibited. Sadeler also wrote a number of the gnostic. Catholic doctrines, VII., an explanation of his opinions, which satisfied the pope, and Sadeler was cleared of all suspicion of heresy. Soon after he was made a cardinal, and was employed in several important affairs. In 1542 he was sent as legate to Flanders to mediate in the disputes that kept the emperor Charles V., in which however he did not succeed. In 1544, being old and infirm, he obtained leave to resign his see of Capodistria in favour of his nephew Paul Sadeler, who resided there on his being made bishop of Carpentras. He died in 1547. His unsotted character, the mildness of his manners, his sincere piety, and his love of letters have caused him to be compared with Fénelon.

Sadeler wrote a work on education, 'De Liberis Rerum Instructanda,' which contains much excellent advice. He also wrote a dissertation, in two books, on the merits of philosophy, on the model of Cicero's 'Tusculanae,' which Bembo praised greatly, as worthy of the Augustan age. A poem which he wrote in Latin hexameters, on the discovery at Rome of the great statue of the goddess Diana, was also very much admired.

SADYATTE. [LYDIAN.]

SAFETY LAMP. [LAMP, SAFETY.]

SAFFLOWER, or Bastard Saffron, has already been noticed in this volume; but the use of the modern species [Carthamus Tinctorius] yielding it, of which the generic name appears to be derived from the Arabic koortium, a term applied to its seeds and for the colouring matter procured from its flowers, which in their dried state form the Safflower of commerce. The plant is noticed by Greek authors under the name λεοκος (leukos); Arabian authors give larnyza as the Greek synonym of koortium. The oil of the safflower is much used in the antiseptic medicinal and in the Asiatik for the same purpose, as well as for external application. It is most extensively used as a lamp-oil. The seeds are eaten by some birds, especially parrots, whence they are called 'grains de perroquets.' The plant is however chiefly cultivated on account of its flowers, not only in China, India, and Egypt, but also in the south of Europe. That from China is the most valued, fetching as high a price as 30f. per cwt., while the Indian safflower, from which the dyes are extracted, brings only 1,100,000 florins, by Peter Biron, duke of Courland, on whose death, in 1800, it fell to his eldest daughter and heirress, Catherine, princess of Courland, who took the title of duchess of Sagan. Sagan, with the capital, is a place of considerable importance, is situated on the right bank of the river Bober. It is a fortified town, has three gates, three suburbs, two handsome squares, and a fine ducale palace, with beautiful gardens and park. The inhabitants, now nearly 6000, are the most part Roman Catholics. There are six Roman Catholic
churcches and chapels, one Protestant church, a Roman Catholic gymnasium, several Protestant and Catholic schools, a seminary for Catholic schoolmasters in a theatre, and there hospitals. The inhabitants manufacture linen, woolen cloth, calicoes, sealing-wax, paper, and looking-glasses. On an ancient tower near one of the gates the celebrated astronomer Kepler had an observatory in the house of Wallenstein, who possessed the principality from 1627 to 1634.

SAGA/PE/NUM, said by Willdenow to be yielded by Ferula persica, which no one regards as certain, though it is generally believed to be furnished by some species of Ferula, (for plants) which until it has been unravelled for its richness of invention; he had been filling his mind with Spanish scenes and incidents and characters drawn from that great storehouse; and no one had been performing his study with more success in the field of classical education, by free translations. In 1767 "Do César Utria," a comedy in five acts, mimed from Calderon, was performed at the Théâtre Français without success, while a little piece of his own, "Crispin, Rival de son Maître," played at Paris on the same date had a brilliant run, and is indeed said, in liveliness, interest, and especially truth of dialogue, to be hardly inferior to Molère. Soon afterwards appeared his "Diable Boiteux," of which he had borrowed the name and the leading idea from "El Diablo Cojuelo" of Luis Velarde; the toreador Guevara, and the stockade, and a continuation (Paris, 1707). Its success was prodigious, which was no doubt in a great measure owing to much of the satire being aimed at contemporary characters of eminence in Paris; but the true drawing and rich colouring of its machinery, and its astonishing for its nervous, clear, and correct style, made its reputation lasting. In 1726 he augmented the work by an additional volume; and in 1737 added to it the "Entretiens des Clarisses de Madrid," and "Les Bons Dieux de Boiteux," the first a continuation of the work by Le Sage himself, and the last a eulogy of the Abbé Bordelain.

Le Sage had offered to the Théâtre Français a piece on one act called "Les Étrennes," which was to have been produced on January 1, 1768, but upon which Le Sage extended it to five acts, and gave the title of "Turcaret." The piece was levelled at the corruptions of those who managed the revenue and farmed taxes, the maltsters, traitors, and others of that class. This powerful body, being given by the house of the piece in which Le Sage had read some parts to his literary friends, used their utmost exertions to prevent its performance and even offered the author, it is said, 100,000 francs to suppress it, but he refused the bribe. They had better success with the censors, who, however, struck much pain on his education. The uncle is said to have dissipated the property, and young Le Sage, on leaving the college, appears to have obtained and held for five or six years an office in the bureau of taxes in his native province of Béarn.

Le Sage, having been deprived of his office, went to Paris in 1692, with the intention of going through a course of philosophy and law, and at the same time of making interest to obtain another situation. His handsome person and agreeable manners, his talents, and his taste for elegant literature procured him admission to the best society. In 1694 he married the daughter of a citizen of Paris. Danchet, with whom he had become intimate while prosecuting his studies in the university of Paris, persuaded him to produce a piece on a subject, the story of a family of the little letters of Aristonetus, which is rather an imitation than a translation. It was printed in 1693 at Chartres, but with the imprint of Rotterdam, 1 vol. 12mo, at the expense of Danchet, who was then professor of rhetoric at Chartres.

Le Sage had been admitted to the parliament of Paris, but he subsequently dropped the designation, and also relinquished some small office which he held, in order that he might devote himself to literature. The Abbé de Lyonne became his friend, and bestowed upon him 756 livres; and to him also Le Sage appears to have been indebted for his introduction to the Spanish language and literature. He now produced "Le Triste pire," a comedy in five acts, imitated from the "Tráicion busca el Castigo" of F. de Rojas (Paris, 1700); "Don Félix de Mendocas," taken from a piece by Lope de Vega (Paris, 1700); and "Le Point d'Honneur," a comedy in five acts, from the "No hay Amigo para Amigo" of F. de Rojas, which was performed at the Théâtre Français, but with little success. The two first plays were not represented, and the last, when afterwards reduced to three acts, and brought out at the Théâtre de l'Ambigu in 1735, F. de Rojas, who was only paid twice. Le Sage's next effort was "Les Nouvelles Aventures de Don Quichotte," translated from Avellaneda's frigid continuation of the work of Cervantes (1704-1706, 2 vols. 12mo). This translation obtained a wide favour from the French public as the original had from the Spanish.

Le Sage was now 38 years of age, and his labours had hitherto been to little purpose; but he had been training himself for a brighter display of his powers. He had made experiments of various sorts, and was unfailing in his efforts; he had been filling his mind with Spanish scenes and incidents and characters drawn from that great storehouse; and no one had been perfecting his study with more success in the field of classical education, by free translations. In 1767 "Do César Utria," a comedy in five acts, mimed from Calderon, was performed at the Théâtre Français without success, while a little piece of his own, "Crispin, Rival de son Maître," played at Paris on the same date had a brilliant run, and is indeed said, in liveliness, interest, and especially truth of dialogue, to be hardly inferior to Molère. Soon afterwards appeared his "Diable Boiteux," of which he had borrowed the name and the leading idea from "El Diablo Cojuelo" of Luis Velarde; the toreador Guevara, and the stockade, and a continuation (Paris, 1707). Its success was prodigious, which was no doubt in a great measure owing to much of the satire being aimed at contemporary characters of eminence in Paris; but the true drawing and rich colouring of its machinery, and its astonishing for its nervous, clear, and correct style, made its reputation lasting. In 1726 he augmented the work by an additional volume; and in 1737 added to it the "Entretiens des Clarisses de Madrid," and "Les Bons Dieux de Boiteux," the first a continuation of the work by Le Sage himself, and the last a eulogy of the Abbé Bordelain.

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in great domestic happiness, which was only disturbed by his eldest and his third son having become actors, a profession which he strongly disliked. He had brought his eldest son up to the bar, but he left it, and, under the assumed name of Montméli, acquired a high reputation as an actor. Le Sage had ceased to have any intercourse with him; but the second son, who had obtained the profession of a canon at Bologne-sur-Mer, by a manœuvre, to get the old man to see his son play a character in 'Turcaret,' with which he was so much delighted that a reconciliation took place, and they afterwards lived on terms of the greatest friendship. It is related that while Le Sage was staying at a café in the neighbourhood of his residence, where the company used to assemble round him, and to get upon chairs and tables to listen to 'the old man eloquent.' The death of his eldest son, in September, 1743, at the age of forty-eight, was a severe blow for him.

At the end of 1743 he retired to Boulogne, with his wife and daughter, in order to be near his son the canon, and here he died, November 17, 1747. His wife survived till 1752: both of them died within a space of eighty years.

The great work of Le Sage is his 'Gil Bias,' perhaps of its kind the first of all novels, and one that has the rare merit of always being read with new pleasure. This superiority is not owing to the interest of the story, for when a story is simple and commonplace there is no promise that permanent success must depend on other qualities. When a person has finished a chapter of 'Gil Bias,' he will generally have nearly equal pleasure in beginning to read it over again; and it is full of scenes of pictures of human life under all its aspects. The various adventures of Gil Bias concern us little; we only recollect him because of the persons with whom through him we become acquainted. We neither like him nor dislike him; we do not admire or respect him, and yet he is full of the most varied personages of all classes and conditions, whose failings and virtues are painted in enduring colours. Though somewhat of the interest of the novel arises from the great variety of adventures, and the delineation of manners peculiar to Spain, yet the story is a whole, and will always maintain its interest. It is true that the author generally gives us the portraits of rogues or fools, or of persons whose distinguishing trait is some weakness of character; but it is also true that the portraits are likenesses, and represent a large class of the human species. As in all works of the kind, the author is never obtruded on us. We think not of the wonderful art which has produced what appears to be completely simple and natural. It would be difficult to find another work in the whole field of the novel, in the first two volumes, which in many respects are the best. The expression is suited to the thought with perfect propriety; there is nothing superfluous, and nothing wanted in the way of explanation. While we admire the innumerable touches which make up the whole, we do not find them blended in one harmonious whole, to which each part bears its just proportion; a merit which arises from the author’s clear perception of what was required for the delineation of each character, and the exquisite taste which guided him to the adoption of a pure, and nervous style of expression. A great work or a great intellectual power of any kind is always the fruit of mature years. Le Sage, as already observed, published the first two volumes of Gil Bias in 1718, when he was 47 years of age, and the fourth and last in 1736, when he had attained his 67th year.

The greater part of the works of Le Sage have been collected and published under the title of 'Génes Choisies de Le Sage,' Paris, 1783, 15 vols. 8vo., and 1819, 16 vols. 8vo. Most of his novels have been frequently reprinted, but especially 'Gil Bias,' which has appeared in all forms from the most splendid typography and embellishments to the humblest. It has been translated into all the languages of Europe; the English translation is by Dr. Smollett. Le Sage’s other novels are 'Les Aventures de Leon de Bouteil,' which he published in 1724, 2 vols. 12mo., a dialogue full of philosophy and wit, the thoughts bold and original, and expressed with great energy. This was also the year in which he completed 'Gil Bias,' a work which is dedicated to the empress 'Isabella of Bourbon,' to which he devoted a large portion of the best part of his life. In 1738, the year in which he produced the last of his little operas, he published 'Le Bachelor de Salamanca,' 2 vols. 12mo., and in 1740 'Les Aventures de Don Quichotte,' 2 vols. 12mo., amusing stories of about thirty letters each, composed to be written by different persons on satirical subjects. His last work was 'Un Mélangé amusant de Saillies d’Esprit et de Traites Historiques les plus frappants,' 1 vol. 12mo.

Le Sage appears to have passed his life of literary activity...
convolute or cucullate; stamens five, bearing ovate two-
celled anthers; disk fleshy, cup-shaped, girding the ovary; 
ovid almost imbedded in the disk, three-celled; style 
short, thick; stigma three, sessile or three-lobed; fruit 
unknown. The species form shrubs, with slender, usually
thorny branches; leaves nearly oblong, lanceolate and 
 serrate; flowers small, crowded in axillary or terminal spikes. The 
only species which requires particular notice is S. theeo-
sans, which is remarkable as being employed as a substitute 
for tea, even in China, where the poor are described by 
Osbeck as making use of the leaves in the same manner 
as those of the true tea, and for which it makes a good sub-
stitute from its astrigency and fragrance.

SAGHALIEN. [Tahakai]
SAGINA, the name of a genus of plants, from sagino, 
to cram or flatten, a name not very appropriate. This 
genus belongs to the natural order Alismaceae, and is 
characterised by possessing an inferior calyx, with four spreading 
permanent sepals, four ovate obtuse petals, shorter than 
the calyx, four stamens, superior ovary, with four short 
styloes, capsule splitting into four valves, and numerous 
minute seeds attached to a central placenta. Four species 
are indigenous to Britain. They form small herbs, which are 
very generally diffused over the temperate regions of the globe.

SAGITTA (the Arrow). This constellation is one of the 
old ones, and is situated over the back of Aquila. In 
constellation is it stated that Sagitta is a part of Aquila 
in Aratus; but this, though very commonly stated, is 
erroneous, as is noticed by Grotius in his notes on Aratus; 
though the editor of Grotius himself countenances the 
error in the plates. Grotius traces the mistake to 
Germanicus in his Latin version.

The principal stars are as follows:—

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SAGITTA'RIA (from sagittula, an arrow, a term indicating 
the shape of the leaves), the name of a genus of plants 
belonging to the natural order Alismaceae. The genus 
is characterised by possessing barren and fertile flowers, with 
a 3-leaved calyx and three petals. The fertile flowers have 
numerous pistils collected into a head, and one-seeded com-
pressed and margined pericarps. The species of this genus 
are water-plants, and are found in the hotter and temperate 
parts of the globe, and are frequently remarkable for the 
beauty of their flowers. The only species indigenous in this 
country is the S. sagittifolia, common arrowhead, which is 
known by its arrow-shaped leaves with lanceolate straight 
lobes. The rhizomes of many of the species contain amy-
laceous matter, and form a nutritious food, for which 
purposes they are said to be used by the Cymric Tartars.

SAGITTA'RIUS (the Archer), one of the constellations of 
the zodiac, the figure of which is that of a centaur 
drawing the bow, and situated below Aquila, between Scorpius 
and Capricornus, and must not be confounded with 
CENTAURUS. The mythological account of this constellation 
is very meagre, and confirmatory of the reason given in Con-
stellation why the Greeks could not have been the first 
to give names to the constellations. Hyginus can find no 
more illustrious mortal to fix in this part of the heavens 
than one Grotius, the son of Eupheme, the nurse of the Muse;
SAG, a word signifying, in the language of the Papuas, bread, since it constitutes the staple article of food of the inhabitants of the Eastern Archipelago and other parts where the plants which yield it grow. It is not a seed, as sometimes supposed, but the farina from the stem of several palms and palm-like vegetables, the chief of which are the Sagus Rumphii, Wild. (Metroxylon sagu); the Sagus imbricata, Rox.; the Sagus Rumphii, Rox. (Gomutus Gommuto, Rumph.; Sagus vinifera, Pers.); the Phoenix farinifera, Corypha umbraculifera, some Cylices, and even a Zamia, but these last yield a very inferior sort. The cultivation of sago has been successfully carried on in North America for bread, and also a starch procured from the tubers of the Convolvulus Batatas is best up with the farina of the Euterpe caribena into sago in the West Indies. Of late years a very fine sago has been brought from Brazil, which is most likely to replace the best flexus, and other magnificent palms of that country. Sago is a variety of starch, prepared by the plant for the use of the flowers and fruit, and is most abundant just before the evolution or appearance of the spadix or flower-bud, which is known by a whitish plural transuding through the covering leafs.

At this time the stem is cut down, near the base, and then divided into pieces of five or six feet in length. 'A part of the outer hard wood is then sliced off, and the workman, coming to the pith, cuts across the longitudinal fibres and the pith together, leaved a half an inch at each end and a quarter of an inch when it is excavated there remains a trough, into which the pulp is again put, mixed with water, and beaten with a piece of wood; the fibres, being then separated from the pulp, float at the top, and the flour subducted in this manner by several waters, the pulp is put into cylindrical baskets made of the leaves of the tree; and, if it be kept some time, those baskets are generally sunk in fresh water to keep it moist, for the pulp will keep long if preserved in this manner. It presently turns sour.' (Forrest's Voyage to the Moluccas, p. 39.)

The quantity yielded by one tree is prodigious. Five or six hundred pounds are not an unusual produce for one tree; and as the vegetation still remains after being felled, a stem again grows up, which goes through the different stages of growth till it is fit for the axe.

The flour or powder is rarely imported, granulated sago being the state in which it is commonly brought to Europe.

'To bring it into this state from the flour, it must be moistened and stirred thorougly and covered over with earth held over a fire, which enables it to assume a globular form. Thus all our grained sago is half baked, and will keep long.' (Forrest.) Of this granulated sago there are two varieties, the smaller or brown sago and the pot sago. The former are small hard honey or semi-transparent grains, about the size of a pin's head; the latter are in larger grains, about the size of the grains of pearl barley. Both are inodorous, and with an insipid taste. They swell in cold water, and are nearly thoroughly soluble in boiling water, so as to form a thick starch-like solution, which may be used as a pudding, or prepared in other ways as an article of diet for children and invalids; for a farinaceous diet is required.

SAGOUN. [Jaccuus, vol. xii., p. 69.] The term Sagoun or Saguoun is also employed by M. F. Cuvier and others to distinguish the second division of the monkeys of the New Continent, with long but not prehensile tails. Under this division M. Lesson arranges the genera Saguoun, Lacép.; Noctiora, F. Cuv.; and Pitheca [Saxi], Don.

The genus Saguoun is thus defined by M. Lesson: --

Same character as in the Saguoun, excepting that the eyes are very large and deformed, and that the tail is covered with short hairs. Body slender. Facial angle, 60 degrees.

Dental formula: 4 1 1 1 4 1 1 1 6 molars 6 6 = 36.

M. Lesson arranges the following species under the genus: -- Saguoun, perulosus, lagus, amictus, torquatus, Microtarsus, and Saguounimus.

Example, Saguounimus Scutrum.

Description.-Size about that of a squirrel, hardly more than ten inches in length without the tail, which measures fourteen or fourteen inches. Body greenish-yellow above, becoming greyish on the thorax and arms; body beneath nearly white. Feet, legs, and fore-arms reddish chestnut. Muzzle dark; the rest of the face and ears flesh-coloured. Tail black at the tip. In both extremities the tails of the thumbs are broad: those of the rest of the fingers are more claw-like.

This is the Simia scutera, Linn.; Callithrix scucrea, Geoff.; Sagoun Saguoun, and Saguounimus of the French; Saguounimus of the natives of the Orinoco; and Tititi of Humboldt.

Locality.—Brazil and Guyana.

This pretty species is often kept by the natives in confinement. One in the Paris menagerie is described by M. F. Cuvier as very playful and good-humoured. The tail, when the animal was at rest, was wound round the body or limbs, in a position in which it was kept when the little creature slept, which it did in a sitting posture, with the head bent down between the fore-legs; but the tail was never used as a support. This is not an uncommon species.

The Salmiri.

Cuvier will not allow the Sagouni and Saguounimus to be classed together, and indeed he separates the Sagounimus above described and figured from the Saguoun, making the Sagouni intervene between the forms. He says that in the Saguounimus the tail is depressed, and ceases to be prehensile, and that the head is very flat. He also observes that there is a membranous space in the interorbital partition in the skull of the Sagounimus.

Of the Sagounimus (Callithrix, Geoff.) he says that they have the tail slender, and that their teeth do not project, remarking that they had for a long time been associated with the Saguounimus, but that the head of the Sagounimus is higher, and that their canines are much shorter. Such, he observes, are the Sagoun à masque (Callithrix personata, Geoff.), and the Sagoun en deuil or La Veuve (La Vidula, Simia lagus, Humb.).

The first of these, Callithrix personata (Sagounus percos lagus) is greyish-yellow, with the head and the four hands black, and a reddish tail.

Locality.—Brazil, where it is found between the 18th and 21st degrees of south latitude, on the banks of rivers.

The second, Callithrix lagus (Sagounus lagus), has the body of a shining black, with a purplish lustre on some parts: the hair soft and shining. The face has the appearance of a bluish-white square mask, which is surrounded by a narrow margin of a purer tinge, while two stripes of the same colour run from the eyes to the temples. The throat is marked with a band of white, of which colour are the anterior hands on the outside, so that they there resemble a pair of white gloves, to which the natives compare them.

Habits, Localities, etc.—This species, which is the Macaco caudatus of the natives, appears to be extremely rare. Humboldt saw only one specimen, and that in the forests bordering the rivers Cassiquiare and Guaviare. It was said to live in pairs; and this opinion was confirmed by the fear and dislike shown by the captive when placed near even some of the tamest and non-aggressive species of the genus. It was very shy, and was active only when alone. When in the vicinity of persons, though they were occupied in general business, it would remain immovably attentive to all that passed, refusing food even, notwithstanding a long fast. When alone its behaviour was very different. If a bird was introduced, the monkey was instantly roused at the sight of it, darted upon it like a cat, and swallowed it instantly, its whole habitat at such moments being that of a carnivorous animal.
posed, covered in its whole extent by a fine and loose sand. There certainly are tracts of considerable extent, the surface of which is covered with a thick layer of fine and loose sand, and with low sandy hills; but if we may judge from the scanty information that we have respecting this immense country, it would seem that the greater part of it consists of a firm soil, in many parts composed of indurated sand, and others of sandstone. The surface of other tracts consists of rocks, especially granite, frequently mixed with quartz soil, and the rocks are washed out of the atmosphere. The Saharan is situated on the western margin of the globe which separates the region of the winter rains from those of the summer rains, and it does not participate in either of them. In the greatest part of this extensive region the deposit of the newer fall is considerable; and in those districts which approach the countries which have abundant rains, only a few showers occur in August and September, and even these not every year. This want of rain renders the whole region unfit for any kind of culture, but not so for the nomad tribes, who roam about in this boundless waste. Travellers sometimes meet with great herds of camels, and from the nature of the country and from the character of its inhabitants. Though the camels occasionally find some shrubs or grass to satisfy their hunger, no provisions can be got along the whole route, which exceeds 1000 miles in length. The wells of the desert are springs of little value. The wells of drinkable water occur only at a distance of ten days' journey from one another, and sometimes the distance is still greater. The traveller in the desert must therefore provide himself with as much water as is required for his consumption until he reaches one. The season of the rains is drier and hotter than usual, the water is dried up, and he runs imminent risk of perishing of thirst. If he loses his way in the wilderness, a certain death awaits him. The bushes and thistles, which are covered with fine loose sand, the whirlwinds often blow with force, and raise a large portion of the sand to a considerable height, and deposit it again at some distance. Such piles of sand have buried many castles. The inhabitants of the desert are of the utmost possible servility, and the tribe leader always ready to attack the traveller, to deprive him of his goods, and to reduce him to slavery. In spite of all these dangers, the Saharan is annually traversed by several castles, which carry on the commerce between Soudan and the countries of the Mediterranean; and they venture to travel there is however a track across the desert, in which these dangers are comparatively small. It lies between 15° and 16° E. long., and owes its advantages partly to its climate and partly to its soil. It is remarkable that this track occurs in a part of the whole desert. The advantages of this as a thoroughfare for castles consist in the smaller extent of the sand-dunes, and in the continuity of the broken ridges of rocks.

The Saharan is a desert, but it is not, as is commonly sup-
SAH

rocky parts within, the rainless region resembles the sandy tracts in being without vegetation, the wells which occur between them are more numerous, and rarely more than a few days' journey from one another. The road through this country gives the easiest access to the interior of Africa from the north, and requires a more particular notice.

After leaving the town of Tripoli, the road runs south-east to the northern boundary of Fezzan, a country which partakes in some degree of the nature of the Sahara, presents much of the appearance of an extensive low plain. The surface of the plains is in general a firm sand, with a few rocky eminences and patches of gravel. In some spots not a vestige of vegetation appears, and the ground is in no place completely covered, except in a few small cases, where there is a turf. The hills are of inconceivable height, generally not exceeding 400 feet, and never rising above 600 feet. Many of them consist of limestone overlapped by lava; others are only sand-hills. They are without vegetation, but contain between them many fertile valleys. This country, which extends to the town of Sokna in Fezzan, has abundance of wells and water. The town of Sokna, which contains about 3000 inhabitants, is enclosed by walls and surrounded by groves of date-trees, the produce of which is of excellent quality. It is situated on the height of 100 feet above the level of the river, or Rosa Niger, occupying a width of about 35 miles in a straight line. The lower strata consist of a yellowish limestone, almost entirely composed of marine remains; but large masses of tufa basalt and irregular precipices occur. The highest mounds of the country are of gravel. There is no vegetation and no water. Travelling is extremely difficult, as the hills are furrowed by deep chasms and narrow ravines. Fezzan, which extends from this mountain range to the northern tropic, consists of numerous small cases set in between a vast waste of sand. [FEZZAN.] Water is abundant, except towards the southern boundary, where a level desert occurs, which can only be traversed in four days; but in the middle of it there is a large lake, 30 miles long, from 30 to 60 fathoms deep, and thirty miles, about 100 fathoms. The water then deepens very suddenly. A large sand-bank however extends from Greyhound Bay (21° 21' N. lat.) to Cape Mirik; it is known by the name of the Bank of Arguin, and on it the French frigate Medusa was lost in 1816. As to the currents, Lieut. Arlett observes that they do not set in towards the land, but run invariably in the direction of the coast, except east of Cape Juby (27° 59' N. lat. and 12° 55' W. long.), where the coast turns suddenly from south-west to west; and the current, having swept the coast of the Cape, strikes obliquely on the shore before attaining its regular course. This is the most dangerous place in the whole coast-line, as the swell is almost invariably from the north-west, and consequently almost directly on the coast; besides it, the dry hot winds, which blow continually from over the desert, being blown into the sea and mingling with the haze occasioned by the heavy surf, render this coast very indistinct. Lieut. Arlett thinks that it would be nearly impossible for a merchant ship embayed here to work off shore. The greatest strength of the current is usually at the distance of three to six miles from the land, and it gradually decreases as it recedes from it. Its average rate from Mogadore to Cape Juby is from one-half to three-quarters of a mile per hour. At Cape Juby it increases to one mile and a quarter per hour, and Cape Bojador its rate is about one mile. It is however true that the wind almost without exception blows from the north-west or west, and frequently in hard gales, especially in the night. As the trade-winds, which blow from a nearly opposite quarter, prevail in these latitudes, it is impossible to say whether they are produced by the arid soil of the Sahara being heated to an extraordinary degree by the almost perpendicular rays of the sun, gives rise to the westerly winds along the coast of the Sahara.

Soil.—The Sahel, or western part of the desert, is by far the worst part of the Sahara. It does not appear that in all this vast extent a single oasis occurs the soil of which is fit for agriculture or for the growth of date-trees. The soil itself borders varies greatly; in some places it is a shifting sand, which however is not inhabited. After three days more the country is reached which enjoys a small portion of the tropical rains, and the soil improves. At first the sandy soil is interspersed with clumps of grass, and here and there with low bushes; trees soon appear, and then increase in number. Thus the desert ceases near 16° N. lat., but no permanent habitations are met with until the vicinity of Lári is reached, a town which is situated a short distance from lake Tchad (14° 20' N. lat.). The desert between Bilma and Lári is called the Desert of Tintúma.

The tract just noticed as traversing the desert from north to south, divides the Sahara into two unequal portions, of which the western and larger is known among the natives by the name of Sahel, and the eastern smaller among the geographers of that by the Libyan Desert.

Coast.—Until lately many misconceptions prevailed respecting this coast, and many errors occur in the charts of its situation. It is now known that it lies more than 400 miles along the Atlantic. It was said that the coast was sandy, and so low that it could only be discovered at a very short distance; that it was lined by extensive sand-banks and shoals; and that the current set perpendicularly towards the shore. It was added that a fog frequently concealed it from the navigator, who was driven towards it by a strong wind which blew directly on the coast. All these circumstances, it was supposed, contributed to the number of shipwrecks which annually occurred in this coast, and drew a great number of Christians into the hands of the Moors, who reduced them to slavery. Modern surveys of the shore however have shown that nearly the whole of the coast is elevated, and consists of sandstone, which in most parts rises more or less abrupt, but nowhere exceeds 60 or 80 feet. These cliffs are generally separated from the sea by a narrow beach; but in some places their base is immediately washed by the ocean; and in others sand hills are observed, which rise gently to a moderate height; at some places, cliffs of great elevation; and the coast generally occurs between cape Mirk (19° N. lat.) and the mouth of the river Senegal, but here also dunes are found at a great distance from the shore, and behind these the flat country seems to have a considerable elevation above the sea. The mouth of the Senegal, as far as the coast of Sénégambie, is formed by sand-banks and shoals, and has regular soundings. The depth gradually increases from the beach, and at the distance of four miles there are from 30 to 34 fathoms; at six miles from 30 to 60 fathoms; and at 12 miles, thirty miles, about 100 fathoms. The water then deepens very suddenly. A large sand-bank however extends from Greyhound Bay (21° 21' N. lat.) to Cape Mirik; it is known by the name of the Bank of Arguin, and on it the French frigate Medusa was lost in 1816. As to the currents, Lieut. Arlett observes that they do not set in towards the land, but run invariably in the direction of the coast, except east of Cape Juby (27° 59' N. lat. and 12° 55' W. long.), where the coast turns suddenly from south-west to west; and the current, having swept the coast of the Cape, strikes obliquely on the shore before attaining its regular course. This is the most dangerous place in the whole coast-line, as the swell is almost invariably from the north-west, and consequently almost directly on the coast; besides it, the dry hot winds, which blow continually from over the desert, being blown into the sea and mingling with the haze occasioned by the heavy surf, render this coast very indistinct. Lieut. Arlett thinks that it would be nearly impossible for a merchant ship embayed here to work off shore. The greatest strength of the current is usually at the distance of three to six miles from the land, and it gradually decreases as it recedes from it. Its average rate from Mogadore to Cape Juby is from one-half to three-quarters of a mile per hour. At Cape Juby it increases to one mile and a quarter per hour, and Cape Bojador its rate is about one mile. It is however true that the wind almost without exception blows from the north-west or west, and frequently in hard gales, especially in the night. As the trade-winds, which blow from a nearly opposite quarter, prevail in these latitudes, it is impossible to say whether they are produced by the arid soil of the Sahara being heated to an extraordinary degree by the almost perpendicular rays of the sun, gives rise to the westerly winds along the coast of the Sahara.

Soil.—The Sahel, or western part of the desert, is by far the worst part of the Sahara. It does not appear that in all this vast extent a single oasis occurs the soil of which is fit for agriculture or for the growth of date-trees. The soil itself borders varies greatly; in some places it is a shifting sand, which however is not inhabited. After three days more the country is reached which enjoys a small portion of the tropical rains, and the soil improves. At first the sandy soil is interspersed with clumps of grass, and here and there with low bushes; trees soon appear, and then increase in number. Thus the desert ceases near 16° N. lat., but no
sions between the hills and sometimes at the base of the rocky elevations, but it consists only of a few grasses and shrubs. It would however appear that there must be numerous tracts, though probably of small extent, which are fit for pasture. For as a matter of fact, all accounts, the number of individuals who find subsistence in this part of the Sahara is far from small, and they subsist altogether on the produce of their herds. It is true that the great commercial road which traverses the desert between Drâa in Morocco and Djanet in southern Algeria passes through a tract which is incapable of affording subsistence to a single family. It is however stated, and with some degree of probability, that the caravan road has been purposely formed through the worst part of the desert, the merchants being less afraid of the country that they have to pass through to which they have to encounter if they traversed a tract which is inhabited by numerous independent tribes, each of which is eager to enrich itself by plundering the caravans or subjecting them to a heavy tax for a few pasage through their territories. It is at least certain that the country along the coast is far from being entirely destitute of inhabitants, as they always make their appearance when a vessel approaches or is in sight on the horizon. It would also appear that at no great distance from the coast lies the famous Casablanca, one of the most fertile pastures of the Sahara, which is in a sense the gateway to the desert. The country extends along the coast road, so that the castas generally terminate their long journey without meeting with a single person. The different tracts covered with sand, gravel, and rock, as well as the vast extent of law hillocks, often occur in the same road, run east and west, a fact which may perhaps be accounted for by the circumstance of the wind almost without exception blowing from the east. The country between this road and the above-mentioned country between Tafilalet and Morocco has known the name of the Sahel, but the tribes of the Tuaregs which inhabit it appear to be numerous, and to consist of many individuals. The Libyan desert, or eastern part of the Sahara, contains a considerable number of oases or fertile tracts, which support a moderate population. North of them are all the extensive groves of date-trees and fields in which durra is grown. Besides several oases which lie at the distance of two to three days' journey from the valley of the Nile on the east and west, and which are not over twenty miles apart, several others of some extent occur along the caravan route which leads from Dar-Fur northward to Tibesti, but our knowledge of the countries along this road is so imperfect, as no European has ever crossed it. Other oases occur near the borders of the Libyan desert, and among which are Siwa and Augila. [Augila]

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their hair is not woolly, like that of the negroes, but straight; they have a sparse body, and rather slender legs; the spine is slightly curved, the face long, the cheeks hollow, the eyes sunk but lively. They speak the Moghrebien dialect of the Arabic language, and though they live on the produce of their herds, and consequently lead a nomadic life, they take care of the education of their children, and even the women are instructed in reading and some part of the Koran. They are very expert in tanning and preparing leather, and in manufacturing, with only a hammer and a little anvil, bracelets, earrings, and necklaces of gold, in making knives and daggers, and even the saddles for their horses. Many of them are merchants, and a still greater number are employed in accompanying the camel caravans on the route between Drah and Timbuctoo. The best known of the Moorish tribes are those in these territories, the gum forests are situated, and who bring their produce to the European settlements on the Senegal.

The numerous tribes of the Tuaregs occupy the centre of the Sahara, or that country which lies between the two great caravan routes that traverse it from north to south. The form of their body and their language prove that they belong to the aboriginal inhabitants of Northern Africa, who are known by the name of Berbers, and in Marocco are called the Amazighis. They are much stouter than the negroes, their legs are not so long, their nose is aquiline, the eyes large, the mouth finely formed, the face long, and the forehead rather elevated. Their language is said to be similar to that of the Amazighis, but this fact has not yet been well ascertained. They live on the products of their herds and flocks, but also cultivate some rice and cotton. They are less warlike than their neighbours the Tuaregs, and much exposed to be pillaged by them where the two nations live near one another. They are armed like the Tuaregs.

Along the boundary-line of Egypt and Nubia there are some Arabian tribes, which have preserved the manners and language of the Bedouins, and resemble them in every respect. The use of fire-arms, which they have universally adopted, is a point here where they have contrived to be removed from their neighbours the Tibboos, and even of the braver Tuaregs.

Commerce.—Though the Sahara only supplies three commercial products, salt, gum arabic, and ostrich feathers, a considerable traffic is carried on between the countries north and south of the desert, which is frequently traversed by caravans, or caravans, consisting of 200 to 500 persons, and of from 500 to 2000 camels. A camel's load is five hundred pounds. The caravans export from the countries situated on the Mediterranean coast large good European manufactures, gun-powder, and some cotton stuffs, to which are added some articles manufactured at Fes, and tobacco, dates, &c. Their returns consist of gold, ostrich feathers, ivory, and slaves. In traversing the desert they buy large quantities of salt, which they sell in Soudan at a great profit. The road which the caravans take between Tripoli and Bornou has been already noticed. Another road, less frequented by caravans, runs from Timbuctoo northward to Fes. About 150 miles north of Timbuctoo is found the Mediterranean coast, where there are about 300 houses, and 3000 inhabitants. Moors and Tuaregs. Near the town there are some good wells, and also some grass, but nothing is cultivated, and provisions are brought from Samsanding in Bambaraland. There is no place set up on the road, but until the southern declivities of the Atlas are reached. There are a few wells in the central and northern districts through which the roads pass, but in those which lie contiguous to El Arawan there is only one well, which is more than 200 miles from that place. After having reached the southern declivities of the Atlas the carilla passes through the countries of El Harth, El Dras, and El Gara, and over the elevated range of mountains to Fez. The road which leads from Mogodore to Tarudant or Taroudant, and thence to Tatta, is to be considered a branch of this road. From Tatta it takes an eastern direction, and soon falls in with the great caravan line. The road is known by two roads and from Bornou to Timbuctoo or El Arawan, and passes first nearly north until it reaches, near 26° N. lat., the oasis of Touat or Tawat, whence it continues in a north-eastern direction to Gadames, which is on the southern declivity of the hilly region which divides the Sahara from Tripoli. On this road the traveller spends eight days without finding a well. A caravan route traverses the Libyan desert, beginning in Soudan at Wara, the capital of the country of Dar-Zaleh or Wadi, and traversing Borgou and Tibesti in a north-western direction. From the last-mentioned place it runs westward to a road that leads from Bornou to Tripoli. No European has ever travelled along this road. The most eastern caravan road that traverses the Sahara connects Dar-Fur with Egypt: it begins at Cobe, the commercial town of Dar-Fur, and passing through the small oases of Bir-el-Mahala, Legheba, Selimah, and Sheeb, it reaches Wady Kharghe, or the Great Oasis (25° N. lat.), whence two roads lead to Egypt, one to the town of Girgeh and the other to Suoit. (Bahr-ru.)

Salt is got in great abundance at three places in the Sahel: at Toudeny, which is situated near 21° 30' N. lat. and 4° W. long.; at Hoden or Waden, near 26° N. lat. and 4° W. long.; and at Dimgarin, near 29° N. lat. and 12° W. long. The town of Waden sends the abundant produce of the rock-salt mines of Toudeny to the countries on the banks of the Joliba, especially to Sansanding and Yamina, and receives in return ivory, gold, slaves, wax, and various cloths and cured provisions. The salt obtained from the rock-salt mines of Hoden and Shimgarin is carried to the same places and to Segyo by the caravans of the merchants of Walet, a town which is said not to be inferior in extent and population to Timbuctoo, which contains about 2000 inhabitants. The position of Walet is not well ascertained. According to Mungo Park, it lies between 15° and 16° N. lat. and between 5° and 6° W. long., on the border of the Sahara, and is surrounded by a sterile country. The caravan route from Timbuctoo to Benown in Ladamur passes through Walet.

An extensive fishery is carried on along the coast of the Sahara by the inhabitants of the Canary Islands. This fishery commences on the north at Cape Nun; the fish are very seldom venturing to the farther north. The fish are very abundant there, from fear of the Moors on that part of the coast, who possess boats. From Cape Nun to the bank of Arguin, which is the extent of the fishery, the inhabitants of the desert have not a single boat. The fish consist of several species of perch and red snapper. The tonnage of the schooners employed in this fishery is from 100 to 150. The fish are very abundant, and weigh from eight to sixty pounds each. Every schooner takes daily on an average three hundredweight. The number of persons employed in this fishery is considerable. It gives employment to between 400 and 500 men from the island of Lanzarote, to about 250 from Fuerteventura, and to a considerable number from the other islands. Fish constitutes the principal food of the poorer inhabitants of the Canaries. The fishermen frequently land, not only to procure water, but to barter their fish with the inhabitants of the desert for wool and orchils.

Discoveries.—The nature of the Sahara opposes insuperable obstacles to the progress of a conqueror. The Greeks and Romans were only well acquainted with the oases of the Libyan desert, which are at no great distance from the western edge of the valley of the Nile, and with those which are contiguous to the rocky region that surrounds the Ammonium (now Siwalla, Augila, and Cydamanum (now Gadames). The coast of the Sahara was discovered by the Portuguese between 1412 and 1443 [AFRICA, vol. i., p. 174], but the interior of that country has remained unknown until the days of the great impulse to discovery in the interior of Africa was given by the establishment of the African Association westward. But greater success (1793) in penetrating to Dar-Fur, with the
Soothan caravan, through the oasis which lie west of the valley of the Nile. Before he published his Travels (1892), Mungo Park had returned from the banks of the Joliba, where he had collected some information respecting the south-western districts of the Sahara, though he had only been on the borders of the desert. Two years afterwards the travels of Hornemann were published, who had penetrated from Egypt to Fezann by the way of Siwaah and Aulis. Though more had thus been done towards discovering the western deserts of Africa in the eighteenth century than in all previous time, no important addition to our knowledge of the Sahara was made during the next twenty years, except a few facts contained in the narrative of a shipwrecked American sailor named Adamus, which was published in 1816. Hornemann indeed is said to have crossed the Sahara, and to have proceeded as far as Nysa, supposed to be about 10° 30' N. lat., but no record has been preserved of his journey.

In 1831 he crossed Africa from Tripoli, and although he did not add much to our knowledge of the Sahara, as he did not proceed farther than Tegeryi (24° N. lat.) near the southern boundary of Fezann, he collected much interesting information, which was published in 1831. Descriptions of Adamus, and Odunny, and of the same route, not only traversed the desert in all its width from Tripoli to Benhous but discovered a considerable extent of Soodan. These important discoveries were to be enlarged by the travels of Major Laiing, who in 1825 visited the westernmost part of Soodan, and reached Timbuctoo, but on attempting to return to Mecca by the way of El Aryan, he was murdered by the natives before he reached El Aryan. Two years afterwards Caulif, a Frenchman, who in 1827 had traversed the southern portion of Senegambia, between 10° and 12° N. lat., and then passed through the western countries of Soodan to Timbuctoo, described the little-mentioned place, and reached the route which is frequented by the caravans that carry on the trade between Soodan and Mecca. A few years ago Davidson made an attempt to reach Timbuctoo by the route from Wady Nun to Tatta, and hence to rejoin the great caravan, when he was murdered by the natives.

All the nomadic tribes which inhabit the Sahara are independent; but Fezann and Chadames are subject to Tripoli, and the oases along the western edge of the valley of the Nile as well as those farther south, depend on the Emirs of Fezann.


Said ibn Batric, the name of a person more commonly known by the appellation of Euthychius (Borchys, Arabice Efitras), which signifies 'Happy in Greek, as 'Said' does in Arabic. He was born A.H. 563 (A.D. 873), at Fezann, and was originally brought up as a Christian; and we are told by Ibn Abi Qaticha (Ouvin Al-Abmi, T. Tabacti Al-Atabbi, Pontes Relation Du Classique Mediteranien, cap. 14, sec. 10) that he excelled both in the theory and practice of that profession, and that he composed several works of importance. But it is generally agreed that he is best known, and as one of the Melchite*.

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approximations to the rules which should guide the practice of the seaman. And in order to simplify the problem, it is necessary to suppose that the ship is furnished with only one sail, whose area is such that the action of the wind upon it may be equivalent to the efficient action of the wind upon all the sails. The centre of gravity, as it is called by foreign writers, or the centre of pressure, must also be supposed to be at the centre of gravity of the sail. That part of the ship's surface which is resisted by the water must moreover be represented by a plane surface whose area is such that this resistance shall be equivalent to the efficient action of the water on the ship.

The pressure of the air perpendicularly against a plane surface equal to one square foot is usually estimated at 14.7 lb. [Note: The value given in the original text is 6.86 lb per square foot, which is incorrect. The correct value is 14.7 lb per square foot.]

avoiding exposure, the surface pressed being at rest, and the wind moving would be expressed equal to one foot per second, or about 0.68 mile per hour; also the resistance of water against a like surface and moving with an equal velocity estimated at 1.5 lb. The pressure or resistance, by the laws of vis viva, is directly proportional to the square of the velocity; and, from the resolution of forces, it may be shown [Aerodynamics] that the effective force with which a fluid strikes a plane surface obliquely, when estimated in a direction perpendicular to the plane, varies with the square of the component of the velocity of the fluid parallel to the plane of the force, and is independent of the angle of incidence of the fluid. The pressure on the sail, or the sum of the pressures of the innumerable streamlets of air striking it, would be equal to the pressure on the sail parallel to the plane of the force, if the height of the sail were very small. The pressures vary nearly as the sines of the inclinations.

In determining the pressure of a fluid against the surface, which is in motion, it must be observed that, by the laws of the collision of bodies, the efficient velocity of the force is the velocity with which the particle of fluid would be projected in the direction of the force, if the particle were at rest. The component of the velocity of the fluid parallel to the plane of the force will therefore be the actual velocity of the particle of fluid, and the pressure is to be multiplied by this velocity.

Hence, when the wind and ship are moving in the same direction, the effective velocity is the difference, and when they are moving in opposite directions, it is the sum of the two velocities. It must also be observed that the force of the wind and the reaction of the water are to be considered as taking place in horizontal directions, and that the effective pressure of the wind on a flat sail is in a direction perpendicular to the plane of the sail, whatever be the position of the latter and the direction of the wind.

Now when a ship sails before the wind in still water, if we consider the sail as a plane surface at right angles to the keel of the ship and to the direction of the wind; representing the projection of the sail on the plane of the keel, when the velocity is one foot per second, by P, and the pressure of the water on a square foot with an equal velocity by P'; also putting V for the velocity of the wind, and V for that of the ship, both being expressed in feet per second; A for the area of the sail and A' for that of a vertical section through the immersed part of the ship taken perpendicularly to the keel; the equation of equilibrium will evidently be

\[ A \cdot (V - V')^2 = A' \cdot P' \cdot V' \cdot V \]

and from this equation V' may be easily found. It follows from the same equation that, when the other terms are constant, \( \frac{V - V'}{V} \) varies with \( \sqrt{A} \), or the velocity of the wind in the sail is to the velocity of the ship as unity is to the square root of the surface of the sail.

But while the plane of the sail is supposed to be perpendicular to the keel of the ship, let the direction of the wind be oblique to both, and let the force of impulse perpendicular to the sail be equal to the square of the inclination of the wind to the sail; then, if KL be the keel, M the place of the mast, yz the position of the yard, and W' M' represent the direction and velocity of the wind, we shall have W'M' sin \( \theta \) W'M' for the force of impulse with which a particle of air acts on the sail. The value of the impulse is however correct only at the moment before the ship begins to move; for, let the ship be advancing in the direction KL with a velocity such that the sail moves parallel to itself from M to R, while a particle of water would move from W' to M if the ship were at rest,—it will be evident now that a flag at M, which, when the ship is at rest, would have its plane in the direction W'M' produced, being carried by the motion of the ship from M towards L, would be acted on by the particles of air coming against it, as if it were resisted by forces parallel to MR and tending from R towards M; therefore the forces parallel to W'M and RM being respectively proportional to those lines, the flag will be carried in the same direction as the impulse, the diagonal of the parallelogram W'R. This is the efficient direction of the wind, and its velocity may be represented by that diagonal, when of that of the wind in its true direction is represented by W'M; consequently the impulse of the wind at the keel is AQ sin AQB with the former expression for the resistance of the water. The values of W'M and of MR, that is, V and V', the absolute velocities of the wind and ship, and also the angle LMW' being known, the value of W'M may be computed.

When the direction of the wind is not coincident with the line of the ship's keel, its power to impel the ship forward will be increased by placing the sail in some oblique position as YZ. In this case let MC, perpendicular to YZ, represent the velocity with which, if not resisted by the water, the ship would move by the action of the wind. Then, by the resolution of forces, the velocity \( V' \) of the wind perpendicularly on KL, MD and DC will represent the velocities in those directions; and, in the case of equilibrium between the actions of the wind and water, the resistance of the latter against the side of the ship perpendicularly to the keel will be \( V' \cdot A' \cdot \cos \alpha \) EMD for the resistance against the bows. Therefore

\[ \tan \alpha = \frac{\sin \alpha \cdot EMD - A' \cdot \cos \alpha \cdot EMD}{A' \cdot \sin \alpha \cdot EMD} \]

consequently, the ratio of \( A' \) to \( A'' \) being supposed to be known, the value of EMD, that is, the ship's lee-way, might be found. If ZMD=45°, and the ratio of \( A'' \) to \( A' \) be assumed to be \( 12 \) to \( 1 \), the lee-way will be found to be 16° 19'; and if ZMD=30°, the lee-way will be 20° 49'. But experiment alone can determine this element, for, with equal velocities and equal quantities of sail, it varies in different ships; and, in the same ship, with the velocity, and the disposition and quantity of the sail.

Let MN represent the velocity of the ship in the direction ME; then wM, the diagonal of the parallelogram WN, will represent the efficient velocity of the wind in that direction, WM being the true direction of the velocity; and letting fall on YZ the perpendicular wZ, this last line will represent the velocity perpendicularly to the
sail. Therefore the force of the wind in this direction will be proportional to \( V^2 \); then drawing \( V \) parallel to \( M'P \), through \( Z \) perpendicularly to \( ME \) and \( VQ \), we have \( ZQ = \text{co.} \text{Z.} \text{Q} \), or \( V \) sin. \( ZME \). But \( V^2 \) varies as \( \sin. \text{angle} \text{Z} \text{M} \text{Z} \); therefore the force of the wind in this direction is proportional to \( \sin. \text{angle} \text{Z} \text{M} \text{Z} \), and \( V \) being the impulse of the square of the velocity produced by it, it follows that the velocity of the ship will vary with \( \sin. \text{angle} \text{Z} \text{M} \text{Z} \). Now making the differential of this expression equal to zero, we shall get \( \text{angle} \text{Z} \text{M} \text{Z} \) constant and \( \text{angle} \text{Z} \text{M} \text{Z} \) variable, it will be found that this product is a maximum when \( \text{angle} \text{Z} \text{M} \text{Z} = \frac{1}{2} \), or that tan. \( \text{angle} \text{Z} \text{M} \text{Z} = \text{tan.} \text{angle} \text{Z} \text{M} \text{Z} \).

In Maclaurin's "Fluxions" (art. 912) there is given an investigation of the angle \( \text{angle} WMZ \), between the true direction of the wind and the plane of the sail, when the velocity of the ship's motion in \( ME \) is a maximum. The general expression is complex, but when the direction of the wind is perpendicular to the ship's course we have \( WMZ = \frac{9}{2} \sqrt{5} \), \( \text{angle} V \), \( \text{angle} V \) being the velocity of the ship and \( V \) that of the wind.

Therefore, if the velocity of the ship were very small, we should have \( WMZ = \frac{1}{2} \frac{1}{2} \), or \( WMZ = 54\frac{1}{2}^\circ \), making \( \text{angle} V \) and \( \text{angle} V \) equal, we obtain for \( \text{angle} WMZ \) the several corresponding values \( 61^\circ 27' \), \( 63^\circ 26' \), and \( 66^\circ 58' \). It may be observed also that, if both \( \text{angle} WMZ \) and \( V \) be given, the velocity of the ship will be a maximum when the angle \( \text{angle} WMZ \) is a right angle, or when the sails are perpendicular to the true direction of the wind.

In the same work (art. 917) there is given the investigation of an equation from which may be determined the angle \( \text{angle} WMZ \), between the plane of the sail and the line of the wind, when the velocity of the ship's motion in \( ME \) is a maximum from that equation it is inferred (art. 919) that, if the wind is perpendicular to the sail, the velocity is the greatest (provided the velocity of the ship before the wind be not less than one-third of the velocity of the wind) when \( \text{angle} WMZ = \frac{1}{2} \text{rad.} = (V-1)^{-1} \); \( V \), the velocity of the ship being expressed by unity, and \( V \), the true velocity of the wind, by a multiple of that velocity. It may also be inferred from the same equation, that if the velocity of the wind be such as to cause the velocity of the ship to be greater than one-third of itself, the ship will sail faster when the course is one-third of the wind than when it is parallel with its direction.

The force of the wind, which is denoted by \( P.A. \text{angle} WMZ \), \( \text{angle} WMZ \), being made equal to \( P.A. V^2 \), which will express the resistance of the water, if \( A \) represent the area of the section of the ship perpendicularly to \( ME \), the value of \( V^2 \), the velocity of the ship, might from thence be obtained; and from the expression of that value it may be seen that, while the other terms remain the same, the velocity of the ship varies with the relative velocity of the wind and ship, with the sine of its inclination to the plane of the sail, and with the square root of the area of the sail. Hence also, when the velocity of the wind and both the area and position of the sail are constant, the velocity of the ship varies with \( \text{angle} WMZ \); that is, with the sine of the angle made by the apparent direction of the wind and the plane of the sail. It may be inferred from the general equation, that, by sufficiently increasing \( A \), and the angle \( \text{angle} WMZ \), the velocity \( V \) of the ship may be made to exceed that of the wind.

If it were required to find the course of the ship and the position of the sails, so that the ship might recede most rapidly from any point of danger, as from a lee-coast situated, for example, in the position indicated by \( M'P \), at the instant when \( \text{angle} WMZ \) is \( \frac{1}{2} \), it will be sufficient to draw \( MP \) parallel to \( M'P \), that is, perpendicularly to \( WMZ \). Then, the velocity of the ship in the direction \( ME \) being represented by \( \text{angle} WMZ \), \( \text{angle} WMZ \), let \( \text{angle} WMZ \) be resolved into the direction perpendicular to \( MP \), to \( MP \), and to \( MP \). The ship will recede most rapidly from \( M'P \) when the expression \( \text{angle} WMZ \), \( \text{angle} WMZ \), \( \text{angle} WMZ \) is a maximum. On making the differential of this expression equal to zero, we shall find that the velocity perpendicular to \( MP \) is the greatest when \( \text{angle} WMZ \) is divided into two parts as the tangents of the angles \( \text{angle} WMZ \), \( \text{angle} WMZ \), and \( \text{angle} WMZ \) are to one another as the numbers \( 2, 1, \) and \( 6 \). If the velocity of the ship be very small, we shall have \( \text{angle} WMZ \), or its equal \( 154^\circ 16' \) nearly; and \( \text{angle} WMZ \) = \( 35^\circ 16' \) nearly. And since receding at right angles from a line \( M'P \), when that line is perpendicular to the direction of the wind, is an advance towards the wind; it follows that the above value of \( \text{angle} WMZ \) will indicate the position which the sail should have with respect to the wind, in order that the ship may get to windward with the greatest possible velocity. If the velocity of the ship be taken into consideration, the angles \( \text{angle} WMZ \) and \( \text{angle} WMZ \) will, as before, be modified by the relation between the velocities of the ship and sail and \( \text{angle} WMZ \) and \( \text{angle} WMZ \).

Since the lee-way, which a ship always makes when her sails are oblique to the direction of the wind, destroys the equality of the reaction of the water which would take place on the two bows in one movement were in the direction of the ship's keel, and gives rise to an excess of pressure against the lee-bow; it follows that in these circumstances the ship's head is constantly forced to windward, and that the tendency of the ship to turn on the axis of the rotation is so much greater as the bow is more acute. To oppose, as some measure, this tendency, the quantity of sail in front of the centre of rotation is greater than that which is behind it; but, notwithstanding such disposition, it always requires some movement of the rudder to complete the counteraction.  

SAILING, OR THE SAILINGS, a term applied to the different ways in which the path of a ship at sea and the variations of its geographical positions are represented on paper. It is also applied occasionally to the rules by which in particular circumstances, a ship's place and its motion are computed.

Plane sailing consists in representing the line of a ship's course or way, for a given time, with the difference between the latitude and between the azimuths of the points of such course by the three sides of a right-angled plane triangle, of which the distance actually sailed is the hypotenuse; the spaces on all the lines being expressed in nautical miles or equalangular minutes of a degree, as if the course were a true surface. If these parallels of latitude were straight lines respectively parallel to each other.

Middle-latitude sailing and globular sailing have been briefly defined under those words; and the first of these methods, together with parallels of latitude in their proper places, have been explained under RECKONING AT SAIL. The term globular sailing is only a general designation of all those which have been above named, except plane sailing, and it includes also that which is called great-circle sailing; because in these methods of furnishing information are founded on the hypothesis that the earth is a sphere.

Great-circle sailing consists in determining a series of points in an arc of a great circle between two points on the surface of the earth, the first of which, may be the departure, course nearly as possible as such a point; that is, on the curve of shortest distance between the place from which she sets out and at which she arrives. If a ship were to sail on the circumference of the equator, or of any meridian, the direction of her course would be invariably east and west, or north and south, and the spaces passed over would be differences of longitude or differences of latitude merely. If the points of departure and arrival were in any other direction, the ship's course on the arc of a great circle between them will, with the same accuracy, be represented by a straight line; but, when great-circle sailing is attempted, it is usual, for the sake of simplicity, to consider each portion of the circle as (the differences of longitude or latitude between its extremes not exceeding four or five degrees) as coincident with some rhumb line. If a series of such portions is determined by means of the latitudes and longitudes of their several extremities, the portions, represented by right lines, may be transferred to a chart by a sector or a protractor, on which the successive courses which a ship must take in order that it may continue to sail nearly in the required direction.

The longitudes and latitudes of the points of departure and arrival being supposed to be given, the distance between those points and also the two angles of position, the points of angles between the meridians of the two points and the great circle joining them, may be computed. Then, if the course be assumed on the arc at any convenient equal interval of longitude, and the latitudes of those points be com
cuted, the positions of the several portions on the great circle will be completely determined. In these computations the rules of spherical trigonometry may be employed, but the operations will be facilitated by the use of the spherical traverse tables, which show, on inspection, the values of the two terms in the cosine of an angle of a triangle whose three sides are known. (Raper, *Practice of Navigation*.)

Traverse sailing is merely a general term for the determination of a single course equivalent to a series of successive courses, whatever be the manner of finding the lengths of the courses themselves. Oblique sailing consists in determining the position of a ship by observing with a compass the bearings of two or more objects on the shore, whose places are given on a chart, and drawing lines from those places so as to make angles with their meridians equal to the observed bearings; the intersection of the lines gives on the chart the position of the ship. This is sometimes called the method of cross bearings. The term oblique sailing is also applied to any problem in which (when the triangles are not right-angled) the distance of the ship from any object on the shore, or of such objects from one another, are computed by the rules of plane trigonometry from bearings observed at the ship when the latter is at two or at a greater number of stations.

Locating the ship by its position at the time of a ship when, besides being acted upon by the wind, she is moving in a current. (Reckoning at Sea, p. 326, col. 2.) Lastly, Windward sailing is a term applied to that mode of navigation in which the wind is on one side and the other was either ahead or abaft the beam. In order to destroy this term also, in a steam-boat having a compass on the deck or in a cabin, so that the iron work may be nearly equally diffused above and below it, it would be necessary, in addition to Barlow's plate, to have a mass of iron on the same level as the compass, but doubled in size and in a situation found by trial, so that the compass may point correctly when the ship's head lies north-east, south-east, south-west, and north-west. The compass will then point correctly in a manner similar to that of the other compasses. As a general rule for the application of iron in order to correct the local attractions on ships' compasses, Mr. Airy remarks that if a mass of iron be placed opposite an equal mass, both in azimuth and elevation with respect to the compass, the disturbing effect of the mass is doubled. If one mass be placed opposite the other in azimuth, and at the same elevation or depression, or if it be placed in the same azimuth, but with an elevation instead of a depression, and vice versa, it destroys one term in the disturbing force of the compass, and doubles another, so that the mass is at the same level as the compass, its effects may be destroyed by placing another mass at the same level, but at a distance in azimuth equal to 90° on either side.

Instead of an iron plate for the correction of local attractions, Mr. Airy recommends an iron scroll, or a long box containing an iron chain, with one end only directed towards the compass; by this means the inequality of magnetic action in different parts of a broad plate will be avoided.

Mr. Barlow gives the following rule for finding the effect of local attraction on an observed azimuth of the sun:—Take the bearing of the sun by the azimuth compass, or rather, take a mean of several observed bearings in the usual way; first without the correcting plate, and afterwards with the plate attached to the compass; the difference between these two observations, or between the means of the several observations, is due to local attraction. Then if the observations without the plate are diminished by using the plate, the local attraction is the same as to the bearings observed without the plate, in order to give the mean azimuth. If the first observations are increased, the local attraction is to be subtracted.

SAIMA LAKES. [Russian Empire.]

SAIMIRI. [Sadgoda.]

SAINFON. *Hydrangium onobrischis, is a plant of the family of the Logemunniaceae, which grows luxuriantly and spontaneously on the calcareous mountains of the middle and south of Europe. It has been in regular cultivation in various countries for the purpose of supplying fodder for cattle, either in the green state or when thoroughly dry. There are few plants which have more rapidly improved the value of poor thin calcareous soils than sainfon; and in the richer kinds of loam, which contain a considerable proportion of calcareous matter or marl, sainfon surpasses
even that of broad shaving, giving fully as great a return, with a much smaller outlay of expense. The plant has a strong woody and fibrous root, which insinuates itself into the fissures of calcareous rocks, and finds moisture in the driest seasons, while its spreading fibres keep the earth from being washed down the steep slopes of the hills. Being nearly perennial, or at least of many years duration, it binds the soil together. In favourable situations, it may be made into hay twice in the year, or cut oftener as green fodder.

In the most arid and exposed situations, it gives at least one good crop of hay. The plant grows about two feet high, and the stalks, when cut, emit a strong smell of camphor. The plant is crowned with a beautiful spike of flowers of the papilionaceous kind. After it has been mown, it shoots out rapidly again, and may be advantageously depasturised by every kind of cattle or sheep. There are varieties of the plant, which differ in the rapidity of their growth; the best is called in France *espardelle* or *sainfoin à deux coups*. From France it has been introduced into England. The duration of sainfoin depends on the nature of the soil, and the state it was in with respect to weeds when it was sown. A cold wet soil soon destroys the roots, whereas a free and dry one, whether rocky or gravelly, gives them vigour. Grass and weeds, which choke the crown of the plant, soon cause it to decay, as is the case with lucerne. With every advantage, it may last ten years, especially if it is occasionally invigorated with a top-dressing of manure or ashes, or, which is best of all, with diluted urine, or the drainings from dung-hills. During that time it may be cut twice for hay every year, taking care to cut it before the flower is faded or the seed formed, for if it is cut, the sheep or swine fold, which is after the second cutting, the next crop will well repay the trouble. It is usually sown in spring in a crop of barley or oats, which should be sown thin in order that the sainfoin may not be smothered. The land should have been cleared of weeds, such as turnips fed off by sheep folded on them. From three to four bushels of seed may be sown, harrowed in, and rolled. It is not often drilled, although this method, by allowing the use of the hoe between the rows, strengthens them against coarse grasses, which are their greatest enemies. In the first year the sainfoin should not be fed off by sheep; and if it is mown, it should not be too close to the ground. The crown of the root in the young plant rises a little above the ground; and if this be cut off, or cut with the seythe, the plant dies. It is useful to harrow the ground lightly, to draw the earth round the roots, and to destroy seed weeds soon after the barley or oats are reaped. The sainfoin does not produce a large crop the first year, but the second year soon grows to the length of two feet in the ground before they spring up. It is in perfection about the second year, when a portion may be reserved for seed. Sainfoin hay is extremely nourishing for every kind of cattle, and is made without danger. Although it is not apt to heat in the stack, it must be put up in a very dry state; and if it has suffered from rain, too much care cannot be taken thoroughly to dry it; for the water insinuates itself by capillary attraction into the hollow stems, and is long in evaporating, so that when it feels quite dry it may yet contain much water. The mode of discovering this is to twist it strongly in the bands into a rope, when the moisture, if there is any, will ooze out. It is better to let it dry thoroughly, than, by carrying it in a hurry, to run the risk of its being mouldy within. In very precarious seasons it may be carried in a green state, provided there be no moisture in it from dews or showers, and stacked in alternate layers with good straw. It will impart some of its fragrance to the straw, and lose none of its nutritive qualities. The same may be done with lucerne or clover. The most advantageous use of sainfoin however is to cut it green and give it immediately to the cattle. There is no danger of their being bough by it, for it ferments very slowly, owing to the thick walls of its cells. It is not liable to the symptoms of the situation of the sugar field admits of occasional irrigation, without danger of the water stagnating, the produce of the sainfoin will be greatly increased; and it may then be cut four or even five times in a season without fear of exhausting it. The strength of its roots, besides to appear upon the ground, and other plants seem to get the better of the sainfoin, it is time to break it up. The land will be found much improved in fertility by the chalk or gravel which before would scarcely repay the seed sown in it, will now, by the gradual decay of the roots and fibres of the sainfoin, produce several good crops without any other manure. The poorest farm however will not entirely destroy, by repeated crops of grass, the benefit of the sainfoin, but by a judicious course and proper application of the manure, which the sainfoin enabled him to make, he will keep up the newly acquired fertility in the course of many years. As soon as the sainfoin seed in it with the prospect of a crop more abundant than the first. Many a poor barren tract of calcareous rock and gravel has been fertilised and raised in value by the sole effect of the sainfoin, without which it must have been a compound infertile and barren spot, even as again sow sainfoin seed in it with the prospect of a crop more abundant than the first. Although a chalky soil is best adapted to the growth of sainfoin, it may be sown with advantage in all light loams, provided the substratum be sound and dry. On very deep moulds lucerne is a more profitable crop; but sainfoin will thrive where lucerne would fail; and it is particularly adapted for poor dry soils.

There is nothing peculiar in the manner in which sainfoin is made into hay. It should not be shaken about too much, or fear of injuring the flower and breaking off the leaf. The swath should be merely turned over, when dry on one side, and then, as soon as it is dry through, it should be put into small cocks, occasionally spread out in the sun, and thus the dew is off the ground, and carried to the stack as soon as possible. If the weather be very fine, it should be made compact, but without acquiring too dark a colour. Experience alone can teach the exact time when it should be stacked. When it is left for seed, it should be examined carefully after the blossom fades. The lower pods will often have been prepared by the frost, and the spike of flowers will be ripened in the straw sufficiently to vegetate when wet. Rainy weather is very injurious to the seed crop; a fine time should therefore be selected, if possible, even at the risk of a smaller crop. The seed is only gathered for sowing, and is in the case of lucerne plants, and sainfoin, no purpose, and no ready sale; it is excellent food for horses. It produces varies from three to five or even six sacks per acre.

It is easily threshed out, and this operation is often done on a cloth in the field, when the weather permits. It should be done by a thresholder, and the straw is then aired and like hay. On the whole, there are few plants the cultivation of which is so advantageous as that of sainfoin on the soils on which it thrives best.

S. A. I., derived from the Latin *sanctus* through the French *saute*, properly signifies a holy or pious person, and is so used in the Christian church. From the incarnation of the Christian religion, great reverence has always been shown to persons remarkable for their holiness. The word is used by the pope, and has made its way into the language of the common people. In course of time it became the custom to implore divine saints to assist the living by their prayers and intercessions with the Deity; and as man has in all ages felt the need of a mediator between himself and the Deity, the practice of praying to saints increased rapidly, and superstition supplied the number of such mediators to so great an extent that it was at length found necessary to put some restraint upon the practice. It was accordingly decreed by the ecumenical councils in the ninth century, that no devotion to saints should be considered as a sin to whom prayers might be addressed, until the bishop in a provincial council, and in the presence of the people, had pronounced it to be worthy of that honour. Even in that century many were thought that it was proper that the decrees of bishops and councils should be confirmed by the consent and suffrages of the pope, who was regarded as the supreme and universal bishop. It was however till the following year that any person was stained by the bishop of Rome of being a Waldenser, Udalberg, bishop of Augsburg, by John XV. Shortly afterwards the power of declaring departed Christians to be saints was transferred to the pope; and the creation of saints was distinguished by the title of miracle. The invocation of saints in the Roman Catholic church is frequently stigmatised as idolatry; and the church of England condemns the Romish doctrine on the subject as a foreign thing vainly invented, and grounded upon a false and unholy interpretation of Scripture, but rather repugnant to the word of God (Article xii). In this, as in any other case of religion...
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controversy, it is right to take the account of the doctrine from the persons who believe in it, and not from a statement of their opponents. Thus Bellarmine says: "It is not lawful to ask of the saints to grant to us, as if they were the authors of divine benefits, glory, or grace, or the other means of blessedness. This is proved, first, from Scripture: "The Lord will give grace and glory" (Psalm 84). Secondly, from the usage of the church; for in the mass and in the confession of saints' offices we never ask anything else but that at their prayers benefits may be granted to us by God. Thirdly, from reason; for what we need surpasses the power of the creature, and therefore we ought to look to the saints beyond their impetrating from God what is profitable to us. Fourthly, from Augustine and Theodore, who expressly teach that saints are not to be invoked as Gods, but as able to gain from God what they wish. However, it must be observed, when we say that nothing should be asked of saints but their prayers for us, the question is not about the words, but the sense of the words. For, as far as words go, it is lawful to say, "St. Peter, pity me, save me, open for me the gate of heaven;" also, "give me health of body, patience, fortitude, &c."; provided that we mean "save and pity me by praying for me;" "grant me this or that by thy prayers and merits." For so speaks Gregory Nazianzen, and many others of the antients. (De Sanct. Beat., l. 17.) The doctrine of the sanctification of the dead and the power of intercession in the council of Trent: Though the church has been accustomed sometimes to celebrate a few masses to the honour and remembrance of saints, yet she doth not teach that sacrifice is offered to their intercession. (D. 44, c. 110, a. 2.) Moreover, neither is the priest wont to say, I offer sacrifice to thee, O Peter, or O Paul, but to God. (Senec., 22.) The Lives of the Saints have been written in the Acts Sanctorum, 45 vols. fol.; and in Albin Butler's Lives of the Saints. [S.P.I.]

SAINT ANTHONY'S FIRE. [KEYSPILAS.]

SAINT EVREMOND. [EVREMOND.]

SAINT IVES, a municipal and parliamentary borough in the county of Cornwall, on the northern coast of the country, on the river Torridge, about 15 miles by Basingstoke, Andover, Salisbury, Dorchester, Exeter, Lancaster, Bodmin, Redruth, and St. Erth. St. Ives was originally called St. Ile's, from Ila, "a woman of great sanctity, who came hither from Ireland, about the year 460." In the early part of the tenth century it appears to have suffered much from the encroachment of the sand on the coast. Landol thus describes the situation of the town and the injury sustained by it from this cause: — The place is very rocky, and the houses on the dooth of the street, or hill, are very low, and the town is in the peninsula, and is extended into the sea. Here, near the entrance of the town, the present time a range of sandy downs, covered with a thin turf, and affording pasture to sheep, extends along the coast north-eastward from St. Ives nearly to Padstow. Besides these downs, which are in some places a mile broad and 20 or 30 yards above the level of the sea, is found a vegetable soil, with regular enclosures and remains of houses. The town stands, as described by Leland, partly on a peninsula or headland at the north-western extremity of St. Ives Bay, extending inland along the road to Penzance and to the border of the county of Devon, and has, with its environs, a character of picturesque beauty, and includes an area of 1800 statute acres, with a population, in 1831, of 4776; there were 924 inhabited houses, 41 uninhabited, and 37 building. The houses on the Redruth road are well built, and the others are inferior, and the streets are generally narrow and uneven, neither lighted nor regularly paved. The general appearance of the town is mean. There are a town-hall and a market-house, rebuilt in 1832, and a small gaol, which are narrow and dirty, and the houses generally ill built. The ex-cathedral is popularly said to have been erected by Charlemagne; it has a fine Gothic steeple. The church of St. Eutrope or Eutropius has also a fine steeple, erected by Louis XI. The buildings of the abbey church are now used for market, and the former church as a barn; and the ex-cathedral church is now a church of the abbey church. The theatre and the college present nothing remarkable in their architecture; in the latter is the public library of 24,000 volumes.
The population of Saintes, in 1826, was 10,300 for the commune; in 1831, 7521 for the town, or 10,437 for the whole commune; and in 1836, 5559 for the commune. The manufactures are of light woollen stuffs, hose, and earthenware; there are dye-houses, tan-yards, and cooperages. The town stands in the midst of a rich wine country, and much wine and excellent brandy (Cognac brandy) is produced; these articles, with grain and wool, and the goods manufactured in the town, form three-fourths of its trade. There are twelve fairs in the year. There are quarries of excellent stone near the town.

Saintes has a consistorial reformed church; an agricultural society; a departmental nursery; a college or high school, with a cabinet of natural philosophy annexed; a public library, and a museum of natural history. There are some judicial and fiscal offices. From the time of the division of France into departments, to the year 1810, Saintes was the capital of the department, but it has now yielded that dignity to La Rochelle. Its arrangement had, in 1831, a population of 104,533.

SAINTONGE, a province of France, lying on the coast of the Atlantic. It was bounded on the north-west by the little province of Aunis, from which it was in one part separated by the Charente, on the north-east by Poitou, on the east by Angoumois or Angoumais, on the south and south-west by Le Bordelais or Guynemer Proper, from which it was separated by the Gironde, and on the west by the ocean. It was united with Angoumois into one municipal government; and the district of Brouageais, which extended along the sea-coast between the Charente and Gironde, was detached from it, and annexed to the government of Aunis, so as to deprive Saintonge of its maritime character.

Saintonge was divided into Haute and Basse, or Upper and Lower, separated from each other by the Charente. Haute or Upper Saintonge, which was south of the Charente, was by far the larger of the two, and comprehended among its subdivisions the districts of Brouageais and the Isle of Arvert, which latter is a peninsula, and not an island, between the little river Seudre and the Gironde. The chief town of Haute Saintonge and of the whole province was Saintes [Saintes]; among the other towns were Marensins (population 1969 town, 4065 whole commune), Jonzac (population 1798 town, 2618 whole commune) [CHARENTE INFÉRIEURE], and Barbezieux (population 2437 town, 2756 whole commune) [BARBELLEUX]. Basse or Lower Saintonge had for its chief town St. Jean d'Angely (population 5326 town, 6031 whole commune) [JEAN D'ANGELY, St.]. Among the other towns were Tonnay Charente (population 1791 town, 3268 whole commune), and St. Savinien (population 2465 town, 3559 whole commune). [CHARENTE INFÉRIEURE]. The population of these towns is from the census of 1831. Saintonge is now comprehended in the department of Charente Inférieure, except a very small part which is included in the department of Charente.

The province obtained its name from the Celtic people the Santones or Santonii, by whom, in Caesar's time, it was inhabited. Under the Romans, it was included in Aquitania; and on the subdivision of that province, in Aquitania Secunda. It fell into the hands successively of the Visigoths and the Franks, and formed part of the duchy of Aquitaine, afterwards Gascony. [SANTONI.] SAKS. [SAPADJOU.]

SAKIS. The genus Pithcia of Desmarest and Illiger comprehends those American monkeys which are generally known by the name of Sakis, or rather those Sakis which have for the most part long and bushy tails, and thus have obtained the name of Fox-tailed Monkeys; for the term Sakis, in its general application, designates any American monkey whose tail is not prehensile.

Pithcia. 

**Genus Character.** — Facial angle, 60 degrees; head round, muzzle short, ears moderate, rounded; canine teeth very strong; tail shorter than the body, not prehensile, and covered with very long hairs; feet pentadactyle, nails claw-like, short and bent; habits nocturnal.

**Dental Formula:**

- Incisors: 4
- Canines: 1-1
- Premolars: 6-6
- Molars: 6-6

These Night monkeys or Fox-tailed monkeys are great runners.

**Examples:** Pithcia Salanassa, Pithcia Melanopsephala.

**Pithcia Salanassa.** — Description. — Colour entirely dusky black, paler beneath, where the hair becomes very thin, and has a purplish tinge which is visible on the face and head. Hair of the very bushy tail, which is nearly of the length of the body, long and soft. Total length, including the tail, about two feet nine inches.

The hair of the head is thick, and falls over the forehead, and the beard is very much developed.

The *femelle* is rusty brown.

This is the *Cirrus* of Humboldt; *Cebus Salanassa*, Hoff.; *Brachyurus Israelita* of Spix.

**Locality.** — The forests of Brazil; Piaa, on the banks of the Orinoco.

**Food.** — This species is partial to the fruit of a kind of palm; and it is represented in the act of eating of it, by Humboldt, from whose figure ours is taken.

![Pithcia Melanopsephala](image)

**Pithcia Melanopsephala.** — Head very round, naked, of a dull black colour; its physiognomy reminding the spectator of an old negro. The hair of the head directed forward; eyes large and sunk, and the eye-brows composed of strong bristles. Nose flat; separation of the nares wide. No beard. Ears bare and very large. Body covered with yellowish-brown, straight, long, and shining hair; of the breast, belly, and outside of the arms are of a light hue. Hands black, fingers very long, nails flattened. Tail thick, a sixth shorter than the body, and of the same colour, except at the end, which is black.
travellers just named considered it to be very rare, and only met with one individual, which they saw in an Indian hut at San Francisco Solano; it is well described as being among its congeners what the Maggi of Barbary is among the long-tailed Macaques.

Locality.—The forests which border the rivers Rio Negro and Cuare are inhabited by this species.

For Bount. &c.—All kinds of fruit are acceptable to the voracious Cacajao, which is a weak, very inelastic, timid, and timid animal. It even shrinks from some of the small Sapajous. It trembles violently at the sight of a man, and tries to steal out of sight, as soon as it stretches forth its arms in the manner represented in the cut, but holds the object with difficulty, on account of the length and slenderness of the fingers. It lives in troops.

We cannot quit this race of monkeys without laying before the reader Humboldt's graphic account of another species, Pithecus Chloropera, the Capuchin of the Oroino, which is very like Pithecus Satanas, except in color, indeed so like, that an uncolored figure of the one might well serve for that of the other. Pithecus Chloropera is brownish red; the beard is blackish brown, arises below the ears, and covers a part of the breast. The eyes are sunken and large; the tail, like that of P. Satanas, is bushy; the claws are bent except on the thumbs.

Humboldt says that all the monkeys of America, the Capuchin of the Oroino bears the greatest resemblance in its features to man. The eyes have a mingled expression of melancholy and ferocity, and the facial angle appears much less than it really is, in consequence of the chin being concealed by the beard. Being a species of empire, his breeding is furious, it is very difficult to tame, and when its angry passions are roused, it raises itself upon its hinder extremities, and leaps round the agitator grinding its teeth. It drinks but seldom; when it does so, the draught is not taken by applying the lips to the liquid, as do the other American monkeys; but the water is taken up in the hollow of the hand, and carried to the mouth, the head being inclined on the shoulder. The spectator who would see this action, which is performed with great deliberation, must remain content with the sight of this divine beverage, for the animal is furious, and it is Humboldt's opinion that the method of drinking above described, has been adopted from the impossibility of applying the lips to the water, in the ordinary way, without wetting the beard.

This species is not a guilty beast; nor is the male often found in company with the female. Its hoarse and hollow cry is seldom heard.

SAL. AMMONIAC. [AMMONIA]

SALAM (Sahle-Deen.)

Salaçia, a name applied to a genus of plants of the natural family of Hippocrateae, which has been so differently defined by different botanists, that it sometimes includes species found in Asia, Africa, and America. At other times it is limited to those of the genus Tossella, and the African species to the genus Calypso, and those of India to the genus Johnia, the last named in compliment to Dr. John, a Danish missionary, who was one of the founders of the Botanic Garden at Tranquebar, and sent many new plants to Dr. Roxburgh. The whole are formed of species which have little beauty, but the fruit of both the species of Johnia is estable.

SALADIN [Sahle-Deen.]

Salaç DEEN (Malch-ul-Naser, Sahle-Deen, Abul-Muaffar Yusef), better known to European readers by the famous name of Saladin, was born A.D. 1137 (A.H. 532), in the castle of Teerit on the Tigris, of which his father Ayub, a Koor of the tribe of Ravehmos, was governor for the Seljukian sovereign of Persia. Ayub and his brother Shirakoh subsequently transferred themselves to the service of Zenghi, atabek of Syria, by whose son, the famous sultan Noor-ed-deen [Noor-ed-deen], they were raised to high military honours; and when Shirakoh (in 1163) was appointed prince of Egypt, he employed in reducing the vassal Sheikhs in Egypt, a subordinate command was entrusted to his nephew, whose disinclination to the service was overruled by the express mandate of Noor-ed-deen. In 1168 he again accompanied Shirakoh into Egypt, where his brother Almudin, the vassal of the sultan, fought against the forces of the Franks of Palestine established his military reputation, and gained for him, according to the Christian writers, the honour of knighthood from the king of Jerusalem, Amawry; but the Syrian forces were again in 1173 employed to evacuate the country, and it was not till the third expedition (1189) that the subjugation of Egypt was completed. Shirakoh now became, with the nominal rank of vizir to the Fatimite caliph, viceroy of the kingdom for Noor-ed-deen; but dying the same year, bequested his authority to his nephew Saladin, who continued to govern Egypt, assisted by the advice and experience of his father Ayub, who had been invited from Damascus to share the prosperity of his son. The last of the Fatimites, Aedel Ledinilah, still bore the title of caliph of Egypt; but even this shadowy figure was a mere burden to the bigotry of Noor-ed-deen; and in obedience to his orders, his lieutenant deposed the Fatimite dynasty by a simple ordinance that the khotbah or public prayer should be read in the name of the Abbasid caliph Mustadhid; and Aedel opportunityingly dying eleven days after, this important revolution was effected (A.D. 1171, A.H. 567) "without so much" (in the words of Abulfeda) "as two goats butting at each other." The extinction of the Fatimites left Saladin-ed-deen in the virtually sovereign power of Egypt, and though in compliance with the prudent counsels of his father he continued to render every external mark of allegiance to Noor-ed-deen, he pertinaciously evaded all the requisitions for military assistance addressed to him by his liege lord, who was prepared to force him to oblige, and who spared the odium of this ungrateful contest by the death of Noor-ed-deen, A.D. 1173, A.H. 569.* His heir, Malek-al-Saleh Ismail, a boy eleven years old, was inadequate to the conduct of empire. He was speedily assassinated; his emirs, and Saladin-ed-deen availed himself of the confusion ensuing in Damascus, which he occupied unopposed (1174). Emess, Hamah, and other towns dependent on Damascus shared its fate; and when Malek-al-Saleh attempted to regain them by the aid of the Frank-seen Sen-jed-deen Ghazi, Stabile, the combined forces were routed in two great battles, and Saleh, besieged in Aleppo, was forced to purchase peace by the cession of all southern Syria. Saladin-ed-deen now assumed the title of Sultan and all the prerogatives of the sultanate, and after having established the dominion of most of the petty sovereignties on the frontiers of Syria and Mesopotamia. The Ismailis, or Assassins of Lebanon, whose emissaries had attempted his life at the siege of Aleppo, were also chastised and reduced to submission; but in his first encounter with the Franks of Palestine he sustained a disastrous defeat near Ramla from Reginald de Chatillon, Nov. 1177, A.H. 573. The four next years were spent principally in Egypt, the affairs of Syria being conducted by his lieutenant Ael-Deen, who in 1182 defeated the Franks near Ascalon, the last time, and resuming his encroachments on the territories of the atabeks, captured in succession Edessa, Amida, Nisibin, &c.; and though repulsed before Moussouf, succeeded (1185) in possessing himself of the hong-ruled city of Aleppo, by a conquest of the emir Aripaid, who had succeeded Malek-al-Saleh. From Yemen to Mount Taurus in Cilicia, and from Tripoli in Africa to the Tigris, the continuity of the rule of Saladin-ed-deen was now interrupted only by the Latin kingdom of Jerusalem; and the violation by Reginald de Chatillon of a four years' truce, concluded in 1185, soon afforded a pretext for hostilities. In the famous battle of Hittin, or Tiberias (July 1187, A.H. 583), the Christians, betrayed by the count of Tripoli, were utterly overthrown; the king, Gui de Lusignian, was taken prisoner, and received by the victor with royal generosity; while his partner in captivity, Reginald de Chatillon, was decapitated, as a punishment for his perfidy, by the hand of Saladin-ed-deen himself. All the towns of the Frank kingdom, Acre, Beirut, Acre, were razed to the ground; the Frank forces were expelled from the land; but Tyre was successfully defended by Conrad of Montferrat, and the appearance of the third Crusade (1189) enabled the Christians again to take the field. The two years' siege of the castle of Arsuf (A.D. 1185-91) is more memorable for the history of this castle than for the history of the Franks of Jerusalem. The kings of France and England, Philip-Augustus and Richard Cœur-de-Lion, animated by their personal exactions the efforts of the besiegers, while the Moslems, directed by

* D'Hervelot ("Bibliothèque Orient.", art. Saladin) erroneously speaks of

Shirakoh and Sahle-Deen, as brothers; but under Schlegel (Shirakoh) he correctly describes the former as uncle of the latter.
the sultan, struck with equal zeal for the relief of the invested fortress: 'never' (in the words of Gibbon) 'did the flame of enthusiasm burn with fiercer and more destructive rage;' but Acre was at length forced to capitulate, and the Crusaders advancing along the coast, took Caesarea and Jaffa, while Ascalon, after an incessant battle of eleven days, was tendered only saved by being dismantled and rendered untenable.

In the spring of 1192 hostilities were resumed; and the Franks, led by the king of England, penetrated to within a short distance of Jerusalem. Lahad-deen was the first to attack; but the dissensions of the Crusaders occasioned their retreat; and both sides, wearied by the never-ending struggle, were not unwilling to listen to terms of accommodation. The first extraordinary proposal of Richard, that his eldest brother, Sefid-deen, brother of Lahad-deen, should, after embracing Christianity, marry his sister and become king of Jerusalem, though seriously entertained for a time, was ultimately abandoned; and the three years' truce which was concluded, Sept. 1192, a.m. 586, left Jerusalem to the sultan, while the Christians were confirmed in possession of the coast from Jaffa to Tyre. Lahad-deen survived only a few months the termination of the war. His constitution was broken by the constant toil to which he had been subjected; and he, the fourth sultan, seated in Damascus, carried him off after twelve days' illness, March 4, a.d. 1192, Sefir 29 (Abulfeda; not 27, as stated in the Art de Vérifier les Dates), a.m. 589, aged 57 lunar years, of which he had reigned more than twenty, received with deep regret by the sultan of Nogued, who had succeeded to the Mamelukish ritual. [Mubarak]. Besides the above, there are in Salamancia twenty five parish churches, and thirty monasteries of both sexes, now shut up. During the middle ages this city acquired great celebrity by its university, one of the best in Christendom. It was founded in a.d. 1200 by Alfonso IX, of Leon, and afterwards, in 1239, extended by Alfonso X., surnamed 'El Sabio' (the learned), so celebrated for the progress which astronomy made under his auspices, who incorporated with it that of Pavia. It is remarkable for the number of its chapels, which are dedicated to the Mamelukish ritual. [Mubarak].

The popular tales of the shroud displayed for a standard, as an emblem of departed greatness, and of the equal distribution of alms among Moslems, Christians, and Jews, are unnoticed by Oriental writers, and are probably figments of the sultan of Sefid-deen, that of his predecessor Noor-deen, a favourite theme for eulogy among the writers both of the East and the West. The historian Abulfeda, who was himself descended from a collateral branch of the Ayyubides by his father, and that of the sultan of Nogued, is the stranger and friend and has been rendered familiar by the edition of Schultens, Leyden, 1755), are scarcely more proflane than the Christian chronicles of the Crusaders in their panegyrics on the valor, justice, and magnanimity which shone conspicuous in the life and actions of the sultan of Egypt and Syria. His ingratitude to the family of his early benefactor Noor-deen, and the insatiable ambition which led him to despise so many minor princes of his own faith, are more than atoned for in his attempts to establish the principles by which he was opposed to the Frank invaders of Palestine, and by the rigid justice which he administered impartially to the meanest suppliant for redress; and his generous humanity to the helpless multitude of captives whom he introduced into his hands at the gates of Acre may be favourably contrasted with the massacre of the garrison of Acre, after the capitulation, by the orders of Ceur-de-Lion. The supremacy of his power and virtues was recognized by the voluntary homage of contemporary historians, and bearing tribute thither, occasion his stirrup was held by Kaisar-Shah, a Seljukian prince of Anatolia, while Ala-deen, atabek of Moussoul, of the race of Zenghi, arranged his robes after he had mounted. His zeal for the improvement of his territories was displayed by the erection of numerous fountains and caravanseras, particularly on the road to Mecca, and the numerous public buildings with which he decorated his first and favourite role of Egypt, though attributed in the lapse of years to the similarity of his name, to the patriarch Joseph (Yusef), still remain as monuments of his wisdom and magnanimity. At the death of Salam-deen, his vast dominions were again divided: the three eldest of his sixteen sons received the kingdoms of Egypt, Damascus, and Aleppo, while the others were provided with appanages under their own guard; but discord speedily succeeded, and the dominions of the first-named branches were eventually seized by their uncle Sefid-deen (the Saphidian of Christian writers), whose son Malek-al-Kamel was married to Joseph's daughter, while Lahad-deen, Sefid-deen's younger brother, maintained itself longer; and on the dominions descended from Sefid-deen in Egypt and Damascus by the revolt of the Baharite Cank on 646), the regnino sultan of Sefid-deen, while the dominions of Malek-al-Nasser Salam-deen Yusef, succeded in repeating Damascus to his dominions: but ten years later his power was overthrown by the irruption of the Moguls from Persia; Malek-al-Nasser submitted to their leader Hulagu-khan, and was put to death by his orders (a.d. 1260, a.m. 568), and with him ended the line of Salam-deen. 

Bohadin, Salamdein Vite et Res Gestae; Abulfeda; Abulfaraj; Tashafi; Vinausa; D"Herbelot; De Guignes; Gibbon; Von Hammer, History of the Assenants, &c.)

SALAMANCA (Salamanca), a city of Spain, and the capital of the province of the same name. It was fortified in an amphitheatre on the banks of the Tormes, which washed part of its walls. The numerous monumental buildings and fine old churches give this city so venerable an aspect, that the Spaniards of old called it 'Roma la chica' ('Little Rome'). Salamanca, Gramadad de Espana, l6th. x. This town was begun by Juan Gil de Hontania in 1513, but when it was not finished till 1734, is a magnificent building, in a style partly Gothic and partly Italian, and ornamented with exquisite oak carvings and marble sculptures. Among the latter the most admired are the Adoration of the Sages, which is placed in bold relief over the principal gate, and the Entrance of Our Saviour into Jerusalem, over another gate. The cathedral is 378 feet in length and 181 in breadth, and contains good pictures by Bias de Navarrete, surnamed 'El Mud, the (dumb), Gaspar Beccera, and Juan de Juanes. Close to this is the old cathedral, a very remarkable Gothic building of the 12th century, containing many interesting monuments. It was built after the death of its chaplain, whose tomb is dedicated to the Mozarabic ritual. [Mubarak].

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There are twenty-five private colleges attached to it, besides four 'collegios mayores' (superior colleges), so called from their being designed for the children of the nobility. Among these the Colegio del Arzobisp and the Colegio del Res, are the latest, and contain a foundation of a considerable size and notice for their size and architecture. The Jesuits had likewise a college, built in 1614; but since their expulsion in 1767, it has been divided, and the southern side is appropriated to the college of the Jesuits. The city is badly built, with narrow, crooked, and dirty streets. It has however some fine squares with ornamental fountains. The principal square (Plaza Mayor), which is at the centre of the city, is a quadrangle surrounded by a portico, embellished with marble metallasis, representing several Spanish heroes, and all the kings of Castile and Leon, down to Charles III, under whose reign the square was built. Salamanca suffered greatly during the Peninsular war, having sustained several sieges, during which some of the buildings were destroyed or riddled with cannon-shot. Among the buildings which suffered is the Carmelite convent, built by Herrera, the architect who made the designs for the Escorial. We find Salamanca an engagement took place (July 22nd, 1812) between the British and Wellington on the French under Marmont. The French had abandoned the place on the first attack by the allies; but Marmont, having received reinforcements, advanced against the British line. After the first attack of a branch of Wellington's forces destroyed the narrow space between the Tormes and the city. The French commander having imprudently extended his left wing too far, Wellington took advantage of his error, and the retreat was defeated with great loss. Marmont himself was severely wounded. It was observed that General Clausewitz was alleged to have led the command.
S A L

Under the Romans, Salamancia was a municipium of the province of Lusitania. It was the tenth military station between Saragossa and Merida on the road called Via Lata, most of which remains to the present day in excellent preservation. A portion of the Roman wall which formerly surrounded the city is likewise standing, as well as a colosseum and several stones with inscriptions. The splendid bridge on the Tormes, 500 feet long, and resting on 27 arches, is also attributed to Roman. The population of Salamancas is computed at 29,000. It has little or no trade:

11° 5' N. lat., 5° 13' W. long.

SALAMANCA. [MEXICAN STATES.]

SALAMANDER. [SALAMANDRA.]

SALAMANDRIDAE, a family of Batrachians. The general arrangement of the Salamanders will be found in the article Reptiles. The genera comprehended under the family by Mr. Bell are Triton, Laur. (the ordinary or water Newts), and Limnomochus, Blit (the smooth Newts); but it must be remembered that Mr. Bell treats only of the reptiles belonging to these islands.

Tschudi (Classification der Batrachier) makes the Salamandrinae consist of the following divisions and genera:—

**Neuroidea,** viz. Neureodes, Wall.; Bradybautes, Tsch.;

**Phynoglossa,** viz. Phynoglossus, with the upper jaw.

**Athrodides,** with slits or distinct holes.

**Trematochirides,** with branchiopores.


The Prince of Canino, in his 'Amphibia Europea ad Systema Nostrum Vertebratorum ordinatam, which gives a valuable arrangement of the European reptiles, makes his family Salamandridae consist of the following subfamilies and genera:—subfamily Pleurodelinae: genera, Pleurodeles; Bradybautes. Subfamily Salamandrinae: genera, Serranota; Salamandra; Geotriton; Exinosus; Triton. The Proteus is placed in his family Sterneidæ, and subfamily Hypochitonina.

The following arrangement of the Batrachians has just been published (1841) by MM. Duméril and Bibron, in their elaborate Erpétologie générale:—

**Body,** varied in form; skin naked; most frequently without either carapace or scales.

**Head,** with two occipital condyles, not carried upon a narrower neck.

**Pectoral,** variable, as regards their presence, their number, their proportion—toes most frequently several distinct pairs.

**Sternum,** most frequently distinct, never united to the ribs, which are short or null.

**Male organs of generation not projecting; eggs with soft, not calcareous shells; young subject to metamorphosis.**

**Organisation of the Salamandridae.**

**Skeleton.**—The skull of the terrestrial salamander (Lacerta Salamandra, Linn.) is well described by Cuvier as being nearly cylindrical, widened in front in order to form the semicircular face, and behind for the two cranial branches resembling those of the frogs, and containing the internal ears. But though the composition of the head resembles that of the frogs in the back and under parts, it differs remarkably in other parts: there is a girdling bone (os enceinte), and the only representation of the ethmoid bone appears in a membranous plate.

Above, the cranium is divided nearly equally between the two frontal and the two parietal bones. The anterior part of the frontal bones is articulated forwards with the bones of the nose, and, laterally, with the anterior frontal bones. The apophysis rising from these bones is very large, which places the external osseous nostrils very far apart. The nasal bone is placed on the upper part of each of them, between the intermaxillary, the frontal, the anterior frontal, and the maxillary bones. The anterior frontal bone occupies the shelf in front of the anterior angle of the orbit, but does not descend into the cavity, the anterior wall of which is simply membranous. Cuvier believed that he saw a very small lachrymal at the external angle of the anterior frontal bone. The dental part of the upper maxillary bone is carried backwards as usual, but without forming a junction with either the pterygoid or jugal bones. Cuvier found only two occipital bones, as in the other batrachians, and each of them was intimately united with a part analogous to the otic petrosus (rocher). A great osseous canal serves for the entry to the vestibule, and consequently to the fenestra ovalis. In the living animal it is closed by a cartilaginous plate, without any stem, and entirely hidden under the muscles. To this bone, which occupies the place of both the occipital, lateral, and petrous bones, are attached three, the lower of which (the pterygoid), with its triangular figure, brings to the mind of the observer the three branches of which it is formed in the frogs. Its anterior angle, as has been stated, does not reach the maxillary bone, and is only connected to it by a ligament; neither does the internal angle reach the sphenoid bone: the external angle exists under the second of the three bones here noticed, viz. the intermediate bone, that to which belongs the facet for the articulation of the jaw. This bone, Cuvier remarks, is very difficult to define; and he further says that he shall perhaps be considered very rash if he names it the jugal bone, for, far from being placed horizontally, and going forwards to join the maxillary, it lies transversely on the posterior border of the pterygoid bone: nevertheless there is a ligament which unites it to the posterior point of the maxillary bone. The third and upper of these bones lies upon the preceding, and in the same direction; it is oblong and flat, and is attached by its internal extremity upon the lateral occipital bone, without reaching to the parietal. Supposing the jugal bone to be well named, this would be the tympanic bone; and, in fact, if the little plate which covers the fenestra ovalis had a handle (manche), it would pass behind the bone of which we speak, as in the frogs it passes behind the tympanic bone.

Below there is only a single sphenoid bone, which is oblong, but without a lateral extremity. Two large triangular bones, which are manifestly analogous to those named vomers by Cuvier in the frogs, form the flooring of the nostrils below, and give off each a slender apophysis, which extends backwards under the sphenoid parallel to its corresponding. It is to these bones and to their apophyses that the two longitudinal rows of the palatal teeth of the Salamanders adhere. Between the anterior part of these bones, behind the intermaxillaries, is a large oval space, which is filled by the membrane of the
palate only: their posterior and dentary apophysis extends nearly as far backwards as the sphenoid bone. Perhaps, observes Cuvier, it is divided at certain periods into two by a suture, and a palatine bone may then be distinguished, but he had not been able to perceive one. There is in the orbit, at the anterior wall, a groove which has no connection with the maxillary bone, the anterior frontal, and the vomer; and it is at the bottom of this space, and in a notch of the vomer, that the internal nostril is pierced on each side. The bottom of the orbit, on the side of the cranium, behind the maxillary bones on one side and the vomer and sphenoidal bones on the other, is occupied by an oblong bone in which the optic hole is pierced, and which can only answer to the orbital wing of the sphenoidal bone. It is the orbita membranacea, the membrane of the eye. At this time, there exists in the serpents, in which the parietal and frontal bones each supply it by halves: here it is elevated to the state of a particular bone. The two occipital condyles are very much separated from each other, and placed at the two sides of the occipital hole.

The cranium of the European aquatic Salamanders differs in general from that of the terrestrial in having the entire head more oblong than the external nostrils more approximated, the space between the vomers a simple small hole, the pyriform plate, wide and obtuse. Also they differ among themselves by sufficiently marked traits. Thus the Triton genus has a small hole on the front of the muzzle, between the bones of the nose; and the orbita of the fish is membranous. In the post-occipital apophysis, it is marked, and directed backwards. The hole becomes a little slit in Triton Alpestris, in which the muzzle is shorter, and the post-occipital apophysis smaller and more transverse. In the Triton cristatus the post-occipital apophysis is but little backwards between the parietal bones; forwards they extend to the external aperture of the nostrils. The nasal bones touch each other between them, and are placed between the frontal bones, the intermaxillaries, and the apertures of the nostrils. The orbital wings are but little elevated, pierced with a sphenoidal hole, and have the parietal bones. The osea petrosa a membranous space. The osea petrosa are very distant from the lateral occipital bones, and are entirely separated from them by a cartilage, in which the fenestra ovalis is pierced. The sphenoidal bones are large, with a small opening. The bones of the sphenoidal cavity are the bones of the sphenoidal bone, which last is very much flattened and very wide: the two vomers carry their teeth not longitudinally, but transversely, on their anterior border, and parallel to the intermaxillary and maxillary teeth. Cuvier remarks further that the head of the aquatic Salamanders in the larva state offers differences which deserve to be better studied than he had been enabled to do in the midst of so many occupations. Thus, he observes, the bones which he has named vomers are less fixed at the base of the nostrils; and instead of a single row of teeth, they have their whole surface furnished with them. The maxillary bones are the longest apophyses of the intermaxillaries, but the maxillary bone is not so developed. The circumstances all of which are found in the Axolotl, and of which traces are to be seen even in the Siren. The Salamanders have a true dental jaw, forming a symphysis with its congener, and which is both nearly as in the generality of lizards. The rest is composed, in the ordinary adult Salamanders, of a single piece, which doubles the preceding at the posterior half of its internal surface, forms a coronoid process, and fuses backwards, and carries the articular tooth, which is the true denture, which is in Artedon. The American Salamander this second bone is itself divided into two portions, viz. a coronoid and an articular portion. (Otomus fowleri.)

But to pursue in his elaborate and excellent 'Odonotops,' has a most interesting chapter on the Teeth of Batrachians. He remarks that the variations which the dental system presents in the Batrachian order of Reptiles are more conspicuous in the number, situation, and structure of the teeth, than in their form or mode of attachment. Certain Batrachians, he observes, are edentulous, the genus Hy洛lesia among the tree-frogs, for example, and the B. forsteri, or Toad family, with the exception of some species of B. mutator. The teeth present are described by him as generally numerous, simple, of small and equal size, and close-set, either in a single row or aggregated, like the teeth of a rasp, and he points out a characteristic condition of the dental system in the nuca. And the teeth, as is observable on the superficial maxillary bones, as being continued in these genera of peregrinibranchia Batrachians which stand lowest in the class of Reptiles; not only the superior maxillary teeth, but the bones themselves are absent, he observes, in the Axolotl. A second bony piece applied to the inner surface of the branch of the jaw (representing the sphenial or opercular element in the jaw of the crocodile) is absent. The teeth of the jaw will be formed on the upper anchialar bone, and the sloping upper margin of the lower jaw as a tooth, as in a sheath of fern, slimy, minutely fibrous tissue, harder than bone. The bone thus armed slide upon each other, he tells us, like the blades of a pair of curved scissors, when the mouth is closed, and are well adapted for dividing the bodies of small fish, aquatic larvae, worms, &c. The horny substitute to teeth in the lower jaw is supposed to be covered with the tympanic lamellae of the leptodecaurus. (Pelorosaurus.) A second bony piece applied to the inner surface of the branch of the jaw (representing the sphenial or opercular element in the jaw of the crocodile) is absent. The teeth of the jaw will be formed on the upper anchialar bone, and the sloping upper margin of the lower jaw as a tooth, as in a sheath of fern, slimy, minutely fibrous tissue, harder than bone. The bone thus armed slide upon each other, he tells us, like the blades of a pair of curved scissors, when the mouth is closed, and are well adapted for dividing the bodies of small fish, aquatic larvae, worms, &c. The horny substitute to teeth in the lower jaw is supposed to be covered with the tympanic lamellae of the leptodecaurus. (Pelorosaurus.) A second bony piece applied to the inner surface of the branch of the jaw (representing the sphenial or opercular element in the jaw of the crocodile) is absent. The teeth of the jaw will be formed on the upper anchialar bone, and the sloping upper margin of the lower jaw as a tooth, as in a sheath of fern, slimy, minutely fibrous tissue, harder than bone. The bone thus armed slide upon each other, he tells us, like the blades of a pair of curved scissors, when the mouth is closed, and are well adapted for dividing the bodies of small fish, aquatic larvae, worms, &c. The horny substitute to teeth in the lower jaw is supposed to be covered with the tympanic lamellae of the leptodecaurus. (Pelorosaurus.)
The superior maxillaries and their teeth are, it appears, wanting in Membranbranchus [Necturus]; but Professor Owen observes, that in this form an advance to a higher type of dentition is perceptible by the arrangement of the teeth in a single row both upon the roof and at the margins of the mouth. The maxillaries in this form bear six teeth, and the single row of small pointed teeth which they support is opposed to a similar series upon the premaxillaries below. The palatal teeth form a single row on each of the broad bones which correspond with those described by Mr. Cuvier the divided vomer in the higher Batrachians, and extend backwards upon the pterygoids, which support a few teeth.

The three preceding genera are perennibranchiata, and though the Pteryx, like them, always retains its external gills, Professor Owen remarks that it offers a further advance to the dentition of the higher Batrachians, and to that of the Amphiuma especially. Each intermaxillary bone carries on its alveolar border a row of eight or ten minute, fine, sharp-pointed teeth, and each premaxillaries bone is armed with a greater number of similar but larger teeth, arranged also in single series. The palatine bones (two vomers of Cuvier) support a row of denticles, similar to the intermaxillaries crescentic series and parallel with it. But Mr. Owen points out that the palatal dental crescent are continued much farther back, terminating, as in Membranbranchus, on the anterior part of the pterygoid bones. Twenty-four teeth are contained in each half of the crescent or chévron-shaped series, as well as of the intermaxillaries or premaxillaries. The Professor, who adds that the superior maxillaries are represented in this form by mere cartilaginous rudiments.

Professor Owen next notices the Amphiuma, which, he observes, like the Proteus, presents the batrachian disposition of the teeth in a single close-set series along the alveolar border of upper and lower jaws. The upper series, he observes, extends along well developed maxillaries, and intermaxillaries, and is represented by a uniform set of small, sharp-pointed, slightly curved backwards and forwards; their points glisten with a yellow metallic lustre, whence Dr. Mitchell's name Chrysodontia. The number of teeth in Amphiuma means is, Professor Owen informs us, considerable.

We now approach a most interesting part of the inquiry illustrative of a fossil that has made some noise in the world, but which is now justly degraded to its proper place in the scale of animals, and is not a whit less interesting for such degraded series of the Menoponex exhibits," says Professor Owen, 'the same essentially batrachian condition of the teeth as the Amphiuma; but in their disposition, and in the disposition and form of the vomer, it makes a near approach to the caducibranchiate genera. It allies itself most closely with the gigantic newt of Japan (Sieboldia, Bonap.) and with that equally gigantic extinct species of Newt, so noted in paleontology as the Homo dilutus testis of Schrucher. In the persistence of the branchial apertures, and the more complete set of teeth, the former manifests its generic distinctiveness from the Sieboldia. The single close-set series of small, equal, conical, and slightly recurved teeth describes a semicircle on both the upper and lower jaws: the row of similar but smaller teeth below is continued, and the vomer, and the intermaxillaries, are parallel with and at a short distance behind the median part of the maxillary series. The premaxillaries teeth are received into the narrow interspace between the two rows in the upper jaw when the mouth is closed. The teeth of the Menoponex, as of the Amphiuma, are anchylosed by their sockets base and part of its outer side to a slightly elevated external alveolar ridge.

*Sieboldia.*—The perennibranchiate or fish-like Batrachians, "doubtful reptiles," as they have been termed, lead so series of transitions to the caducibranchiate group, in which all external trace of the branchial apparatus is lost, that the artificial nature of such a division of the order is evident, and some naturalists have even hesitated whether to separate, generically, the last of the perennibranchiates from the species Sieboldia gigantea, with the description of the dental system in the higher division of the Batrachians is here commenced. At the regards the teeth, the difference between the great aquatic salamander of the volcanic mountains of Japan and that of the Alleghanies is very slight, and merely specific; the form, position, and attachment of the teeth to the same in Sieboldia as in Menopoma; they differ slightly in relative size, those of the Japanese newt having the advantage in this respect, with a somewhat deeper implantation of their anchylosed base, and the alveolar pariet of the intermaxillary bones is higher and is slightly incurved. There are fourteen teeth in each intermaxillary, seventy-two in each superior maxillary, and sixty-four teeth in each vomer of the Sieboldia gigantea. Professor Owen there points out that the disposition, form, and attachment of the teeth in the great fossil newt or salamander (Andrias Schuemerri, Tschud.) are the same as in the Menopoma and Sieboldia, but that they appear to have been relatively smaller than in the latter genus; and less compressed, with more conspicuous basal grooves.

The Professor further remarks that all the caducibranchiate Batrachians with tails, as the newts and land salamanders, have teeth on the inferior maxillary and vomerine bones, and arranged in the intermaxillaries, as our Batrachian species; the difference in the two forms is in the number and disposition. In the common newts (Triones poliotrichus, crotatus, and other allied species of the old world) the teeth are, he observes, confined to the bones above mentioned; they are, he informs us, equal, subcompressed, fine, sharp-pointed, crowded in rows, arranged in a single series, and nearly circular in section. In the inferior surface of the sphenoid bone, close to the base of the cartilaginous external vertical ridge, are a fourth locality for teeth, reminding the observer of a peculiarity in the dental system of some of the highly organised clupeid fishes of the South American rivers, viz. upon the upper surface of the sphenoid bone, close to the upper corner of the orbit, and near the posterior margin of the oral aperture. Such teeth are found in the subgenus Pseudotriton; and in Salamandra glutinosa, Maclure (Pethodon, Tschud.), they are, Professor Owen informs us, aggregated en brochus to the number of three hundred and upwards, upon both the inferior surface of the sphenoid bone, close to the base of the cartilaginous external vertical ridge, and nearly circular in section, and arranged in a single series both above and below. For a particular account of the teeth of the *Ranae* we must refer the reader elsewhere, but it is observable that the frogs have no teeth on the lower jaw, though in some species (Ceratophyra for example) the alveolar edge of the lower jaw-bone is finely notched or denticulated. The *Salamandrella*, as a general rule, has no teeth, but in the Bombayx the subgenus Hygroauriculus has teeth upon the vomer, and Sclerophrys has teeth on both the intermaxillary and maxillary bones. Professor Owen remarks that in microscopic structure the teeth of the existing Batrachians, like those of most Saurians, correspond with the simple mammalian teeth, and, after an elaborate description of the microscopic appearances in the tooth of a frog, proceeds to the description of the dental system in the extinct genus Labyrinthodon, which will be noticed in this work under the title of Salamandrella Angulata. Thus we are indebted to Professor Owen for a most able exposition of the dentition of the Batrachians generally, showing the gradation by which that order of reptiles is linked to the fishes on the one hand and the Saurians on the other. The justice of the statement is apparent, when we reflect that the Batrachians are connected with each other. (Odontology)

To return to the salamander, we find, as indeed might be expected from the nature of the series to which it belongs, that its os hyoides is subject to changes analogous to those of the frog, though not so complete. In its larva state it has, Cuvier observes, two hyoidian branches springing from the occipital bones, uniting forwards under the lower jaw, and a cartilaginous brachial apparatus suspended at the point of union of those branches, and supporting four aeries.
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on each side, the first of which is attached to an intermediate stem, the three following to a second two-jointed stem, and these two pairs of stem to an unequal branch, as is more clearly manifested in the alcohol. The adult aquatic salamanders preserve in the form state the branches which, in life, were attached below the senescent oralis, and terminate forward by a truncation under the middle of the lower jaw; but the anterior articulation of these branches is now become membranous, and the internal stem, in the larval state, suspends each side an obovate branch consisting of two joints, terminated by a cartilaginous point, and moreover, internally, another branch which is simple and reduced to a filament, which goes from the unequal branch to the second articulation through the mouth and the oral cavity. These branches, which can only pass a very short time in the larval state, all remains cartilaginous. The two suspensory branches or anterior horns are delicate and flat, and do not join the cranium; and the unequal stem with its two branches solid on each side by their two ends, forms only a single chevron-shaped cartilage, each branch of which is pierced with a considerable gap. This remainder or vestige of the branchial apparatus does not prevent the co-existence of a larva, given to the vertebrae, a sort of roof which is destitute, and membraneous rather than cartilaginous. The tail of the salamander, as Cuver remarks, is a very curious on account of the close junction of its three bones into a single one, which has the glibrous fleshy at its anterior edge, sends two oblique lines which are convex to the left, which is the omo-patella, and towards the breast is: rounded disk, slightly lobated, which is composed of the clavicle and coracoid bone, where a sutura which separates them may for a long time be observed, and where there always remains a portion of the omopatella has the same length and angle shape as by a cartilaginous prolongation. The cleido-coracoïd is also surrounded with a great cartilaginous blade in form of a crescent, which crosses upon its condenser under the breast, for the only vestige of a sternum remaining is a cartilaginous blade placed behind the tail in the muscles, which represents the xiphoid. The atlas of the salamander is articulated with the head by two concave facets, and with the second vertebra by the face of its body, which is also concave; for, contrariwise to the Chordate and lizards, all the anterior faces of the bodies of the vertebrae are concave in all the mandibles, and all the posterior faces concave; the upper part is flat. The articular apophyses are horizontal, and united on each side by a crest, which, joined to that of the other side, gives to the vertebrae a sort of roof which is destitute, but with its lateral borders a little re-entering. The posterior parts of a vertebra lie on the anterior parts of that which follows it. In lieu of spinocele apophyses, there is only a slight appearance of a longitudinal ridge. The body of the vertebra is cylindrical in line, and shouldered in its middle, adpressed under the roof above noticed. The transverse apophyses also adhere under the lateral crests, are directed slightly backwards, and divided by a furrow on each side. For, at their extremity has as it were two tubercles for every joint into which the base of the small rib is divided. These small ribs join all the cervical, dorsal, and lumbar vertebrae, except the atlas, but are only two or three lines in length, and are far from surrounding the trunk or the sternum. Among the aquatic salamanders, the Triton Gesneri has the crest of the dorsal vertebrae a little more elevated and sharp than the terrestrial salamander; this crest is also rather more developed in Triton Alpestris and even in Triton lanceolatus and palustris, but what, and is little conical, in the terrestrial, it is very fiat, even flat, so that this crest is most effected, and the upper part of the vertebra nearly plain. The vertebrae of the tail (23 or 24 in number) in the terrestrial salamander have crests and transverse apophyses like those of the back; they become smaller and smaller, and consisting from the third caudal there is under the body a transverse blade directed obliquely backwards, pierced with a hole at its base, which represents the chelon bones of the lizards and the other long-tailed. Cuver observes in the terrestrial salamander in the Triton Alpestris and cristatus, 34 in Triton Gesneri, and 35 in Triton lanceolatus. They form, he observes, a tail flattened laterally, in consequence of the elevation of their upper and lower crests. The bones of the limbs are, says Cuver in explanation, proportioned to the smallness of the members themselves. The humerus has, above, a round head; a little lower, forwards, there is a compressed and obtuse tuberosity; and beakwards, a little lower still, another very pointed one. Its lower head is flattened from before backwards, and widened to suit the conydes, between which is an articular head, rounded for the fore-arm, and above, for the small fossa. The aquatic salamanders have the bone more widened than the terrestrial species. The fore-arm is composed of two separate bones. The radius has a round upper head, a narrowed body, and a compressed and widened lower head. The cubit is more equal in size, and its oblong, squared. In the terrestrial salamander, bones and two cartilages, which occupy the place of bone, seven pieces in all: the whole of these are flat, angular, disposed in a pavement-like order, and in some respects announce the structure to be seen in the ichthyosaurus. It is the first rank, is a two, of which the smallest or radial rib, is cartilaginous. The greatest belongs to the radius and ulna, the first of which on the second rank is a single one, then, come, on the third rank, four for the metacarpals. The first remains cartilaginous. The metacarpals are short, flat, and narrowed in their middle. Cuver found only one phalanx ossified on the first finger, two on the second and fourth, and three on the third. The variety of points by which the pelvis is attached to the spine is, he remarks, a very singular one. He had discovered the third and seventh pelvis, which it was suspended from the fifteenth vertebra (counting in the atlas), and others in which it was suspended from the sixteenth; and he refers to a specimen (species undetermined) seen by M. Schultze, in which it was suspended on one side to the sixteenth and on the other, to the seventeenth. With regard to the aquatic salamander, Cuver found it constantly suspended to the fourteenth a Triton palustris and alpestris, to the fifteenth in Triton punctatus and Gesneri, and to the seventeenth or eighteenth. The pelvis, he says, is quite differently formed from that of the frog; the vertebrae which supports it is like those which belong to the tail, but which have lost the extremity of which the os ilii is suspended by a ligament. It is cylindrical, and widens a little on arriving at the cotyloid cavity. The pubis and ischium are soldered together, and form, with those of the other side, form, from two, there are two, large oval, spined, flat bone, cut a shelf on front and at the anterior parts of the sides, notched laterally and narrowed behind the cotyloid fosses, and terminated backwards in a concave arch. The pubis remains cartilaginous much longer than the ischium, with which it is united by a suture which makes a cross with the symphysis, and in front of this symphysis is a cartilage in the form of a Y in the muscles, which recalls to the observer the marquesse bone of the oppox. The upper head of the femur is oval; at the internal face of the neck, there is a very pointed apophysis, occupying the place of a trochanter: the lower head is widened and flattened from before backwards. There are two bone in the leg. The tibia, which is very stout upwards, has in front a ridge, which detaches itself from the upper part of the bone, resembling the vestige of a fibula discernible in various Rodents, but this does not prevent the development of a true fibula as large as the tibia, and which descends a little lower. There are nine tarsal bones, all flat and disposed in a pavement-like order; the lower rank has five for the metatarsal bones; the four others consist of one small (the talus) at the internal border, one great (the fibular) at the external border, an oblong one between them, placed obliquely in Triton palustris; this bone, nearly square in the middle of all the others. Cuver found but one phalanx on the first finger, two on the second, three on the third and fourth, and two on the last.
Generation.—Such particulars of the generation of the Salamandre as require notice will be found under the titles of the genera treated of in this article.

Reproduction.—The power of reproducing excised or injured parts has been observed in no family among the reptiles more carefully than in the Salamandre. Pateretti, Spalenzani, Murray, and others have recorded their observations with respect to this power; and Bonnet particularly has given most accurate descriptions and figures of his careful experiments. The arms of thighs of Tritons amputated sometimes on one side, sometimes on the other, or both on the same side, were constantly reproduced, and the toes were gradually again formed and endowed with motion. The tail too, cut off at various points, was renewed, pushing out by little and little from the amputated base. In one case the same limb was reproduced four times consecutively in the same animal. Bonnet found that this reproduction was favoured by heat and retarded by cold. He
observed that the parts of excised limbs were often reproduced with remarkable alterations, either of defect or excess; the deficiency or exuberance of certain parts taking upon themselves very singular forms. In many species of Tritons, the long bones of the limbs detached from their principal articulation, and remaining suspended by some points which still caused them to adhere to the flesh, were found completely ossified and calcified in full growth. The most curious observation was that consequent on the total extirpation of the eye, which was entirely reproduced and perfectly organized at the end of a year. Dufay has recorded their faculty of remaining frozen up in ice for a long period without perishing.

Their tenacity of life was strongly shown in an experiment made by M. Duméril. Three-fourths of the head of a Triton maromatus were removed with a pair of scissors. The mutilated animal was placed by itself at the bottom of a large glass vessel in fresh water about half an inch deep, and which was carefully renewed at least once a day. The animal, although deprived of the four principal senses, without nostrils, without eyes and ears, and without a tongue, continued to live and move slowly. Its only communication with externals was carried on by touch alone. M. Duméril relates that it was evidently conscious of existence, and walked slowly and cautiously. It raised the stump of its neck towards the surface of the water, and during the first days was seen making efforts to breathe. In less than three months reproduction and cicatrisation had so done their work that there remained no aperture for the lungs or for food. At the end of three months, M. Duméril was compelled to leave it to the care of another during an absence; and it died, as all probably, as he observed, from want of attention on the part of the person who undertook the care of it. This specimen is now preserved in the Paris museum, and exhibits, as M. Duméril remarks, the singular fact of an animal having lived without a head; and a proof of the possibility and necessity, even in the Batrachians, of a sort of respiration by means of the skin. In this animal M. Duméril states that respiration was certainly thus carried on for three months, although the stump of the amputated part presented a centric, the smooth surface of which proved, even when examined by a magnifying glass, that there was a complete obturation of the oesophagus and larynx.

Dr. von Siebold has also recorded his observations on the reproduction of wounded or lost parts in the Triton nigra.

We now proceed to illustrate the Salamandridae by a consideration of the genera Menopoma, Sieboldiana, Triton, Lissotriton, and Salamandra.

Menopoma.

Generic Character. — Head flat broad; two concentric rows of teeth (the inner row palatine) in the upper jaw, and a single row only in the lower jaw; tongue free in front; operculum situated about half-way between the posterior edge of the rictus of the mouth and the fore leg; three opercular cartilages, between the posterior half of the eye, which is the aperture; feet imbricated on their outer edge; toes four on the anterior feet, and five on the posterior; of the latter the fourth and fifth are webbed and without claws.

Menopoma Alleghanensis. — MOUTH OPEN, SHOWING THE ARRANGEMENT OF THE TEETH.

SIEBOLDIATA.

Generic Character. — Head large, trigono-ovate; rostra produced, vertex convex; forehead concave; nostrils in the anterior margin of the maxillae, approximately; eyes small, hardly distinguishable; no papillae; tongue distinct; palatine teeth numerous; a crest on the anterior margin of the vomers; posterior feet with cutaneous appendages; toes small, free, with depressed cutaneous discs; tail rather round at the base, very much depressed in the middle and behind, head thickly covered with glandular, body depressed, with transverse folds and a long thick cutaneous appendage on each side.

Cuts of the skull, showing the teeth, of the skeleton of the fore hand, and of some of the vertebrae, are given above.

This is the genus Megalobatrachus of Tschudi; but the Prince of Canino's name, Sieboldiata, has the right of priority. The genus belongs to the sub-family Andromini of the Prince's Salamandridae.

Example. — Sieboldiata maximus. This, which is the Salamandra maximus of Schlegel (Fauna Japan, viii. tab. vii. fig. viii.), was found by Dr. Von Siebold in a lake at a basaltic mountain in Japan. He brought away a male and female; but the former favoured the latter during the passage, is now alive at Leyden, about a yard long, and feeds on small fishes. The gill- aperture slits always remains open in Menopoma, but in this great newt the slits are closed. The animal is the nearest living analogue of Atemon Schuberti, the celebrated Homo ditteri; it is of Schuberti, which will be noticed in the account of the fossil Salamandra at the end of this article.

Triton.

Generic Character. — Head rounded, convex; vertex...
somewhat flattened; tongue small, semi-globular, slightly free at each side, free and pointed behind; palatine teeth numerous, disposed in two rows; body granulous; no parotid; tail compressed, as long as the body; glandular pores behind and over the eyes, and a longitudinal row of distant similar pores along each side; operculum small, a pair on the anterior and five on the posterior feet. Crests of the back and tail (in the male) separate.

Example, Triton cristatus.

Description.—Blackish, orange-coloured beneath, animal distinct from the young; sides dotted with white; upper lip overhanging the lower, but not having a distinct lobe; body wary or tuberculated; tail rather smooth, compressed, sharp, trenchant above and below. Length six inches.

Male (in the spring) with an acute toothed dorsal crest; tail with a longitudinal white stripe. In winter without a crest, and much resembling the female.

Female.—No crest; lower edge of the tail orange.

Young.—Olive-brown; a sulphurous dorsal line; abdomen orange, spotted with black; lower edge of the tail orange-red.

This is the Laceria palustris of Linnaeus; Salamandra aquatilis of Ray; Salamandra cristata of Schneider, Daudin, &c.; Molge of Lacépéde; Molge of Ruston; Molge of Merret; Grosse Wasseramphibie and Sumpfamphibier of Reichenbach; Warty Lizard of Penman; Common Warty Neck and Great Water-Neck of the British.

General Distribution.—The whole of Europe; Western and Northern Asia.

Habits.—The ponds and ditches of this country abound with this the largest British newt, and a most voracious animal it is. Aquatic insects, and indeed any small living animal, are its food. Its eyes are small, and the animal is propelled principally by the tail. Every one has observed that when animals are cast upon the barren sand of a strand, floating motionless at the surface of the water, with their limbs extended at right angles with the body, and their toes spread out. Their progression at the bottom of the water and on land is performed creepingly with their small and weak feet.

Generation.—This is the species which was the principal object of the observations of Ruston, to which we shall presently advert; but before we do so, it is necessary to apprise the reader of the remarkable and inexplicable fact, observed by the male sex, and followed by the female: the tail of the former is vibrated, and, as it were, smacked by a motion similar to that of smacking a whip, several times during a few moments. Ruston, observes Mr. Bell, asserts, and he has been forced to make the same observation as he has, that some animals have been imprudent enough to procure some of these dinners whence the newt had been taken: still without success. He then turned his attention to artificial impregnation, remembering Spallanzani's success: here too he failed. Accident, as in so many other cases, gave to Ruston the key of the mode by which the young were brought into life. He had observed, whilst following out his experiments for artificial impregnation, that the Salamanders which had been left in the tub from time to time pressed back their hind limbs beneath the belly, and that in a few moments after this action they laid one or two eggs; these eggs did not always fall to the bottom of the tub, but sometimes adhered to the sides of the vessel, or to the glass of the vent itself, so that some of the animals might be seen running to and fro in the tub with two or three eggs thus attached. He was at a loss to account for this pressuring action of the hind limbs, and was thinking of making some arrangement in order to enable the females to support themselves at their ease during the night at the surface of the water for respiration, with a view to continuing his observations on them, when a fresh parcel of these animals were brought to him in a ball, in which many plants of Polygonum Persicaria had been placed to prevent the overflow of the water from the ball. He made a small bunch of these plants, and put the stems of them under a large stone to confine them at the bottom. In the evening he found, and all the Ruston's observations were thereby comfortably accommodated by the help of the plants, that by keeping the head a little elevated their nostrils were kept above the surface of the water, so that their respiration was easy. A few days afterwards, when Ruston was examining the salamanders on the water, he observed a female and a female for repeating his experiments of artificial impregnation, he remarked that there was not one egg at the bottom of the tub. Whilst under the influence of surprise at this, he observed that the salamanders approach one of the leaves of the plant, and direct its action against it; they smelt it. The animal then moved gently on the leaf in the direction of its breadth, and resting upon it, pushed back its hind limbs, so as to fold back and enclose the leaf between its body and the surface of the water. He then went away, leaving the leaf so that its apex was turned back on the petiole. After a lapse of three minutes Russon saw the salamander approach another leaf, apparently disposed to place itself thereon, when, casting its eyes accidentally about a minute or two, he discovered many other leaves doubled back just as he had seen the salamander double back that above noticed. He immediately took the bunch of plants from the tub, and on examining the doubled leaves he found that each of them enclosed an egg. He further observed that these eggs were able to reassume their natural position, because their two surfaces were held together by the gluten with which the egg is covered; and he had to overcome the adhesive resistance to extirpate it.

Russon enters into minute detail of the actions of the male from the time of its first pursuit of the female to the discharge of the prolific fluid, for which we refer the reader to the work itself. During the time that the male is lashing the female with his tail, when the female becomes immovable; at last she moves, and slowly goes in search of a plant proper for receiving her eggs, choosing almost always the Persicaria. She first approaches her head to the edges of a leaf, and turns it with her snout in such a way that the lower surface of the leaf, which was opened at the bottom, is turned towards her breast; then with her fore paws she passes the turned leaf beneath her belly, seizes it with her hind paws, and conducts it beneath the vent, folding it at the same time and forcing it, as it were, into the mouth and directed towards the tail. The egg in escaping from the vent would pass thus through the middle of the angle formed by the leaf, but the salamander stops it in its fall by its hind feet, shuts up this angle with them, and thus forms in the angles of the two internal surfaces of the leaf, which prevents the folds from opening. When several eggs have been laid in this manner, in different leaves, the female remains quiet until another male comes to carry her.

continued; but he found eggs as early as the middle of April and as late as the middle of July.

Triton cristatus, male, in the spring season, seen from above.

The following figures, given by the same author, exhibit the several stages of the evolution of the egg which was kept on its proper leaf; these stages are denoted by the dates of the days on which the drawings were made. Thus the figure marked 23rd April shows the egg of its natural size, and the figure below it the same magnified.

The temperature of the water during the period of Rusconi's observations varied from 22° to 27° of the centigrade scale. The globule in the centre of the ovum is white with a yellow tint, and is surrounded with a glairy matter, to which it is not attached, so that it can move freely in every direction. Its envelope is membranous, of glassy transparency, and covered with a very clear viscid matter: the specific gravity of this matter appears to be less than that of the globule. In three days the globule had undergone a change exhibited at April 24. Under the microscope may be observed in the embryo the commencement of the patti which are to become the head, the belly, and the tail. The globule at first becomes enlarged, then elongated, and its previously smooth surface presents some small elevations. If it has not been fecundated, or has lost its prolific power, it enlarges, nevertheless, during the first days, as in ordinary cases, but afterwards changes so as to resemble a teetee half filled with water; when this appearance takes on, the egg has lost its vitality.

On the 28th April (fifth day) the embryo has grown so long that it becomes bent in order to accommodate itself to the circumstances of the envelope. Now the head, abdomen, and tail are easily distinguishable, and near the head (the larger extremity) small elevations (the rudiments of gills and forefeet) are perceptible. These parts become more apparent by the 30th, when in the concave side of the embryo and towards the head a small furrow is seen which separates the head from the abdomen, and the rudiments of the spine are distinctly visible along its convex border.

By the 2nd of May the position of the embryo is changed and the tail has already assumed its car-like form. There is not as yet any appearance of mouth or eye; but towards the extremity of the head small blackish points may be observed, and a slight degree of contraction between the rudiments of the gills and those of the forefeet, distinguishing the head from the chest. Now the embryo begins to move, and its heart may be seen to beat; colour has begun to be present. This appears to be a critical state of the embryo; for almost half of those whose development was watched by Rusconi died at this period or soon after.

3rd May. The embryo, which has changed its position three or four times during the last twenty-four hours, shows in that it here presents all the upper part of the body, which is sprinkled with blackish spots disposed into two longitudinal bands, which extend from the head to the tail. On the side of the head, and before the two elevations which are the rudiments of the spine, the number of four on each side may be observed. The two first are not gills, as some authors suppose, but are organs of station, which the author designates as claspers or hooks (crochets) on account of their analogy to the two hooks by which the embryos of the green frog suspend themselves to the leaves of the lentin.

4th May. The changes of position become more frequent. In that here presented the embryo shows the lower part of the head and trunk, which is white inclining to green. On the chest between the gills of the two sides, where the pulsations of the heart are seen, small irregular blackish spots are observable. Before the two claspers are seen also other blackish spots, forming the junction of the two bands which run along the back, as shown in the preceding figure. The circulation of the blood, which is simple, and performed by a single curved vessel, is seen in the gills, which are of a glassy transparency, and consist only of a single element, without leaflets as yet. The blood is white. The claspers or hooks in front of the gills are elongated, and larger towards their ends than at their origin. The sides of the embryo are dotted with deep green in two irregular bands, extending from the fore-foot to the extremity of the abdomen.

5th May. Traces of the eyes may now be just seen; and the rudiments of two leaflets are perceptible on the two longest gills. The embryo now changes its position rapidly, and appears constrained by the confinement of its prison. It tries to extend itself in a straight line, and continues...
applies a strong pressure to the walls of its envelope. The membrane which forms the upper border of the tail has now extended itself, diminishing in its progress, to the shoulders.

May 6th. The upper small figure shows the young salamander, seen from above, and of the natural size, just escaped from the envelope. Before its escape, the embryo as it enlarges gradually dilates the envelope, which at last it tears, and so forces its way out. If it be slightly touched, it makes lateral movements with its trunk and tail, and thus swims, after a fashion, but in a different manner from that which it afterwards adopts. It moves like an automaton, striking now against a leaf, now against the side of the vessel, and as soon as it does so, it suspends itself to the body struck by its two hooks, whose extremities are covered with a viscid matter. The young salamander possibly sleeps continually at this period of its existence; for if the vessel be slightly shaken, its body oscillates with the motion of the water, as though it were inanimate. Several hours are now passed without motion. Afterwards it makes some lateral movements with its tail, without any apparent external cause, and simulates in its own manner; then again suspends itself to some other leaf, and continues to sleep, or in complete repose for half a day or more. If at this period it meets with nothing to which it could attach itself, it falls to the bottom of the water, where it continues repose, sometimes on its side and sometimes on its belly.

May 12th. The author is of opinion that the life of the salamander is purely organic.

May 28th. The stages of development of Triton cristatus appear more clearly on the line drawing, which is the same magnified, seen from above, and b, the same magnified, seen from above and in profile.

June 12th. Further stages of development of Triton cristatus.

By the 28th of May the salamander has put on the form above given in the upper figures, seen from above. About this time the hind-feet begin to appear, and the fore-feet are well developed; these last are, as will be seen, long in proportion to the trunk. The following are the principal points manifested under the microscope in this stage:—1. two small eminences or excrescences, extending from the axilla to the abdomen; 2. the pimaries of the abdomen take the colour of the insects on which the animal feeds; 3. the changes of colour from yellow to green, during the growth of the tadpole, are purely accidental, and commence immediately on the escape of the animal from the egg; 4. the inner toes first push forth, and this holds good also with regard to the hind feet; 5. the amylaceous bone of the organ of hearing is now formed, and may be seen through the skull and skin; 6. at this period, and even sooner, the animal begins to expel air from the mouth. The two lower cuts show the same salamander on the 12th June; the small figure represents it of the natural size and seen from above, and the larger figure magnified and in profile. Now the hind feet have almost attained their development, though the fifth toe is wanting. The lungs extend about half-way down the trunk, and are visible through the pimaries of the abdomen. The longest gills, which were furnished with only thirteen or fourteen leaflets thirteen or fourteen days previously, have now nearly twenty.
The development of the common smooth newt, \textit{Lissotriton punctatus}, Bell; \textit{Triton punctatus}, Auct.; \textit{Salamandra punctata}, Laur.; \textit{Salamandra punctata} L. Moll., also observed by Rusconi; but it did not require particular notice, being very similar to that of \textit{Triton ocellatus}. Triton punctatus does itself much the more brisk animal of the two; and the bashings of the tail of the male in his approaches to the female were much more rapid.

\textit{Salamandra.}

\textbf{Generic Character.}—Head thick; eyes large; gape of the mouth ample; tongue broad; palatine teeth arranged in two long series; parotids large; body sprinkled with many small glands; toes free; tail rather smooth.

\textit{Example.} \textit{Salamandra maculosa}, Laur.

\textbf{Description.}—Black with yellow spots; numerous prominent warty excrescences on the sides; tongue very large; palatine teeth spatuliform; toes smooth.

This is the \textit{Salamandra} of Gesner; \textit{Salamandra terrae} of Aldrovandus. Ray, and others; \textit{Salamandra de terre} of the French; and \textit{Gephyreus Erd-Salamander} of the Germans.

\textbf{Locality.}—Central Europe and the mountainous parts of the south of Europe.

\textit{Quercata,} &c. &c.—This land Salamandra is, unlike the Tritons, ovoviviparous, though the young, at first, inhabit the water and undergo metamorphosis till they arrive at the mature state which fits them for living upon land, where they haunt cool and moist places, being not unfrequently found about fallen leaves. Its aliment principally consists of insects, worms, and small molluscs; but is inhabited during the winter in some hollow tree or hole in an old wall, or even in the ground, where it coils itself up and remains in a torpid state till the spring again calls it forth. As it increases in size, it constantly sheds its skin, which is moulsted in flakes; at least such was the process in \textit{Salamandra subvoilacea}, observed by Dr. Barton.

We have seen that the body of the Salamandra is largely covered with warty glands. These glands give a milky or purplish juice, which as a continual and constant flow of that kind \textit{Ferox, vol. x., p. 493}, which, if not capable of affecting the larger and more highly organized animals, appears to be a destructive agent to some of those which are less highly organized. Thus Laurenti provoked two grey lizards to bite a salamander, which at first attempted to escape from them, but being still persecuted, ejected some of this fluid into their mouths; one of the lizards died instantly, and the other fell into convulsions for two minutes and then expired. Some of the juice was introduced into the mouth of a domestic lizard; it became convulsed, was paralytic on the whole of one side, and soon died. According to Dr. Barton the fluid, which the animal secretes in large quantities when irritated, is not soluble in water, though it dissolves readily in the spirit of wine. He found the taste of the juice of \textit{Salamandra subvoilacea} extremely acid, resembling corrosive sublimate, and very astrigent.

Such is the extent of the foundation for the long cherished assertion that the Salamandra was one of the most venomous of animals. Nicaudier, in his \textit{Allerijarmone}, gives an appalling picture of the symptoms produced by its bite. The Romains looked on it with horror, as most destructive, and considered it as deadly a part of the poisoner's laboratory as aconite or hemlock. Hence came a proverb that he who was bitten by a Salamander had need of as many physicians as the animal had spots; and another still more hopeless—"If a Salamander bites you, put on your abroad."

Not only was its bite considered fatal and the administrations of the animal taken internally believed to be deadly, but anything that its saliva had touched was said to become poisonous. Thus, if it crept over an apple-tree, it was supposed to spoil all the fruit with its saliva; and even beans which the fluid fell were believed to affect those who tasted them with vomiting. These fables had taken such strong hold, that it was thought worthy of record in the \textit{Acta Salamandra}. Curr. A man had eaten a man which his wife had put into his food in the hope of becoming a walrus, without suffering any inconvenience. Maupoujet caused the teeth of a salamander to the thigh of a fowl from which.
Its heart, worn as an amulet, was considered to be a prophylactic against fire, and it was used in medicine to eradicate leprosy.

It could hardly be expected that the alchemists would neglect animals of which such wonders were rife; and we accordingly find that the power of transmuting quicksilver into gold was attributed to them. To this end the wretched reptiles were placed in a vessel on the coals, and quicksilver introduced through an iron tube was poured upon them. This experiment was supposed to be accompanied with danger to the life of the operator. Those who would further dwell on the legends connected with this subject may consult Funk's work, De Salamandra Terrestris Vita, Evolutions, et Formatione.

Salamandra maculosa, seen from above. a, profile of head.

Fossil Salamandrina.

Andrias.

Few fossils have awakened more curiosity than the Homo dilucis testis of Schiebuerger, which was unwearying in collecting organic remains, which he considered irrefragable evidence of the general deluge. At length he obtained from the Austrian beds (Miocene period of Lyell) a fossil which he viewed with transport as the unequivocal remains of man himself. A short description of this specimen was published by him in the Philosophical Transactions for 1726. He again brought forward this piece of good fortune—in his rapture he writes the two last words in Greek—in his Physica Sacra, where he tells us that previously he had only possessed two dorsal vertebrae. Of the humanity of his prize he certainly entertained no doubt:—"quia," says he, speaking of the fossil, "indubium, quia non unam ex VOL. XX.—2 X

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hibet partem, sed bene multas, imo pene dimidium skeleton. Quid non duntaxat impressa figura, ex qua vaga et superbiter imaginatio fingere posset qualibet ex qualibet, sed ipsa lapidi immensa substantia ossium, imo carniui, et partium carinibus molliorum, praeclara in magnitudine proportio: vero magnanimo maledictus illius et aqua sepultus genitis, unum ex rarissimis. He gives no bad figure of the fossil in tab. xii of the work last quoted. When we look at that figure, it is difficult to conceive how such remains could have appeared to a physician, who must have had some acquaintance with osology, to be those of man; and we can only account for it by the blindness which an excited imagination and a determined adherence to theory can produce. The iteration and determination of Scheuchzer had its effect, and naturalists adopted his opinions. Gesner (1738) appears to have been the first who threw deserved doubt on the alleged nature of the fossil; for though he states it as an anthropolite, he nevertheless, having become possessed of a similar specimen, offers his conjecture that it was a fossil fish (Silurus Glanis, Linn.), and the obsequious naturalists were now as ready to follow him as they had been eager to run after Scheuchzer.

Gesner's specimen does not appear to have been engraved, nor another which was said to be in the convent of Augustus at Ömung, but a third specimen, more complete than Scheuchzer's, came into the possession of Dr. Ammann of Zürich, and is now in the British Museum. A figure of this was published by Karg, in the 'Memoirs of the Society of Naturalists of Suabia.'

Cuvier well observes that a comparison of the specimen with the skeleton of man must at once have destroyed the idea that it was an anthropolite; and it would be a waste of space to repeat here the details of that comparison which Cuvier so well follows out, and to which we refer. (Osseous Fossiles, tom. v., pt. 2, p. 433, ed. 1824.)

Karg, after figuring Dr. Ammann's specimen, expressly stated that he had no doubt that the fossil was a Silurus, an opinion which Jaeger refuted by placing by the side of the figure of the fossil, one of the skeleton of Silurus glanis. Cuvier disposes of this opinion with the same success as attends his former demonstration.

A writer part of Andreas Scheuchzeri, Tschudi, seen from above. (Cor.)

The rounded head and great orbits of the fossil struck Cuvier as strongly resembling the head of a frog or a salamander; and he states that, as soon as he beheld Karg's figure, he perceived in the vestiges of the hind feet and the
tail evidence in favour of the last-named genus. He adds that he learnt with great pleasure, from the note appended by Jäger to Karg's memoir, that M. Kielmeyer had entertained the same idea; and he observes that in a letter from Pierre Camper to Burtin, the former remarks that a petrified lizard has been able to pass for an anthropolite.

Cuvier, being at Haarlem in 1811, obtained permission to work upon the stone which contained the pretended anthropolite of Scheuchzer, for the purpose of uncovering any bones which might be still hidden there. During the operation, the figure of the skeleton of a salamander was placed before the operators; and Cuvier relates the pleasure which they felt, as they saw, while the chisel chipped away pieces of the stone, the bones which the figure had already announced.

Andreas Scheuchzeri, Tschudi, seen from above. (Cor.)

But by far the finest head of Andreas Scheuchzeri is figured by Tschudi, in his work above quoted, tab. 3; and many most interesting details are given in tab. 4 and tab. 5. These show how nearly allied this gigantic fossil was to Sireolisa maxima.

Salamandra oggyga, Goldf., is found in the Braunkohle (Tertiary), where also Triton Nachthias, Goldf., occurs. Triton palastris? fossils of Karg is from the Ömunga slate.
Human fossil bones have been discovered in the Belgian bone-caverns, with bears, rodents, &c., and are figured by Dr. Schmerling, in his interesting work on the bones found in a cavern near Liège.

Dr. Buckland (Bridgewater Treaties) remarks that frequent discoveries have been made of human bones and rude weapons of stone art, in natural caverns, sometimes enclosed in stalactite, at other times in beds of earthy materials, which are interspersed with bones of extinct species of quadrupeds. These cases, he thinks, may be explained by the common practice of Man kind of all ages, of breaking the bones of convenient repose. 'The accidental circumstance,' continues Dr. Buckland, 'that many caverns contained the bones of extinct species of other animals, dispersed through the same soil in which human bodies may, at any subsequent period, have been buried, affords no proof of the time when these remains of men were introduced. Many of the caverns have been inhabited by savage tribes, who, for convenience of occupation, have repeatedly disturbed portions of soil in which their predecessors may have been buried. Such disturbances will explain the occasional admixture of fragments of human skeletons and the bones of modern quadrupeds, with those of extinct species introduced at more early periods and by natural causes. Several accounts have been given of rich, but infrequent, remains discovered in the caverns of France and in the province of Lige, which are described as being of the same antiquity with the bones of hymen and other extinct quadrupeds that accompany them. Most of these may probably and at least in the English caverns, have been laterly interred. In the case of caverns which form the channels of subterranean rivers, or which are subject to occasional inundations, another cause of the admixture of human bones with the remains of animals of more antient date may be found in the movements occasioned by running water.' The same learned observer observes that the most remarkable and only recorded case of human skeletons imbedded in a solid limestone rock is that of the shore of Guadaloupe, adding that there is however no reason to consider these bones to be of high antiquity, as the rock in which they occur is of very recent formation, and is composed of agglutinated fragments of shells and corals which inhabit the adjacent water, and which are of recent formation. This stone is frequently formed in a few years from sand-banks composed of similar materials, on the shores of tropical seas. (Bridgewater Treaties, vol. i.) One of these skeletons, described by Mr. König (Phil. Trans., 1814), is in the British Museum. See further respecting the question of which the skeletons are imbedded, Linn. Trans., 1818, vol. xii.

Dr. Lund, a good observer, has lately published his discovery of human remains with those of Megatherium, &c.; and the latter, as it is supposed, are of the same epoch as those of the former. The shape of the genus has the peculiar shape which distinguishes the antient Peruvians.

Salamandroi/DES. Under this generic title Professor Jäger described a fossil reptile from the German Keuper, giving it the specific name of giganturis. This fossil now appears to be identical with Mastodontaurus and Phytosaurus. Professor Owen therefore proposes to designate this gigantic genus of extinct Batrachians—for to that order he has satisfactorily shown that the form belongs—by the name of Labyrinthodon (from the extraordinary structure of the skull it should probably be so called) as proposed in his paper 'On the Teeth of species of the genus Labyrinthodon (Mastodontaurus), Salamandroidea, and Phytosaurus (I. Jäger) from the German Keuper and the same generic characters as those of fossils obtained in the Keuper of Germany, may afford in determining the question.

Before he proceeded to describe the fossils forming the immediate object of his paper, Mr. Owen showed that the

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creasing in number as the tooth diminishes in thickness, and disappearing about half an inch from the summit of the tooth. Each of these tubes penetrates less deeply than the groove approaches its termination; and Mr. Owen conceives that the structure of the upper part of the tooth may be more simple than that of the lower, but he has not yet brought this investigation to a conclusion.

'The dentine consists of a slender, central, conical column, or "modiolus," hollow for a certain distance from its base, and radiating outwards from its circumference a series of vertical plates, which divide into two, or more, before the summit of the tooth. Each of these diverging and dichotomizing vertical plates gives off throughout its course narrower vertical plates, which stand at nearly right angles to the main plate, in relation to which they are generally opposite, but sometimes alternate. Many of the secondary plates are given off near the centre of the tooth, but also divide into two before they terminate. They partake of all the undulations which characterize the inflected folds of the cement.

'The central pulp-cavity is reduced to a line, about the upper third of the tooth; but fissures radiate from it, corresponding in number with the radiating plates of the dentine. One of these fissures is continued along the middle of each plate, dividing where it divides, and penetrating each bifurcation and process; the main fissures extend to within a line or half a line of the perimeter of the tooth; the terminations of these, as well as the fissures of the lateral processes, suddenly dilating into subcircular, oval, or polygonal spaces. All these spaces constitute centres of radiating fissures of the calcigenous tubes, which, with the unifying clear substance, constitute the dentine. The number of these calcigenous tubes, which are the centres of minor ramifications, defies all calculation. Their diameter is about 6th of a line, with interseals equal to seven diameters of their cavities.

'Mr. Owen then compares the structure of the section of the tooth procured in the sandstone of Coton-End Quarry, and sent to him by Dr. Lloyd of Leamington. The tooth nearly resembles in size and form the smaller teeth of *Labirynthodon* figured by Prof. Jacqué. All the peculiarities of the labyrinthine structure of the Keuper tooth are so clearly preserved in this specimen, that the differences are merely of a specific nature.

'At the upper part of the tooth a thin layer of enamel, besides a coating of cement, is inflected at each groove towards the centre of the dentine; but about the middle of the tooth the enamel disappears, and the convolutions consist of this layer of cement and dentine. On the supposition that the tooth of the *Labirynthodon* of the German Keuper is capped with enamel, its extent must be less than in the tooth of the Warwick sandstone.

'The inflected sides are continued for a greater relative distance; the lateral inflected folds are shorter than the German species, and the anfractuositens are fewer in number, and some of the folds are reflected backwards from near the central pulp-cavity for a short distance before they terminate.

'The modifications of the complex diverging plates of the dentine hardly exceed those of a specific character, and the dentine itself is composed of calcigenous tubes of the same relative size and disposition as in the *Labirynthodon Jaegeri*.

'In the section taken from the middle of a smaller and relatively broader and shorter conical tooth from the Warwick sandstone, Mr. Owen found that the anfractuositens were more complicated, with numerous secondary and tertiary convolutions, and the external layer of cement was relatively thicker than in the *Labirynthodon Jaegeri*.

'The generic identity of the reptiles indicated by the teeth from the Warwick sandstones, with the *Mustodonaurus* of the German Keuper, Mr. Owen believes to be fully substantiated by the concordance of their peculiar dental structure above described. And in conclusion he observed, that if on the one hand geology has in this instance really derived any essential aid from minute anatomy; on the other hand, in no other able and comparative anatomist has been more indebted to geology than to the fossils which have revealed the most singular and complicated modification of dental structure hitherto known, and of which not the slightest conception could have been gained from an investigation, however close and extensive, of the teeth of existing animals.

'By the permission of Professor Owen we are enabled to give a section of this highly complicated tooth, from his elaborate *Odontography* (pl. 64, A.), in which the subject is treated with minute detail (part ii., p. 203, &c.).

'Transverse section of tooth of *Labirynthodon Jaegeri* (Owen); Mustodonaurus Jaegeri (Owen) is the nucleus, and a margin, a pulp cavity, from which the processes of pulp and dentine radiate, the cement.

'We have now to call the reader's attention to a subject of considerable interest, which has lately been studied with much care and success, and has become of such importance as to be considered a distinct branch of inquiry under the name ofIchnotology.*

'This department of geological investigation is conversant with the phenomena of footstamps impressed by animals on the strata of the earth. In 1828 Mr. Duncan's account of tracks and footmarks of animals impressed on sandstone in the quarry of Corn Cockle Muir, Dumfriesshire, appeared in the *Transactions of the Royal Society of Edinburgh*. Dr. Buckland caused a living Emyd and Testudo Gracca to walk on soft sand, clay, and pastes and unbaked pie-crust. He found the correspondence of the footstamps of the latter with the fossil footstamps sufficiently close, allowing for difference of species, to render it highly probable that the fossil footstamps were impressed by *Testudo Gracca*. In 1831 Mr. G. Poulton Scrope found, after visiting the Dumfries quarries, minute undulations resembling the ripple-marks of water upon sand, together with numerous foot-tracks of small animals (crustaceas probably) on the surface of forest marble near Bath. [Ripple-Mark.]* The footstamps of the so-called *Chirotherium* of Hessberg and the *Omphithrinites* of Connecticut are among the most interesting of the discoveries in this department.

'But it is not in the older beds alone that those traces of animals have been noticed. Dr. Buckland (Address, 1640) observes, that in recent excavations for making a dock at Pembrey near Llanelli, in Pembrookshire, tracks of deer and of large oxen have been found on clay subjacent to a bed of peat, the lower peat being moulded into footstamps; similar impressions were also found upon the upper surface of the peat beneath a bed of silt, and bones both of deer and oxen in the peat itself. Footstamps of deer have been also noticed on the sands, in the docks' excavations for a harbour near Margam burrows on the east of Neath. But we must now return to the impressions left upon the more ancient strata, and to the tracks of the so-called *Chirotherium*.

'In Saxony, at the village of Hessberg near Hildburghausen, fossil footstamps were, a few years ago, discovered in several quarries of grey quartzose sandstone alternating with beds of red sandstone, nearly of the age of the red-sandstone of Corn Cockle Muir. Dr. Hohnbaum and Professor Kasprowi state that those impressions of feet are partly concave and partly in relief; the depressions are described as being upon the upper surfaces of the sandstone slabs, but the footmarks in relief only upon the lower surfaces, and that the depressions. In short, the footmarks in relief are

*[Ichnotology.* Mr. Owen, a footstep, and Mr. Owen, a discoverer.]*
natural casts formed in the subjacent footsteps as in moulds. On one slab, six feet long by five feet wide, many footsteps of the fore and hind feet of a large animal, with the impressions of the larger impressions, which were those of the hind foot, are generally eight inches in length and five in width, and one was twelve inches long. Near each large footprint, and at a regular distance (about an inch and a half) before it, a small mark, similar to only a quarter of an inch wide, occurs. The footsteps follow each other in pairs, each pair in the same line, at intervals of fourteen inches from pair to pair. The large as well as the small steps show the great toes alternately on the right and left side; each step made by the atmosphere, which is not like a thumb. Though the fore and hind foot differ much in size, they are nearly similar in form.

The name of *Chirotherium* was proposed by Professor Kuenen, as the proper name for the great unknown animal that impressed the larger footsteps, from a supposed resemblance in the marks of both the fore and hind feet to the impressions made by a human hand; and he thought that they might have been derived from some quadruped allied to the *Mammutia*. Dr. Suckler, in a letter to Blumenbach (1834), gave a further account of these footsteps. Fragments of bones were found in the quarries where the footsteps had been impressed, but those fragments were destroyed.

Dr. Buckland (Bridgewater Treatise) expresses his opinion that the conjecture which has been made as to the opossum, in the oolithic formation of Stonesfield (Marsupialia, vol. xiv., p. 464 et seq.), and the approximation of this order to the class of reptiles, are circumstances which go far in explaining when the steps were made; and he observes that in the Kangaroo the first toe of the fore foot is set obliquely to the others, and that the disproportion between the fore and hind feet is also very great; and he figures several specimens of these footsteps. (Bridgewater Treatise, pl. 26, 27, 128.) In his description of the plates, Dr. Buckland remarks that M. Link has made out the footstep of four species of animals in the Hildburghausen sandstone; and that it has been conjectured that some of these have been derived from gigantic Batrachians. He further declares that the tracks of the smaller species are those of a small web-footed animal, probably crocodile.

But these footsteps are not confined to foreign lands, and within the last three years able observers have contributed largely to this interesting subject. Dr. Buckland thus sums up the evidence obtained in this country:—"Near Liverpool Mr. Cunningham has successfully continued his researches begun in 1834, respecting the footsteps of *Chirotherium* and other animals in the red-sandstone at Stourton, and the evidence as to the nature of the footsteps occur on five consecutive beds of clay in the same quarry; the clay-beds are very thin; and having received the impressions of the feet, afforded a series of moulds in which casts were taken by the succeeding deposits of sand, mud, and sandstone, and thus to sandstone, giving exact models of the feet and toes and claws of these mysterious animals, of which scarcely a single bone or tooth has yet been found, although we are assured by the evidence before us of the certainty of their existence at the time when the red-sandstone was in process of deposition. Further discoveries of the footstepes of *Chirotherium* and five or six smaller reptiles in the red-sandstone of Cheshire, Warwickshire, and Salop, have been brought before us by Sir P. Egerton, Mr. J. Taylor, jun., Mr. Strickland, and Dr. Ward. Mr. Cunningham, in a sequel to his paper on the footmarks at Stotoreon, has described impressions on the same slabs with the Herberts from Dr. Buckland to the thin laminae of clay interposed between the beds of sand. The clay impressed with these prints of raindrops acted as a mould, which transferred the form of every drop to the lower surface of the next bed of sand; the footsteps, long and narrow, and the surface of several strata in the same quarry are respectively covered with moulds and casts of rain drops that fell whilst the strata were in process of formation. On the surface of one stratum at Stotoreon, impressed with large footmarks of a Crocodilus, the deposit of sand, the raindrops, on different parts of the same footprint has varied with the unequal amount of pressure on the clay and sand, by the salient cushions and reining hollows of the creature's foot; and from the constancy of this phenomenon upon an entire series of footmarks in a long continuous track, we know that this rain fell after the animal had passed. The equal size of the casts of large drops that cover the entire face of the imprints, except in the parts impressed by the cushions of the feet, and the falling of the drops on the day in which this huge animal had marched along the antient strand: hemispherical impressions of small drops, upon another stratum, show it to have been rain: the latter is indicated by the direction of the footmarks, wind blowing at or about the time when the animals were passing."

The Address from which the above passage was taken was delivered at the anniversary of the Geological Society of London, on the 21st February, 1849; and at that time fell the name of Burrowes, as the discoverer of the "*Chirotherium*.

Professor Owen's paper, read on the 20th January this year, the abstract of which is given above, proved the existence of a gigantic Batrachian at the age of the sandstone. Scarcely was that memoir communicated, when additional materials of the highest importance were brought forward by the liberal possessors of them, and the result was a second paper, read before the Geological Society of London on the 24th of February last, in which three species of *Labyrinthodon* were defined, and evidence relating to the ichnology of those extinct Batrachians was added, which may be briefly stated as follows:—

1st. From the skeleton that *Labyrinthodon* had enormous extremities much larger than the anterior extremities.

2nd. That the foot-prints of *Chirotherium* are at least as much like those of certain Toads as those of any other animals.

3rd. That the size of the known species of *Labyrinthodon* corresponds with the size of the foot-prints of the different species of *Chirotherium*: e.g., *Labyrinthodon* *Jugeeri*, with the foot-print of *Chirotherium* *Hercules* (Egerton); *Labyrinthodon* *paichynathus*, with the foot-prints of the common *Chirotherium* and *Annectens*; and *Labyrinthodon* *sagittiferum*, with the impressions of the smaller batrachian figured in the memoir by Mr. Murchison and Mr. Strickland.

4th. *Labyrinthodon* occurs in the new red-sandstone strata to which *Chirotherium* impressions are peculiar.

5th. Lastly, no remains of animals that could have left such impressions as those of the *Chirotherium* have been found in these strata, except the remains of the Labyrinthodonts.

It is true that the structure of the foot is still full of mystery, and that a more connected and complete skeleton is required for demonstration; but the circumstantial evidence above stated is strong enough to produce the conviction that *Chirotherium* and *Labyrinthodontic* foot- Impressions are identical; and that *Mastodontaurus*, *Salamoides*, *Phytosaurus*, *Chirotherium*, and *Labyrinthodon* are one and the same genus, which ought for the future to be designated by the last-mentioned name. We owe this evidence principally to the use of the microscope in skillful and judicious hands; and it is impossible not to be struck with the wonderful applicability of that instrument to the largest of created bodies as well as to the smallest, when we look at the results of Professor Owen's discovery of the highly organised dental structure in *Labyrinthodon*, an extinct animal of a low grade, where it could hardly have been expected to occur.

The reading of Professor Owen's last memoir was accompanied by the exhibition of a diagram representing a restoration of two species of *Labyrinthodon* in the life size. The kindness of Dr. Burrowes enabled us to give a greatly reduced copy of one of them. The bones which appear within the outline are those which were known when the paper was read. The animal is represented as impressing its footsteps on a shore of sand, now red-sandstone. There is reason for believing that this formidable Batrachian was not smooth.
externally, but that it was protected, on certain parts at least, by bony scutella.

Labyrinthodon pachychassus.

Fore and hind foot of the same.

Specimens of the foot-prints may be seen in the British Museum and in that of the Royal College of Surgeons in London.

SALAMANDROPSIS, Wagler's name for the Menopome.

SALAMANDRIS (Salamis), now Koléri, is a small island adjacent to the coast of Attica. It forms the southern boundary of the beautiful Bay of Eubea, and is only separated from the mainland by a narrow winding channel. The bay is surrounded on the west, north, and east by the high land of Attica, of which the northern shore of Salamis seems like a continuation, and thus the bay has the appearance of a large lake. The two channels have deep water, and a vessel may enter the Bay of Eubea through them with any wind.

The form of the island is very irregular. On the west side it is indented by the deep Bay of Koléri, on which the village of Koléri stands, and on the east side a long narrow peninsula projects towards the coast of Attica. Its greatest length from north to south is about ten miles, and the longest line that can be drawn in the island, from about east to west, is a little more; but the area is probably not above 50 square miles. The soil, though scanty, is productive; and some districts are well suited to the olive. It produces good honey, and the place is properly; the care of the olive may be considered as important. There is only one stream in the island, which enters the sea on the south-west coast, and is probably the Bedaros or Boreas of Strabo. The village of Koléri, with two others called Muéli and Ambelákia (vineyards), and a convent, has contained a few years ago the whole population of the island.

The old city of Salamis, which was deserted in the time of Strabo, stood on the south coast opposite to Aegina; but the city Salamis of Strabo's time was on the small Bay of Ambelákia, and near the peninsula which projects from the eastern part of the island to the shores of Attica, and terminates in Cape Cynoura. (Herod., viii. 76.) This cape was called Silenae and Tropeae. About midway between this peninsula and the Piræus, but not exactly in the street leading to the Bay of Eubea, is the small island of Psyttaleia, now Lipesokúthi, which makes a conspicuous figure in the battle of Salamis. (Herod., viii. 95.) It is about a mile long, and from two to three hundred yards wide, low, rocky, and covered with shrubs. Between the Bay of Koléri and the strait at the western extremity of the island there is a mountainous peninsula called Budorus by Thucydides (ii. 93, 94) and Strabo. The western extremity of the peninsula is only three miles from Nisaea, the port of Megara.

The ancient names of Salamis were Sciræ and Cythrea, derived from ancient heroes. It was also called Pytyussa from the pines that grow in it. In Homer, the island is only called Salami, a name said to be derived from Salami, the mother of Aæpidus. Before the Trojan war, the island was possessed by the Aeschines under Télamon from Aegina; and Aæs, the son of Télamon, accompanied the expedition to Troy with twelve Salamian ships. About the time of Solon and Pisistratus, there was a dispute about the island between Megara and Attica, which terminated in favour of Attica, and from that time the island became one of the Attic demes. The best described of the Salamyans was Cæsar, and the Athenians, the Salamyans surrendered their island to the Macedonians, for which they were punished by the Athenians, who destroyed their city. In the time of Pausanias it was in a ruined state, but traces of the remains of the agora, and there was a temple of Ajax, with a statue of eunuch.

The great event in the history of Salamis is the naval battle fought B.C. 480, between the combined Persian fleet and the Persian fleet under Térames, a small fleet of five triremes and five penteconters. The Persian fleet was upset by various autumnal auspices at 1200 a.m., but it was, probably somewhat less. The Persian king saw the battle from the Attic coast, where he had his seat at the foot of Mount Aægalus, with his secretaries by his side to register the events of the action. (Herod., viii. 90.) The probable position of the Persian king, according to Leukæ, was near the shore, on the summit of a ridge which descends from the foot of Mount Aægalus, about a mile from the western side of Port Phoron, and opposite to the centre of the Persian fleet. The result of the conflict is the complete destruction of the Persian fleet. After making a feast to build a mole from the mainland to Salamis, as if he wished to shut up the Greek ships which had retired into the bay after the action, Xerxes suddenly ordered his fleet to retreat to the Hellespont.

SALAMIS is a term often used by Herodotus (viii. 167) for Pausanias, i. 35; Leukæ, On the Demi of Attica; and the authors Archyulus, Aristides, Thersitocles, and Xenophon. (SALAYEY ISLANDS are a small group in the Inner Archipelago, situated between 5° 40' and 6° 50' S. lat. and between 120° and 121° E. long. The group consists of a larger and several smaller islands. The smaller islands are uninhabited, with the exception of two called Hoplitia and Epictia, and the principal island of Saléula is about 30 miles long, with an average width of eight miles; and it is divided from Cape Lasson in Lesbos by a strait about eight miles wide. In the strait there are three small rocky islands, called the Beldjezoune, which are uninhabited. A ridge of high hills traverses the island from north to south, and descends to the east and west with a rapid slope. These hills are entirely covered with wood, and abound in deer. Along the base of the hills there are tracts of low land, which are carefully cultivated. They produce several kinds of fruit, and the vines come in the spring, in the Bophra, a kind of mellet, which constitutes the chief article of food of the inhabitants. Cotton is also grown to a great extent, and the inhabitants manufacture it into coarse cloth, striped blue and white, which is partly used here, but partly exported. There are several kinds of palms, and also the tallow-tree, the substance obtained from which is used for burning, as it is in China. The inhabitants, who are stated to amount to about 60,000, are Malays, and seem to be more industrious than the inhabitants of other islands, as they apply themselves to agriculture, and, as already observed, manufacture cotton stuffs. The island is divided among several petty princes, who are dependent on the Dutch at Macassar, but it seems that they are not bound to any other duty than to report every year to Fort Rotterdam to perform the customary ceremonies of vassalage. On the eastern side of the island the Dutch have a small fort, or rather a redoubt, called Fort Deforce (formerly Fort de Hoorn), 120 yards long, and a hundred yards broad. SARDANAHAY BAY is a spacious bay on the western shore of South Africa, about 70 miles north of Table Bay, between 33° 53' and 33° 20' S. lat. and near 18° 11' E. long. This bay is about 15 miles in length from north-north-west to south-south-east, and 10 miles in breadth, and at all seasons shelter and anchorage. It is divided from the Atlantic by a ridge of granite rocks of moderate elevation, in which there is an opening about three miles wide, which is the entrance to the bay. There are two small rocky islands in the entrance, but of which the channel is open to them. The bay contains several excellent anchorage, both towards the north and south, and also towards the country east of the bay is of moderate fertility and cultivated;
obtaining party to a sale, he must be truly informed in all material particulars as to the property which is the subject of sale. This must be understood of such particulars as he cannot by reasonable care and observation inform himself upon, for a man has no legal protection against the consequences of his own carelessness and negligence. If however he has been deceived in any other particulars, even unintentionally, by the buyer, he cannot be said to consent to the bargain. The consequent purchase of such property as has been described to him, and the consent therefore cannot relate to the property which is the subject of the sale, if it differs in material points from that which has been described. Thus in the common case of a horse warrantied sound, the consent is to buy a sound horse, and the buyer cannot be considered to have consented to buy an unsound horse. If therefore the horse is manifestly unsound, a party cannot be compelled to carry into effect his contract to purchase it. The case is the same with an estate said to be tithe free, which in reality is not so, or with any other property the description of which, as stated, varies materially from the truth. Where indeed the variance from the description is obvious, and the buyer has had an opportunity of inspecting the property and afterwards chooses to complete the purchase, the contract will not be invalid. The reason of this rule is manifest, for the legal presumption is that ordinary diligence has been used, and it is highly inequitable that he should be obliged to take the risk if there is therefore no ground for supposing an absence of the buyer’s consent.

In cases where there is no fraud, and a possibility of variance from the description is contemplated in the condition of the property, the matter will still depend on the existence of such variance, for in this case both parties knowingly take the chance of the variance being either favourable or adverse to them. As when for instance it is stated that there are certain acres, &c., be the same more or less, &c. If the condition of sale contain a provision that compensation shall be made for such variances when they are ascertained, then the parties in whose favour they turn out to be, will be bound to make compensation. From the custom, however, that in such cases the case it should appear that such compensation cannot be made, the sale cannot be enforced against the purchaser, forasmuch as the terms to which the parties consented are impossible, and there is therefore nothing to which the consent is applicable.

A court of equity will in some cases compel a buyer to complete his bargain, on the condition of the seller making him compensation in respect of those matters in which there is a variance, even although there is no provision to that effect in the contract. The reason is, that if this is done it is, that parties ought to carry into effect what was substantially their intention. This power of the court therefore is not exercised where the variance is material, and <null> of the parties to the sale. But a variance exists really was the main object of the purchase. The common terms of exaggerated praise in which persons speak of the property that they have to sell, is not such misdescription as will make a sale void. In cases where property is agreed to be sold by one contract, in one lot, a buyer cannot be compelled to take some part of it without the rest.

3. No sale is valid if the subject-matter of it is illegal or prohibited, or if an essential part of it is an illegal transaction, or involves the sale of any lottery, lottery tickets or other equally reprehensible or obscene publications is void, for the acts of treason, blasphemy, and obscenity are legally punishable.

A sale of property known by the seller to be intended to be used for illegal purposes is void, such as drugs used for the adulteration of provisions, or a house to be occupied for the purposes of prostitution. Sales for the purpose of avoiding the forfeitures to the crown upon conviction after a conviction for felony, are void. Sales to gain an enemy or out of duty, whether on behalf of the crown in the crown to grant licences legitimising such sales. Offices of public trust, such as those which are connected with the administration of justice or government, either in the United Kingdom or in the dependencies upon it, cannot lawfully be sold by private contract. The cases affecting the sale of various articles are too numerous to be referred here. It may however be laid down generally that where a thing is prohibited and made unlawful by statute, a contract for the sale of such thing is void, even
although the statute does not enact that it shall be so, but only attaches a penalty to an infringement of its provisions. Sales in the courts, and even in the case of a foreigner selling goods abroad, to be delivered in this country, the sale will be invalid, if he be cognizant of and aiding in an attempt to introduce them into this country in contravention of the revenue laws. A sale of provisions for cash or for future delivery is made on a Sunday, although the sale of the same article by another person whose ordinary dealings are not in such matters would be valid.

In the case of a sale of lands, it is assumed that the seller has a good title to them, and that he will deliver over the title-deeds to the buyer. In failure of either of these particulars the sale cannot be enforced. The right to receive a good title is one which is conferred upon the buyer by the law, without the necessity of any agreement on the part of the seller.

By the statute 29 Charles II. c. 3, 4, certain forms were required in order to give effect to a sale of 'lands, tenements, or hereditaments, or any interest in or concerning them.' Such forms are no part of the sale, which consists in the consent of parties who are competent to consent, but the statute merely declares that such consent shall, in certain cases, have no legal effect, unless the prescribed forms are observed. If an agreement for sale has been made, but the requisite formalities, being carrying into effect in some material part, a court of equity will enforce the performance of the whole contract, on the ground that the informal contract, having been partly completed, is not a case within the statute. In all sales contracts as to land, 'the agreement, or some memorandum or note thereof, shall be in writing, and signed by the party to be charged therewith, or by some other person thereunto by him lawfully authorised.' The agreement binds the party who signs it, although it is not signed by the other party. No established form is requisite, and it is not necessary that the agreement should be contained in one instrument: it may be collected from a series of letters, or a written offer followed by a written acceptance. The signature is sufficient, and the signature may be attached to any part of it. An agent may be appointed verbally, and the same person may act as agent for both parties to the sale. An auctioneer is such an agent, and his writing down the name of the highest bidder in his book is a sufficient signature.

The law which relates to the construction of agreements for sale falls under the ordinary rules as to the construction of agreements generally. The same observation applies as to the loss or delay of documents necessary to effect them. When the contract for the sale of an estate is completed, the estate is, in equity, considered to be sold, and the buyer is viewed as the owner of the estate, and the seller as only a trustee for the buyer, while the buyer is considered as owner of the estate. Where purchase money has been paid, if a party has contracted for the sale of an estate in inheritance, and dies before payment of the purchase money, the money will be considered as part of his personal estate, and his executors will be entitled to it. On the other hand, if the party who has contracted to buy the estate dies before it is conveyed to him, his heir or devisee will be entitled to the estate, and the executors must pay the purchase money out of the personal estate of the buyer, if they have sufficient assets. It is a consequence of this equitable doctrine, that the buyer must, as a general rule, bear any loss which happens to the estate after the completion of the contract of sale. A person who has obtained such an equitable owner- ship of the property, as if it were his own; and such dealing, though not valid at law, are viewed as valid transactions in a court of equity.

With respect to sales of personal property, the common law required no formalities. The terms of sale might be agreed on either verbally or in writing; and they might be proved by any evidence legally applicable to the proof of other matters. Sales of goods made at one time, and not together preceding in price 10l., still remain on this footing. By the same statute (29 Charles II. c. 3) which prescribed certain formalities in sales of land, it was enacted (s. 17) that 'no contract for the sale of any goods, wares, and merchandise for the price of 10l. sterling and upwards shall be allowed to be good except the buyer shall accept part or all of the goods sold and delivered, or give something in earnest to bind the bargain, or in part payment, or that some note or memorandum in writing of the said bargain be made and signed by the parties to be charged by such contract or their agents thereto lawfully authorised.' All these provisions of this act are extended to all contracts for the sale of goods of the value of 10l. sterling and upwards, notwithstanding the goods may be intended to be delivered at some future time, or may not at the time of the contract be actually made or in course of delivery. The statutory requisites are thus four in number:—

1. Delivery and receipt of part of the goods.
2. Payment of earnest.
3. Payment of part of the price.
4. A signature of a memorandum of the bargain by the party or his agent. By the performance of any one of these requisites the parties to the sale are bound.

If the goods themselves are delivered to the buyer himself and accepted, any course of conduct which can arise as to the completion of the bargain. Where however the delivery is not to him personally, many cases of nicety occur as to whether or not a delivery has taken place, so as absolutely to vest the property of the goods in the buyer. A delivery which would be sufficient, if not afterwards interfered with by the seller, to accomplish the requisite of the statute, is complete as soon as the goods have been delivered to a carrier for the purpose of being conveyed to the buyer, and that the carrier actually delivers the goods. But during the course of actual transit to the place indicated by the buyer to the seller as the place of destination, the goods are subject under certain circumstances to a right of the seller to detain them. This is a very complex subject, and place where it ceases are often a question of great nicety. [STOPPAGE IN TRANSCRIPT] Where no delivery of part of the goods themselves has been made by actual removal, a constructive delivery may effect the same purpose; a delivery of the key of the warehouse where the goods lie; the receipt of rent for their warehouse-room by the seller; the endorsement and delivery of a bill of lading or a dock warrant; an order to a wharfinger to deliver, &c., amount to a delivery. In all these cases, however, it must be shown by a letter or writing that the delivery is complete if anything yet remains to be done to the goods on the part of the seller, such as their separation by weighing or measurement from a larger bulk. Again, the exercise of ownership over the goods by the buyer, with permission of the seller, is an act legally equivalent to delivery; such as marking the goods, tasting wine, and cutting off the pegs from the cask, &c. But in these cases it must distinctly appear that the act which is done is an act preparatory to sales; for the purpose of the property merely of identifying the property, it will of course afford no ground from which a delivery may be inferred. Where a sample is taken out of the whole bulk sold, a delivery of the sample operates as a part delivery.

The rule here stated is absolute. In a case where a shilling had been paid to bind a bargain, and was returned, it was held that this was not a compliance with the requisite of the statute.

3. The part payment need not necessarily be made in cash; a payment by acceptance of a bill, or by a promissory note, will, while the instruments remain undischarged, have the same effect as by actual money.

4. The general observations which have been made as to a note or memorandum in writing relative to sales of lands, will apply equally to one relative to sales of goods.

(Sugden, On the Law of Vendors and Purchasers; Rose's Treatise on the Law of Vendors and Purchasers of Personal Property, 1st ed.)

SALE, GEORGE, a learned oriental scholar, was born in 1850. Very little is known of his private life, except that he was a lawyer. He was a contributor to the 'Universal History,' edited by Swinton, Dr. Campbell, and others, and he wrote that work in the same manner, besides several valuable fragments of oriental history, in which he was deeply versed. He was likewise one of the authors of the 'General Dictionary' (Lond., 1734, 10 vols. 4to.), which contains a translation of that of Bayle. But he wrote by work in which he is most known, the Koran into English, from the original Arabic, with explanatory notes and quotations from Zamshkhari Beydaw, and the most approved correcting. [KORAN.] To this work, he contributed the excellent Latin translation, with the excellent Latin course on the mo-
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cial and religious state of the Arabs, Jews, and Christians at the time of Mohammed's appearance [Mohammad]; on the doctrines inculcated in the Koran; on the principal scenes described in the Koran; and on the other subjects connected with Islam (Lond., 1754, 4to). This discourse was afterwards translated into French, and prefixed to the French version of the Koran by Duryer (Antw., 1770, 2 vols. 8vo.). Sir James Porter, in his 'Observations on the Religion of the Moors,' Lin. Soc. Trans. (Lond., 1766, p. 60), has accused Sale of making an apology for the Koran, rather than trying to point out the pernicious doctrines contained in that book. The charge however is generally groundless; as every scholar acquainted with the writings of the Mohammedans will be aware, Sale was one of the founders and a member of the first committee of a Society for the Encouragement of Learning, instituted in 1738. He died in the same year (14th Nov., 1738), leaving his work unfinished, or, at least, in a state of imperfect completion. Oriental MSS. were published, containing many choice articles in Arabic, Persian, and Turkish literature. They are all now in the Radcliffe Library, Oxford, for which they were purchased.

SALEM, a sea-port town, the capital of Essex county, in the state of Massachusetts, North America, is situated on a tongue of land formed by two inlets of Massachusetts Bay, called North River and South River. A brief outline of the town will be necessary to explain the history of Salem with the village of Beverly. Salem is in 42° 36' N. lat., 71° 7' W. long., 15 miles north-east from Boston. It is the oldest town in the state except Plymouth, having been founded in 1628, and for some time contended with Boston for the chief place in the colony. It has been too rich to yield, to its powerful neighbour. The population was 12,731 in 1820, 13,886 in 1830, and 15,162 in 1840.

The town is well built, the old houses chiefly of wood, the modern ones of brick; and though the streets are rather narrow, there is an appearance of much neatness and comfort. There is a court-house, a market-house, a gaol, and an almshouse, all well built and spacious. The East India Marine Museum has an extensive and interesting collection of marine animals, that has been made by the East India Marine Society, of which no one is eligible to be a member who has not sailed round Cape Horn or the Cape of Good Hope, and which was founded in 1801, for the purpose of affording relief to indigent members and their families, and also to promote the trade to the East Indies. The chief manufacturers of Salem are leather and ropes, and there are yards for ship-building. In 1832 there were 8 banks, 5 insurance companies, and an institution for savings; 2 libraries, and 3 newspapers. The presses of 3 weekly newspapers and 2 weekly, and 13 places of worship. Education is much attended to; there are numerous schools, and no child in the town need remain un instructed.

The river from River to River; the climate is good, but the depth of water at the coves is only 12 or 14 feet. The trade is chiefly with the East Indies, in which a large capital is employed. The number of vessels employed in this trade in 1816 was 53, carrying 14,279 tons.

Salem is the name of 18 small towns and villages in the United States of North America, including New Salem and West Salem.

SALEP, Salor, or Saloq, a nutritious article of diet, much valued in the East for its supposed general stimulant properties, but which, however, are esteemed as bland and nutritious, and well suited to children and convalescents. Salep consists of the tubers of different species of Orchids, which have been known in medicine from very early times among the Orisha. Dr. Boyle has most recently treated of the plants yielding Salep, in his 'Illustr. of Himal. Botany,' and in the 'Proceedings of the Royal Asiatic Society.' He states that the accounts of Theophrastus and Dioscorides are repeated in the works of the Arabs, who describe it under the names of khasad, al-adib, and hassyat al-kalb, which are literally translations of testicul vulpis and testiculus canis; to the above they assign as Greek synonyms orbh, sastrarh, and abhas. These plants, extended for the uyes, and ripepoH of Dioscorides. In India these tubers are known by the name salp misre, that is, salp from Misr, or Egypt, all which names appear to be derived from the Arabic salh; whence, Dr. Royle states, it might be inferred that the knowledge of this substance was first derived from the East, but on examining the accounts in

P. C., 1274.

Arabian authors on 'Materia Medica,' we see the names and descriptions are mere translations of those of Dioscorides. If the Greeks were the first to use the tubers of several of the Oriental plants for the preparation of salp or in medicine, some European species would probably be the same plants which yielded the original salp, and possibly some of those which have been found to afford it of good quality to experimenters in the present day. Sprengei considers Orchis atroviolacea, the black orchis (féo) of the ancients, as it is called salepe (sálepe) by the modern Greeks; M. Beissinirhz says that Orchis Morio, muscana, and militaria give the best salp in Europe. O. maculata and latifolia are rather inferior in quality. Dr. Cullen says, we have seen it prepared from the orchis officinalis, as pure and as perfect as any that comes from Turkey. But all the European salpers are far inferior to and considered only as indifferent substitutes for that brought by commerce from the latter country, though the place and plant yielding it are unknown.

Though the Arabs may have copied the descriptions of Greek authors, it is probable that the substance was known to eastern nations independent of all western intercourse. It is highly valued in India, and forms an article of commerce from Caubul and Cashmere to the north-western provinces of India, where it is sold, at the Hurdwar fair held in April, at a high price, sometimes as much as 40 rupees, and sometimes as much as 80 rupees. There is a peculiar appearance to Turkey salp, though the tubers are twice as large as the best procurable in London.

The plantyielding the Cashmerian salp has not been yet fully described, but Dr. Royle obtained specimens of the tubers of a flowerless orchis from Cashmere in 1836, from the vicinity of the hills near the Jihulum, on the road from Northern India to Cashmere. This plant he has named Euphoria veris. Another species, E. campstella, found in the jugly plains at a short distance of the Himalayas, yields tubers which are collected by the natives and sold as a substitute for salp misre. Another plant, supposed to be E. herbaea, yields another variety of salp in the Himalayan Mountains; of the former, Dr. Royle says, some of the tubers, when cut and pared them as salp, that is, scaled them in boiling water and then carefully dried them, he found they had a considerable resemblance to the salp of commerce, and when prepared as arrow-root or gruel, afforded a very agreeable and nutritious article of diet, similar to that obtained from the commercial salp.

Salep consists of the dried tubers of several orchideous plants, chiefly of the genus Orchis, as O. morio, O. maculata, and some species of O. purpurea. It appears that these plants have two tubers, charged with nutritious matter, and while one is nourishing the flower-stem and seeds of the current year, by which it is robbed of its store, the other serves as a reserve and is preserved for the ensuing year. The last alone is fit for use. Both are dug up together, but the solid one only is retained. It is dipped in warm water, after which the fine brown skin is easily removed by means of a coarse cloth or brush. 'The tubers, being thus cleaned and peeled, are to be arranged on a tin plate, and then placed within an oven heated to the same degree as is necessary for baking bread; here they are to remain for seven or ten minutes, in which time they will exchange their opaque and milky whiteness for a semi-transparent brown and are of a mealy, almost scaly, appearance, resembling their original bulk. Being then withdrawn from the oven, they are exposed during some days to dry and harden in the air; or by the employment of a very gentle heat, they may be brought to the same state in the course of two or three days. All that is then required to adapt the salp for food is to boil it in water (or milk) to the required consistency.' (Library of Entertaining Knowledge. 'Vegetable Substances: Food of Man,' p. 139.) In Armenia the tubers, while still green, are cut into small pieces and dried in the sun, which is sufficient to dry them without artificial heat. The chemical composition of salp varies according to the period of the growth when the tubers are taken up. Though salp is regarded as a variety of the species sold, whilst, in the pure starch present, the chief constituent being that form of gum termed bassorine. With cold water salep very slowly swells and forms a mucilage; but one part of salp-powder with forty-eight parts of water boils for a quarter of an hour, with a thick mucilage, which has very peculiar qualities, inasmuch as with either calcined magnesia, bismuthate of quinins, or

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The licensed practitioners took an oath to observe the regulations respecting medicines, to inform the court if apothecaries did not prepare their drugs properly, and to give advice to the poor gratis. Every physician was to visit his patient at least twice a day, and once in the night if necessary, and to attend the other patients more than half a golden tarenæ daily; or if called out of the city, three tarenæ and his expenses, or four tarenæ to provide himself. He was not to undertake to cure a disorder from which he had not prescribed for thirty days. He was to conduct his business in partnership with an apothecary. Surgeons were to study for one year, and to be perfect in anatomy before they were admitted to practise. Apothecaries were to take an oath to compound their medicines according to the forms prescribed, and for a fixed price, which for simple drugs was three tarenæ an ounce. Such were the regulations of the emperor Frederic.† The three professions appear to have been kept distinct as early as the time of Avenzoar, who was born at Seville in the eleventh century, and even in the time of Charlemagne. They are called in the Register of St. Matthew, 1763, 6vo, p. 253; Le Clerc, Hist. de la Méd., p. 334.) These constitutions, and the privileges of the university of Salerno, were confirmed and extended by other princes, and were in force in most of the cities of Italy until 1830, when they were suppressed by the decree of the pope, as a fiction of neutrality, and as not being external, and not parts of the natural body, air, food, exercise, sleep, the emotions, and the passions. To these means may be reduced the various rules of living in a salubrious air and observing the changeable seasons; the minute detail of all kinds of meat and drink, and the quantities of herbs, which constitute the great bulk of the poem; frequent exercise and ablations, avoiding sleep at improper times, not neglecting the calls of nature, and avoiding cares and anxiety. The medical monographs, with the many medical and surgical treatises that have been published of this work is immense. A complete list of them is prefixed to Ackermann's edition, Stendal, 1790, 8vo.; Sir Alexander Croke's, London, 1705, 8vo.; and in Czech, in Berič's Bibliothek für die älteren Mediz., Leipsi., 1828, 8vo. (from which two last works the preceding account has principally abridged). The best commentary is that by Arnaldus de Villa Nova, which has been very frequently published, and which has formed the basis of most of the editions since published. It was first published at Montpellier, 1489, 4to. Two of the most useful and valuable editions (though without the Commentary of Arnaldus) are Ackermann's and Croke's mentioned above. The work has also been translated into English, Italian, Dutch, &c.; and upon the whole, not much medical work appears ever to have enjoyed greater popularity.

SALERNO, THE PROVINCE OF, one of the administrative divisions of the kingdom of Naples, called also "Principato Citra," is bounded on the north by the province of Princepato Ultra, west by the gulf of Salerno and by the province of Naples, south by the gulf of Policastro, and east by the sea. The province of Salernum occupies the western part of the central ridge of the Appennines, and between that and the coast of the Mediterranean, except a small portion which spreads along the eastern slope of the Apennines, is surrounded by the sea. The length of the province is about 80 miles from east to west, and its average breadth is about 30 miles. The central and larger part of the province consists of the basin of the Sele and its affluents. The Sele (Silurus) rises in the central Appennines near Conza, flows in a south-west direction, and is joined about half-way between its source and the sea by the Tanagro or Rio Negro, which comes from the south-east, and which has a longer course than the Sele itself, being joined, before its confluence with the Sele, by the Rio Bianco, which descends from the Appennines of Muro in Basilicata.

The valley of the Tanagro is bounded on the west by a detached ridge called Monte Albano, which runs about forty miles from south to north, and by which the Albano is the valley of the Pietra or Calore, which enters the Sele a few miles above its estuary. The valley of the Calore is bounded to the south-west by another ridge, which rises east of Paestum, and on which stands the town of Ca-paccina. South of this ridge is a fine region of hills and valleys sloping towards the coast, and extending to the south as far as the gulf of Policastro. This tract of country, which was known to the ancients by the name of "Pestane valles," is now called "Tifilento," from the small river Alento which flows through it. The climate of the district is warm and favourable to the growth of all sorts of fruit, and it contains good pasture: the inhabitants are noted for their industry and honesty. They have numerous coasting vessels, with which the trade of the district is carried on. The province contains many villages, and about 100,000 inhabitants. A road has been constructed of late years from Salerno to Vallo, which is the principal town of this secluded district.

2 V 2
The town of Policastro was formerly of some importance, but being sacked and half destroyed by the Turks in the sixteenth century, it has never recovered, and is now an insignificant place. Sapri, which is farther east in the innermost part of the gulf of Policastro, is a place of some trade, and has a natural harbour.

The southern coast of the peninsula of Sorrento, as far as Cape Campanella, belongs also to the province of Salerno. The harbor of Vietri, La Scala, Positano, Amalfi, and Maiori, are in this district, which is remarkably populous and healthy. The inhabitants are mostly engaged in maritime trade. [Amalfi.]

A long ridge, which is an offshoot of the central Apennines, runs the whole length in a north-west direction, dividing the province of Salerno from that of Avellino or Principato Ultra, and then running along the whole length of the peninsula of Sorrento. This ridge forms a natural boundary between the plain of Campagna and the basin of the Sele. The administrative province of Salerno however includes also a district north of this ridge, extending to the banks of the Sarno. The towns of Nocera and Sarno are in this district. [Nocera dei Pagani.]

Salerno (the Roman Salernum), the capital of the province, and an archbishop's see, is a walled town of 11,000 inhabitants, finely situated on the sea-coast, and surrounded by a beautiful tract of country at the foot of the mountains. An old Norman castle rises on a cliff above the top. The harbour is not only suited for small vessels. Salerno has a royal leuca, a court of justice for the province, a theatre, and many churches and convents. The most remarkable building is the cathedral, built or restored in the eleventh century, by Robert Guiscard, the Norman conqueror, who adorned it with columns of porphyry, a mosaic pavement, and other remains of antiquity which he took from Pisa. Among the modern buildings the palace of the intendant, or governor, is considered handsome. The quay along the sea-shore is a fine promenade. An annual fair of both native and foreign goods is held at Salerno in the month of September, which is the most considerable in the kingdom, and is resorted to by all the merchants from Naples.

The other towns of the province, besides those already mentioned, are: 1. La Casa, a town of 5000 inhabitants, and a bishop's see, delightfully situated in a valley of the Apennines, on the high road from Naples to Salerno. The population is chiefly employed in manufacturing linen, silk and cotton stuffs, and pottery. The neighbouring Benedictine convent has a valuable library of MSS. and some good paintings. 2. Sarno, a considerable town in the plain of Campania, near the river of the same name, five miles north of the capital, contains churches and about 10,000 inhabitants. 3. Eboli, in a plain south-east of Salerno, and on the high road to Calabria, where the road to Pisa branches off to the south, is a poor town with about 5000 inhabitants. 4. Sant'Agata di Misolitta, a town in the Apennines, on the borders of Basilicata and Lucania, and near the sources of the Agri, has 6000 inhabitants, and gives the title of prince to a Neapolitan family, the late representative of which figured in the revolutions of the country at the close of the last century.

The population of the province amounts to about 513,000 inhabitants, distributed among 161 communes. Of this population about 94,000 are owners of land or houses, 233,000 are agricultural labourers, 4700 are scaring men, 2500 presenters of goods, and 9000 numbering, belonging to the province consists of about 275, including fishing-boats. (Serristori, Statistica d'Italia; Petroni, Censimento de Redi Domini.)

Salerno, one of the six hundred into which the county of Lancaster is divided (Lancashire), contains seven market-towns—Manchester, Bolton, Bury, Ashton-under-Lyne, Oldham, Rochdale, and Salford; and consists of the following eleven parishes:—1. Bolton Division—Bolton, Horwich, and Moston. 2. Bury and Prestwich Division—Bolton, Bury, Pomfret, Wall, and Prestwich. 3. Bury (extra parochial). 4. Manchester, Prestwich-Hamilton—Oldham; 3. Middleton Division—Middleton, Prestwich-Hamilton, Oldham, Rochdale. These parishes comprise one hundred townships. The district contains the following canals:—1. The Duke of Bridgewater's, the Bolton, Bury, and Manchester, the Stockport, the Rochdale, the Worsley and Wigan, and the Leeds and Liverpool. From Manchester, which may be practically considered as its centre, railways now run in almost every direction—to Liverpool, Bolton, Leeds, Birmingham, London, Stockport, Preston. The principal rivers and rivulets are the Mersey, Irwell, Tame, Medlock, Irk, Roch, and Calder. The hundred is twenty-five miles in length from east to west, and nineteen in breadth from south to north.

At the original division of parishes Salford was thinly peopled, which accounts for there being so few in this now crowded district. Few of the great landed proprietors reside in their ancient mansions. Waterloo Place, Wigan, is a country retreat where land is less valuable and rural enjoyment are less encroached on by manufacturing occupations.

There is a great contrast between this hundred at the time of the Conquest and at the present day. At the former time it could not be said that the towns of Salford, Manchester, Rochdale, and Oldham were, at present the whole region is covered with towns and villages; and instead of sending to the great council of the nation one baron, the hundred of Salford now sends ten members to Parliament, exclusive of the knights of the shire. In the time of the Confessor, the hundred of Salford, then held of the king, yielded only 371 l. 4s. to the royal revenue; while in the year 1829 its parishes and townships were valued at 1,553,314 l. per annum, and paid 3226 l. to the county rate, upon an assessment of one halfpenny in the pound.

Within the last century the increase of population and of property in Salford hundred has been very great, owing chiefly to its being the great seat of the cotton-manufacture. The return of 1831 in and about the town of Salford contains 5130, and of families chiefly employed in trade and manufactures 56,172. In 1801 the population was 25,413, which in 1811 had risen to 356,734, and in 1831 had reached 124,414. This growth has been most decided in the vicinity of Manchester. The town, taking the value of the sheep, the value of the cattle, the rateable value of twenty different townships at three different periods, shows the great increase which has taken place in this manufacturing district:—

Assessment for County Rate in Twenty Townships.

<table>
<thead>
<tr>
<th>Townships</th>
<th>Yearly Value</th>
<th>Yearly Value</th>
<th>Yearly Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manchester</td>
<td>£303,732</td>
<td>£371,749</td>
<td>£724,640</td>
</tr>
<tr>
<td>Salford</td>
<td>47,910</td>
<td>100,986</td>
<td>160,496</td>
</tr>
<tr>
<td>Churchill-on-Medlock</td>
<td>19,484</td>
<td>66,643</td>
<td>137,651</td>
</tr>
<tr>
<td>Arwelton</td>
<td>11,097</td>
<td>13,004</td>
<td>39,314</td>
</tr>
<tr>
<td>Pendelton</td>
<td>16,453</td>
<td>22,835</td>
<td>46,363</td>
</tr>
<tr>
<td>Chetham</td>
<td>15,724</td>
<td>24,980</td>
<td>35,983</td>
</tr>
<tr>
<td>Ashton-under-Lyne</td>
<td>33,248</td>
<td>71,837</td>
<td>143,013</td>
</tr>
<tr>
<td>Oldham</td>
<td>29,970</td>
<td>54,798</td>
<td>107,590</td>
</tr>
<tr>
<td>Bury</td>
<td>16,346</td>
<td>34,954</td>
<td>65,582</td>
</tr>
<tr>
<td>Blackburn</td>
<td>20,724</td>
<td>42,077</td>
<td>83,799</td>
</tr>
<tr>
<td>Preston</td>
<td>34,936</td>
<td>80,984</td>
<td>129,766</td>
</tr>
<tr>
<td>Great Bolton</td>
<td>27,861</td>
<td>53,865</td>
<td>93,915</td>
</tr>
<tr>
<td>Little Bolton</td>
<td>11,755</td>
<td>23,680</td>
<td>47,110</td>
</tr>
<tr>
<td>Over Darwin</td>
<td>6,629</td>
<td>10,207</td>
<td>16,366</td>
</tr>
<tr>
<td>Hasling</td>
<td>8,472</td>
<td>11,160</td>
<td>17,217</td>
</tr>
<tr>
<td>Crumpsall</td>
<td>2,910</td>
<td>4,933</td>
<td>13,237</td>
</tr>
<tr>
<td>Fulsworh</td>
<td>4,641</td>
<td>5,458</td>
<td>8,514</td>
</tr>
<tr>
<td>Stretford</td>
<td>7,060</td>
<td>12,357</td>
<td>21,954</td>
</tr>
<tr>
<td>Pilkington</td>
<td>12,193</td>
<td>26,611</td>
<td>52,675</td>
</tr>
<tr>
<td>Preswich</td>
<td>5,699</td>
<td>9,361</td>
<td>11,645</td>
</tr>
</tbody>
</table>

£647,416 £1,064,980 £1,928,038

The increase, great as it is in the yearly value of rateable property in the township of Manchester, which has more than doubled since 1815, is yet in a less ratio of increase than many other townships; and the amount of value of the twenty townships has nearly trebled within the twenty-five years. The aggregate value of rateable property in all the twenty townships (including Manchester in 1815, viz. £47,411, is about the present value of property in the township of Manchester alone, viz. 722,640 l.)

For many years a house of correction at Hunt's Bank in Manchester, now occupied as the Castle Inn, had served for the accommodation of any number of men, as well as of a man of Manchester for the hundred of Salford; but in the year 1782 an act of parliament was obtained for the erection of the New Bailey Prison on the right bank of the Irwell, and on the 3rd of July, the foundations of the gaol were laid. Part of the inscription on the foundation stones runs thus:—there may remain to posterity a monument of the affection and gratitude of the county to that excellent person who hath so generously bestowed the wisdom and humanity of...
separate and solitary confinement of offenders, this prison is inscribed with the name of John Howard. In April, 1790, this gaol and penitentiary house was opened for the reception of prisoners.

It is one of the best conducted prisons in England. The officers are appointed by the magistrates of the hundred. The majority of male prisoners are employed in weaving, hat or shoe making, tailoring, or on the treadmill, of which there are six. The female prisoners are occupied in weaving, sewing, washing, and heading pins. The proceeds from the prisoners' earning in 1835 amounted to £242. In summer the prisoners rise and go to work at six in the morning, and continue their labour to the same hour in the evening, with the allowance of half an hour for breakfast, an hour for dinner, and an hour on quitting work. In winter their hours of labour are regulated by the extent of daylight. Prayers are read every morning, and divine service is performed twice on the Sunday. Bibles, prayer-books, and tracts are distributed among the prisoners by the chaplain. In the month of November, 1834, the silent system was introduced. The gross expenditure for the year 1837-8 was £242. The total number of persons confined in the prison in the course of the year ending October, 1836, was 6,551, namely, 4,783 males and 1,768 females. It is capable of containing at one time 583 male and 214 female prisoners, in all 797. The average number is 700. The cost of a male prisoner is about 9d. a day; of a female, 7½d. a day.

For the year 1837-8 there was an expense in food for the prisoners the sum of £254. For, namely, for bread, meal, peas, salt, and pepper, 1734; for butchers' meat, 565; for potatoes 295. From Jan. 1794 to Jan. 1838, there were 24,250 persons committed. The sum paid in salaries for the year 1835 was £2314 14s. 6d. By a return of prisoners in the New Bailey, who are known to have been at large committing depredations for the time specified, it appears that 40 thieves had been plundering for a year, 50 for two years, 17 for three years, 10 for four years, 5 for five years, 1 for six years, 3 for seven years, and 1 for nine years; total 127 prisoners. The average duration of each prisoner's career of depredation before the imprisonment is two years and three months. Juvenile delinquency abounds in the district. The number of offenders of twenty years of age and under who annually pass through it is 1000, but the number brought before the magistrates in one year is 4000. The crime which these numbers indicate is however committed by a comparatively small number of persons, and by the same round of offenders. The following tables give valuable information on this important subject.

### Ages, Sex, Offences, Degree of Education, and Result of Trial of the Prisoners of Twenty Years of Age and under, committed to the New Bailey Sessions, from the 17th of October, 1839, to the 24th of February, 1840, being the result of Four Sessions held during that period.

<table>
<thead>
<tr>
<th>Ages</th>
<th>Offences</th>
<th>Degree of Education</th>
<th>Event of Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present</td>
<td>Shilling Peers</td>
<td>Highwaymen</td>
</tr>
<tr>
<td>1710</td>
<td>576</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>1711</td>
<td>576</td>
<td>31</td>
<td>10</td>
</tr>
</tbody>
</table>

### Number of Juvenile Delinquents committed to the New Bailey Sessions, from December, 1834, to December, 1839, inclusive, being five years.

<table>
<thead>
<tr>
<th>SEX AND AGE</th>
<th>EVENT OF TRIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Imprisonment</td>
</tr>
<tr>
<td></td>
<td>Earliest 6 months</td>
</tr>
<tr>
<td></td>
<td>171</td>
</tr>
<tr>
<td></td>
<td>181</td>
</tr>
<tr>
<td></td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>227</td>
</tr>
<tr>
<td></td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>908</td>
</tr>
<tr>
<td></td>
<td>194</td>
</tr>
<tr>
<td></td>
<td>908</td>
</tr>
<tr>
<td></td>
<td>194</td>
</tr>
</tbody>
</table>
SALFORD,—a market-town in the parish of Manchester and hundred of Salford, is divided from Manchester by the river Irwell, over which there are five bridges from one place to the other. Till the passing of the Reform Act it was considered as little more than a suburb of Manchester, which was then distinguished by commercial, social, and domestic relations. It is now however a large, populous, and improving town, having its own municipal government, and returning a member to parliament. Salford may be viewed either as a township in the parish of Manchester, or as a borough comprising three other townships.

In 1773-4 an enumeration of the houses and inhabitants in the town and parish of Manchester was taken from an actual survey, and dedicated by Dr. James Whittaker, April 27, in the college library. [MANCHESTER.]

<table>
<thead>
<tr>
<th>Houses</th>
<th>Families</th>
<th>Males</th>
<th>Females</th>
<th>Married</th>
<th>Widow</th>
<th>Widower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manchester</td>
<td>3402</td>
<td>5317</td>
<td>10,549</td>
<td>11,957</td>
<td>7724</td>
<td>439</td>
</tr>
<tr>
<td>Salford</td>
<td>866</td>
<td>1099</td>
<td>2,248</td>
<td>2,517</td>
<td>1775</td>
<td>89</td>
</tr>
</tbody>
</table>

In 1801 the population of the township was 13,611, and in 1813 it had reached 40,786.

History.—According to Whittaker, Salford signifies the Sal or Half at the Ford, that is, the passage across the Irwell near which the mansion of the thame was situated. It gave its name to the Hundred of which originally it was the head. On the general partition of the country, the hundred was retained by the crown, and for this reason the town of Salford has ever been independent of the Lord of Manchester, and continues to be supplied with the tithes of the hundred.

In lieu of the provisions which the township of Salford originally supplied to the officers of the crown, in the reign of the Confessor it contributed to the Exchequer the annual sum of 371 4s, including the farmed profits of the hundred court, as well as the rents of the demesne lands. The town of Salford with the lands between the Ribble and the Mersey were purchased in the year 1227, from Roger de Mareys by Ranulph de Blundevile, earl of Chester, who in the 13th Henry III received a confirmation of his purchase, and thenceforward granted a charter creating Salford a free borough. In consequence of this grant, the boroughreeve, constables, and burgesses of Salford determined, at a general meeting held on the 16th June, 1839, to adopt and use as a common seal for the borough of Salford, the arms of Ranulph de Blundevile. This charter is substantially the same as the Manchester charter, granted by Thomas de Grelley nearly a century afterwards, the principal difference consisting in a provision 'that every burgess shall have one acre of land, paying twelve pence for all rents belonging to that burgage.

Salford is under the government of a boroughreeve and constables. Antiently the duty of the boroughreeve was to collect the tithes of the hundred, and half of the half tithes, and to be the chief pledge for the preservation of the peace. At present the duties of the boroughreeve are to convene and preside at public meetings, to correspond with public bodies, and to distribute certain charitable bequests. These officers are elected by a jury, summoned by the deputy-steward of the hundred, at the king's Michaelmas Loct of Salford hundred. By an act of parliament obtained in the year 1829, the police of Salford was separated from that of Manchester, and placed under a body of men nominated as the Commissioners for better cleansing, lighting, watching, and regulating the town of Salford,' under whose control the township still remains. The commissioners are the boroughreeve and constables for the time being, and 120 persons occupiers of one or more tenements assessed at 20l a year, or persons rated below that amount but being owners of property producing 30l a year, clear, to be elected commissioners by all persons assessed to the relief of the poor.

The commissioners nominate the surveyors of highways. In 1835, John Clay, and Fisher erected gas-works in Clowes Street, from which Salford was supplied by contract until December, 1831. The present gas-works are in Lamb Lane, near the centre of the town. The proprietors of these works are the wealthy proprietors of the police. The profits are appropriated to the improvement of the town, the extension of the works, and the liquidation of the debt. The quantity of gas made in 1835 was twenty-six millions of cubic feet; the price, 8s. per 1000 cubic feet. The works are managed by a Board of Directors chosen annually from the general body of commissioners. The expenditure of the commissioners of police, from June, 1839, to June, 1840, was £711 12.

Within the same time £391 10. were expended by the Improvement Committee.

Salford is rich in foundations for the relief of the poor, which materially diminishes the poor's rate. Some of these charities would have been more productive, if they had been formerly as well managed as they are at present. In the year 1829, the township was under the regulations of the New Poor Law. The following statements rest on the authority of one of the constables. The average number of paupers for Salford (the town of the quarter ending in December, 1844. Receiving out-door relief. — 790 Receiving in-door relief. — 316

Average relief per head about 1s. 6d. a week.

Assessments in Salford for the Poor's Rate, 1840.

<table>
<thead>
<tr>
<th>Number</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>10l. and upwards</td>
<td>£1,014,62</td>
</tr>
<tr>
<td>Under 10l.</td>
<td>7827</td>
</tr>
<tr>
<td>Do.</td>
<td>6,639 12</td>
</tr>
</tbody>
</table>

The assessment is taken on the gross rental, allowing 5 per cent. for repairs on property above 70l., and 10 per cent. on all under 10l., and this forms the net rental and the assessment as above.

The expenses for the relief of the poor and other charges, except those of county and parish highways, are as follows:

- 1843-4: £2,974 11 4
- 1844-5: £3,439 17 2
- 1845-6: £4,061 1 8
- 1846-7: £3,467 5 2
- 1837-8, the last year before the Union: £5,543 14 0

Total in 5 years: £26,346 9 4
Yearly average: 5,269 5 10

Expenditure from 23 Decem. 1839, to 23 Dec. 1840 (being the first year under the Union): £6,592 17 9

Paid for county and parish highway-rates for the 5 years prior to the Union: £7,590 9 4
Yearly average: 1,510 1 10
Paid last year: 2,094 1 1

1839 19 3

Making together an annual increase of £1,913 11 2

Salford Borough.—By the Act 'For amending the representation of England and Wales,' Salford was constituted a parliamentary borough, with the privilege of sending one member to the House of Commons. The borough includes the township of Salford, in the hundred of Manchester, population in 1831, 48,976; of Broughton, in the parish of Manchester, population 1839, 1,599; of Pendleton, in the adjoining parish of Eccles, population 843; and Pendlebury, in Eccles also, population 1846, making in the whole a population of 52,456. Since 1831 the population has increased very much, as may be inferred from the increase of the parliamentary constituency. The total number of persons whose names stood at the first election in 1832 on the revised list, was 4,949, the number had risen to 2165; in 1835 to 2353; in 1836 to 2638. In 1839, in consequence of bad times, it had fallen to 2349, which number was diminished in 1840 to 2443, showing an increase of about a thousand voters to the constituency in eight years, three of which were years of great commercial difficulty. The first election was in 1832.

The rise in the value of property in Salford has been very great. In 1704 Thomas Dickinson gave for the use of the poor a house and land in Salford, which then produced £1 10s. a year. In 1830 Humphrey Booth gave lands in Oldfield Lane and Gravel Lane for the repairs of Salford chapel and the surplus for the poor, value 44l. annual rent, which in 1798 produced £39 10s. a year. In 1830 Humphrey Booth gave lands in Oldfield Lane and Gravel Lane for the repairs of Salford chapel and the surplus for the poor, value 44l. annual rent, which in 1798 produced £39 10s. a year. In 1830 Humphrey Booth gave lands in Oldfield Lane and Gravel Lane for the repairs of Salford chapel and the surplus for the poor, value 44l. annual rent, which in 1798 produced £39 10s. a year. In 1834 he gave £5,000 to the Sir William Hill Trust, which produces £350 per annum. Of the township of Broughton, consisting of 1904 statute acres, 870 are possessed by the Rev. John Clowes, an estate which, in the last five years, has more than doubled its rental, although little more than 200 acres have been sold.
Manufactures.—The following table shows the extent to which manufactures are carried in the borough:

<table>
<thead>
<tr>
<th>Steam Power</th>
<th>Water Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>716</td>
<td>226</td>
</tr>
<tr>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>1906</td>
<td>1906</td>
</tr>
</tbody>
</table>

Of these about 2235 were found to be either under 5 or above 15 years of age, leaving about 10,650 children between the ages of 5 and 15 under instruction; the total number of children between these ages being computed at 15,940, thus leaving 5,290, or 34 per cent., without any education. Above one-quarter of the number receiving daily instruction were found in the dame-schools, very few of which possessed more than fragments of books; in many cases no books at all were to be seen, the mistress not having the means and the parents being without the ability or the inclination to procure them. Order and cleanliness were little regarded, and the children were for the most part crowded in close and dirty rooms, in which the whole class of the school was carried on, and where they slept. Some of the teachers followed another occupation, such as shop-keeping, sewing, washing, and the generality of them were wholly incompetent to the task of instruction, and betrayed lamentable ignorance on the most common topics.

Charities and Educational Institutions.—The Salford Mechanics' Institution was founded at a general meeting held in the town-hall, Salford, on Monday, the 28th May, 1836. "The object of the institution is to instruct the operative in the principles of his trade or employment, and in other departments of really useful knowledge, that he may be enabled to understand those fundamental laws which are the key to the various branches of his future business; so that when he acquires a greater degree of skill in the practice of his business, and consequently becomes more valuable to his employers, he may be better enabled to secure to himself and his family the means of comfort and plenty, and enjoy those comforts of the deepest and most permanent kind which are the only true happiness the people, by which in reality they have given their minds most of the discipline they have received, and which the people ought to be taught to treat and discuss in a proper and correct manner."

The subscription to the institution is the payment of sixteen shillings annually in advance. The government is vested in a board of directors, consisting of a president, six vice-presidents, a treasurer, and twenty directors, to be chosen annually by the members out of their own body. Immediately on its establishment the institution began to fulfill the hopes of its friends. The reading-room was furnished with five weekly, ten monthly, and four quarterly periodicals; classes were formed, and began to be held in English, algebra, geometry, grammar, writing, architectural drawing, ornamental drawing, perspective drawing, mechanical drawing, French, and elocution. A society was also formed for "mutual improvement." The foundation of a museum was laid. A library was commenced, and courses of lectures, amounting in all to 50, were delivered.

The Report for the year 1840 states the number of members as 310, and that the library contained 1159 volumes and 59 pamphlets, the average number of daily deliveries for the year being 36 volumes, and the total number of deliveries 9254 volumes.

In this year a new means of usefulness was devised, which deserves special notice, and may be advantageously imitated in other parts of the kingdom. Namely, a subscription to the purchase of works of art, manufactures, models of machinery, curiosities, and antiquities, with a view to the general improvement of the people, and to aid the funds of the institution. Among other things, the visitor saw in actual operation the planing-machine, card-making machine, distilling apparatus, spinning of cotton, glass-engraving, &c., all at work by steam-power. Lectures were delivered on the polarization of light, chemistry, bleaching, and the chromatic fire-cloud. Nineteen thousand persons passed through the Lyceum. The Salford Lyceum is one of a class of institutions preeminently fitted to benefit the working and the poorer classes. It was established in January, 1839, and has for its design "to provide a system of juvenile and adult education for both sexes, and the most numerous portion of the community, and to extend more widely the taste and means for moral and intellectual cultivation." The Salford Lyceum embraces, in addition to the ordinary purposes of mechanics' institutions, the following fundamental objects:—female instruction—evening classes are held for instruction in
branches of knowledge most suited for females in the manufacturing district; the newspaper press—a news-room is supplied with journals of all political opinions; useful recreation—there are classes for moral and instrumental music, concerts and annual meetings, and social and festive parties; cheapness—the subscription is only two shillings a quarter. From the Report for 1840 it appears the number of 2017 subscriptions had been received from the 24th of January, 1839, to the 24th March, 1840, which are classed as follows:

- Merchants, manufacturers, and professional men 46
- Bookkeepers, clerks, salesmen, and warehousemen 235
- Mechanics, engineers, founders, and mill-hands 858
- Engravers, pattern-designers, and calico-printers 265
- Joiners, plumbers, carvers and gilders, masons, and painters 179
- Butchers, bakers, and brewers 27
- Shopkeepers, tailors, drapers, and shoemakers 112
- Letter-press printers and bookbinders 53
- Hairdressers 11
- Boys and females undersigned 169
- Undescribed males 41

Total 2017

The library consisted of about 1300 volumes; the number of deliveries was about 70 on the average, and was generally above 400 volumes in circulation at one time. The following classes for males were in operation:
- Reading, weekday average attendance 50 pupils; arithmetic and writing, 150 pupils; grammar and geography, 40 pupils; elocution and composition. Classes were also held for instruction in reading, writing, arithmetic, sewing, and embroidery; classes for vocal and instrumental music met every week. An essay and discussion society of 30 members, held its meetings each alternate Thursday. The directors, ever aiming at avoiding rational amusement to the working classes, held several tea-parties, making for admission a small extra charge, which, though sufficiently moderate to occasion the attendance of considerable numbers, was found equal to the expenses incurred; such an assembly consisted of glee, songs, recitations, musical promenades, accompanied by an instrumental band. During the year, 32 lectures were delivered on various subjects, as astronomy, oratory, comic literature and ballads, geology, natural theology, anatomy; 21 of these lectures were given gratuitously. The directors state that they have full confidence that the subscription, under judicious management, will to a very great extent meet the current expenditure, alimony, to do this the union of numbers is of indispensably necessary. The 'Financial Statement' for 1839-40 shows a small balance in favour of the institution, the total outlay being about 500.

Previous to the year 1837 the working classes of Salford are found to have been almost entirely dependent on the public institutions of Manchester for gratuitous medical relief. The rapidly increasing population rendering it absolutely necessary that some additional assistance should be provided, a public meeting was held on the 2nd of May, 1837, at which the immediate establishment of a public dispensary was resolved upon. A building was taken in a central situation; and on the 10th of September the dispensary was opened for the admission of patients. But the want of the poor were soon found so pressing as to require a larger building. Measures were accordingly taken, and a new edifice, designated the Salford and Pendleton Royal Dispensary, was completed early in 1831, at an expense of £2452; and on the 30th of March, 1831, the building was opened and bestowed on it. The government of the Institution is vested in a committee. It is supported by the voluntary subscriptions of the inhabitants. The following table gives the relative number of patients admitted since the opening of the establishment, and expenditure for each year. The out-patients are those capable of attending at the dispensary; and the home, those whose complaints require them to be visited at their own residence. The sick constitute a large proportion of the whole number of cases, most of whom have the machinery in the numerous mills and manufactories in the vicinity of the Institution:

<table>
<thead>
<tr>
<th>Year</th>
<th>Out-Patients</th>
<th>Home-Patients</th>
<th>Accidents</th>
<th>Total</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1830</td>
<td>1696</td>
<td>965</td>
<td>316</td>
<td>2979</td>
<td>£251</td>
</tr>
<tr>
<td>1831</td>
<td>2146</td>
<td>1316</td>
<td>803</td>
<td>4265</td>
<td>£271</td>
</tr>
<tr>
<td>1832</td>
<td>2212</td>
<td>1956</td>
<td>908</td>
<td>4064</td>
<td>£246</td>
</tr>
<tr>
<td>1833</td>
<td>2212</td>
<td>2104</td>
<td>944</td>
<td>4364</td>
<td>£271</td>
</tr>
<tr>
<td>1834</td>
<td>1813</td>
<td>1069</td>
<td>926</td>
<td>3008</td>
<td>£200</td>
</tr>
<tr>
<td>1835</td>
<td>1623</td>
<td>1053</td>
<td>1074</td>
<td>3479</td>
<td>£200</td>
</tr>
<tr>
<td>1836</td>
<td>1915</td>
<td>1454</td>
<td>977</td>
<td>3487</td>
<td>£251</td>
</tr>
<tr>
<td>1837</td>
<td>1663</td>
<td>1201</td>
<td>896</td>
<td>3560</td>
<td>£251</td>
</tr>
<tr>
<td>1838</td>
<td>2113</td>
<td>1280</td>
<td>897</td>
<td>4290</td>
<td>£269</td>
</tr>
<tr>
<td>1839</td>
<td>2519</td>
<td>1436</td>
<td>870</td>
<td>4823</td>
<td>£251</td>
</tr>
</tbody>
</table>

The Public Buildings in Salford are not distinguished for architectural beauty. The oldest place of worship, Trinity chapel, was founded (1635) by Humphrey Booth, a prosperous merchant of Salford, and was rebuilt in 1752. The town-hall, situated in Chapel-street, is a neat building of stone, modern after a design by Mr. Lancaster. A Salford police-office occupies one portion of the building; the other parts are occupied by the officers of the guardians of the poor, the clerks of the police commissioners, &c. It contains a large room used for public meetings, concerts, lectures, &c. The Zoological Gardens in Higher Brook were opened May 31st, 1838. They occupy nearly 16 acres of land, laid out in the best style of landscape gardening. They have a fine collection of animals, and are recommended by the police commissioners as a means of instruction and recreation, and are displayed in laying out the land and erecting the buildings.

Eminent Individuals.—Dr. Clarke, professor of history, geography, and experimental philosophy at the Royal Military College, Sandhurst, was born at Salford in 1742. In the 17th over, with the ancient town of Salford and Manchester, the borough of Salford, inventor of a system of shorthand, and a respectable poet, was born at Kersal in 1691. William Crabtree [Horrocks] was born at Broughton in the borough of Salford, in 1610; baptized 24th July; educated at Cambridge; married September, 1633; and was buried in the Collegiate church, August 1, 1644. By observation made on Kersal Moor, he found that the planet Venus would pass the sun's disk, which phenomenon was verified in 1638. Crabtree was a thorough astronomer who appears to have had some knowledge of it were Crabtree and his friend Horrocks, whom he had communicated the fact.

(Communication from Salford. For further information see Baines's History of Lancashire; Manchester as it Is; Annals of Manchester; Reports, &c.)

SALIAN. [KUR.]

SALIC LAW. [PHILIPPE V.; PHILIPPE VI.]

SALIC L. [SAUCLAISI] or SAVLAC, a name of apostolical Exogos possessing the following characters: flowers with pistils or stamens alone, growing on the same or different plants, and arranged in the form of an ament; stamens separate, or united together with two-celled anthers; a sepal present, one or two, not united; petals one or two, not united; style single, with two stigmas, or absent; many-seeded, comose, 10-12-celled, coriaceous fruit; seeds comose, and either attached to the lower part of the axis of each valve or to the base of the cell; albumen absent; embryo erect; radicle inferior. They are trees or shrubs, with simple alternate leaves and deciduous or persistent stipules. Combined with Corylaceae and Betulaceae, they formed part of the natural order Amaranthaceae of Jussieu, but they have been separated by recent botanists. They are distinguished from Corylaceae by the absence of a calyx, and frequently by the venation of their leaves: from Betulaceae they are known by their hairy seeds and polyspermy two-valved fruit. They are generally found inhabiting woods in the northern districts of Europe, Asia, and America. The most common species is one which is known, the Salix arctica, belongs to this order. There are only two genera in this order, Salix and Populus; but they are of great importance on account of their timber and various economic uses.

The genus Populus (from the Latin popularis) is characterized by possessing discous, cylindrical, many-flowered catkins; wedge-shaped, single-flowered, jagged bracteae or scales; turbinate calyx, tabular below, and dilated in the banner. The flowers are hermaphrodite, have simple stamens, filamentous, and large drooping quadrangular anthers. The fertile flowers have an ovate pointed ovary, no style, 4-5 awl-shaped stigmas; ovule capsule, with two composite valves and one cell; numerous small ovate seeds, each crowned with a tuft of fine hairs.

[End of pages from the original document]
deciduous trees, mostly of a large size, and growing in Europe, North America, Asia, and the north of Africa. The poplar has long been valued as an ornamental tree, and the various species have been extensively cultivated in Europe. As they are dioecious plants, much difficulty has arisen in determining the number of the introduced species; and it is probable that when the plants with male and female flowers shall have been carefully examined, a considerable reduction in the present number of acknowledged species will take place.

P. alba, the white poplar, or Abele tree, has roundish, cordate, lobed, and toothed leaves, glabrous above, downy and very white beneath; fertile catkins, ovate; four stigmas; creeping roots; branches very white, downy when young. This tree is a native of Great Britain and most parts of Europe, in woods and thickets in a moist soil.

P. canadensis, the grey poplar, is by some writers considered only a variety of P. alba. It is known by its leaves being roundish, deeply waved, toothed, downy, and hairy beneath; fertile catkins cylindrical; stigmas eight. This tree is of slower growth than P. alba; and the wood is finer, and more adapted for the purposes to which timber is applied. Not fewer than eight distinct varieties are enumerated as cultivated in our nurseries, and probably many more might be added to the list by a careful examination of collections of these plants. The white and grey poplar both attain a height from 80 to 100 feet. All their varieties grow exceedingly fast, sometimes attaining a height of 30 feet in ten years. They are remarkable for the creeping nature of their roots, which send up suckers for a great distance round the trunk, and by these a perpetual succession of young trees may be kept up. The trees will endure for two centuries if allowed to remain; but if wanted for timber, they should be cut down before they are fifty years old, as after that period the heart-wood is liable to decay. The Abele, as well as the black poplar, was known to the Romans, and was recommended by Pliny as props for the vine. (Hist. Nat., xvi. 23.) It is much planted in some parts of Holland, Flanders, France, and Germany. The principal use to which the Abele is put in England is that of making flooring boards, for which purpose it should be seasoned eighteen or twenty months previous to use. It is also employed by the cooper for making wooden dishes, casks, &c.
by Mosser Dickson, nursenymen, from North America. In America however it is called Italian poplar, and in France Populus nigra is probably a distinct species. It is the most rapidly growing of all the poplars, and in this country the timber is considered equal if not superior to that of any other species. In the neighbourhood of London, it has been known to grow 30 ft. or 40 feet in seven years. In America it attains a height of only about 70 or 80 feet, but in England it reaches 100 or 120 feet and upwards. There are two varieties cultivated in the Horticultural Society's garden, London, P. m. Lutea, with common abandon, and P. m. foliata, with variegated leaves. In the middle of May it sheds its seeds, which are covered with a cottony down, and when lying on the ground look like snow. These seeds adhere to everything in their vicinity, and in consequence a great nuisance when planted near houses. For this reason, male plants alone should be planted near habitations. It requires a fertile soil near water, and grows very freely from cuttings.

**Populus fastigata**, the Lombardy poplar: leaf detiolated, wider than long, crenulated, glabrous, in the bud involutely folded, petiole compressed. This tree is readily distinguished among the species by its peculiar conical cypres-like form, and the total absence of horizontal branches. It grows to the height of 100 and upwards, and sometimes more than 200 ft. in Italy on the banks of the Po, and also of Persia and the Himalaya. It was introduced from Italy into Britain about the year 1758, and is now very generally diffused, some parts of the country exhibiting magnificent specimens of the Lombardy poplar inferior to that of the black poplar and the black Italian poplar. It is used for making packing-cases, rafters, small beams, studs, boards, etc. But the great use of the tree in this country is in ornamental planting, and for this purpose its spry straggling form adapts it exceedingly well and contrasts to the round-headed trees that are so numerous. It is well adapted for growing in villages, towns, and near houses, as the branches, not being horizontal like most other trees, will not interfere with the walls nor obstruct the light. In ornamental planting, it may be placed near bridges, viaducts, rows of houses, and long buildings, as the perpendicular lines formed by the tree relieve the horizontal lines of the building. It requires a good soil, but will not then grow well unless near water.

**Populus balsamifera**, balsam-bearing poplar, or Tachama-c tree: leaves ovate-oblong, quite smooth, with fine glandular serratures, deep green above, almost white but smooth underneath. Sometimes 2 glands at the apex of the petiole. Buds covered, in the spring with an abundance of fragrant, viscid, balsamic juice. It is a native of North America, Da-uria, and the Altai, and attains a height of 80 feet. It is remarkable for its balsamic secretion, which was formerly collected in Canada in shells, and, under the name of **balsam**, was considerable, it is inferior to that of the more southern parts of North America. In Siberia a tincture is prepared from the buds, which is said to be antiscorbutic. But in Europe the principal use of the Tachama-c and its varieties, of which there are several from various districts, is in ornamental planting, for which it may be used instead of the Lombardy poplar.

**P. betulifolia**, heterophylla, angulata, and candidans, American species, have also been cultivated in this country, and deserve a place in all collections of these plants.

**SALICIN**, a neutral principle obtained from several species of salix: it is white, crystallises in scales, inodorous, very bitter, fusible below 212°, and does not lose water at 359°, but is much more soluble in hot water than in cold; it is dissolved by alcohol, but is insoluble in ether and volatile oils.

According to Piria, anhydrous salicin is composed of—

<table>
<thead>
<tr>
<th>Hydrogen</th>
<th>Carbon</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:79</td>
<td>24</td>
<td>39:96</td>
</tr>
</tbody>
</table>

100

In its crystalline state it contains two equivalents of water.

When treated with very dilute and hot hydrochloric or sulphuric acid, a resinous substance is formed, to which Piria has given the name of **salicetin**; it rises to the surface of the liquid as it forms, and is of a white or yellowish colour; it differs in properties and composition from salicin.

By the action of oxidizing agents salicin is converted into salicylic acid, which has not been obtained in a separate state, but is capable of combining, like a simple substance, with every element given. In ordinary water, tartaric acid, pectin, or pothas, an acid is formed, which is separable from the alkali by means of stronger acids, and being but slightly soluble in water, it is precipitated in crystals resembling benzoic acid in appearance. Salicin possesses tonic properties analogous to those of morphia, and it is stated to be less liable to irritate the stomach.

**SALICYLABUS.SALICACEAE.**

**SALICOQUES.** [SARCOPOS.]**

**SALICUM** with (woody, angled, and cornus, a brown, in reference to the taste and form of the plant), the systematic name of the Glasswort, grasses of a genus of plants to the natural order Chenopodiaceae. They are characterised by a single, turbinate, fleshy, obscurely lobed perianth; 10-stamens; short style; bi-tritl stigma; fruit a capsule with a single seed. They are mostly weeds inhabiting most salt districts on the coasts of the North of Europe, Africa, and America.

*S. herbacea*, jointed glasswort, is a common plant in salt marshes and on the banks of salt rivers in Great Britain. It is known by its numerous stems, compressed and notched articulations somewhat thickened upwards, and cylindrical spikes slightly tapering at the extremities. This, and many other species belonging to the genus, and to other genera, naturally yield a great quantity of soda, for the purpose of obtaining which they are collected on the coasts of the South of Europe and the North of Africa. This species is often eaten as a salad or pickle under the name of samphire, but is a different plant from that of the Thames. It is found on the cliffs of Dover, and has been immortalised by Shakespere. The only other British species is *S. radicans*, which by some botanists is considered a variety of the last with a creeping stem. *S. fruticosa*, shrubby jointed glasswort, is a doubtful native of Great Britain, but grows largely in the South of Europe and in North America, and is used for the same purposes as the above. The species of this genus are rather numerous, but most of them possess properties forming the entrances of coast.

Some of the species are very common on the Coromandel coast, whence Dr. Roxburgh, in his 'Flora Indica,' recommends the manufacture of alkali, which, from the cheapness of labour, he conceives might be made there at so low a rate as to admit of its being profitably sent to Europe.

**SALISOLLA.**

**SALIENT**, a term applied to an angle which presents its point to the outside of the figure, as opposed to re-entering or re-entrant, which is applied to an angle presenting as it were into the figure. These terms are frequently used in fortification, and seldom in geometry.

**SALIERI, ANTONIO**, a composer of great eminence in his day, was born at Legnano, in the Venetian territory, in 1750. He passed only fifteen years of age he lost his father, a respectable merchant, and then turned his attention to music, which he had studied only as an accomplishment, his profession. His first master was Giovanni Pescetti, and his next Leopold Gannam. The latter took him to Vienna, where he made the acquaintance of Gluck, who, at that time declining in health, entrusted Salieri with the charge of composing *Les Demoiselles*, which the great German master had engaged to produce for the *Académie Royale de Musique*. It was performed with the most brilliant success in Paris, and not only made the reputation of the author, but added nearly 20,000 francs to his fortune. He afterwards brought out, at different theatres, many operas, among which his *Thrare*, or *Arte Ros d'Ormus*, and *La Grotta di Trufonio*, were the most successful, and are now best known. He composed *La Foscari* in 1793. In 1813, Salieri was a kind of rival of Mozart, and, strange to relate, his music was much preferred by the court and fashionable circles of Vienna to that of the greatest dramatic composer that then or has ever since lived.

**SALIES.** [PYRENEES, BAYSSE.]

**SALIFEROUS SYSTEM.** In geology, the series of calcareous, argillaceous, and sandy strata, locally and frequently productive of rock salt or brine springs, and of gypsum, is thus described. The equilibrium of the Saliferous System, from the prevalence of a particular colour in the sandstones and clay beds; and Poiteville System, from the various colours of the rocks. The term saliferous is formed on the same model as carboniferous, oiliferous, etc., salt being the characteristic portion of its component masses. Salt is
abundantly but not exclusively found in this system of deposits. Springs more or less salt are indeed met with in a great proportion of the whole series of strata; in England they are rather prevalent in rocks of the carboniferous system (as at Harrogate, Ashby de la Zouch, and near Newcastle), but we have no knowledge of real beds of salt except in the midst of red marls and sandstones. On the continent of Europe this is not the case, for though salt occurs in the Eocene-era beds and associated therewith (separate salt deposits, called \( \text{Malarakos} \)) in Germany and France abundantly, it is also found in the territories of Poland, the green-sand series of Spain, and the oolitic system of the Salzburg Alps.

On the great scale, the Saliferous System is the one of the most varied and interesting we are acquainted with. There are peculiarities in its limestones, sandstones, and clays, as well as in its gypseous and salt deposits; the occurrence and nature of its organic contents, and the relations which it bears altogether to earlier and later classes of rocks, are worthy of careful study. Some of the peculiarities of its limestones have been noticed under the head of Magnesian Limestone, and for the changing qualities of its sandstones and clays Red Sandstone and Red Marl. We shall here add a few reflections on the salt and gypseous masses, and on the organic contents of the Saliferous System.

Saltpetre of lime is found perhaps as frequently and under as diverse circumstances as it is in common. We find it in the Eocene-system, as carbonate of lime, in nearly aggregations, acicular prism, broadly foliated crystals (selenite, fibrous masses and beds, and marmoor or alabasterine rocks. It lies in strata of almost every age, and is not absent from diluvial, alluvial, and Recent deposits. A mode of its occurrence is in a considerable degree characteristic of each particular mineral type. While long prismatic crystals appear in cavities of shells and in recent excavations (as in the gallery of Felling Colliery, Newcastle), the solitary or scattered crystals of selenite abound in blue clays of the tertiary and secondary series (which receive their colour from protocube of iron), and the fibrous gypsum marks, spots, and irregular lines in the red clays (coloured by peroxide of gypsum) of the Saliferous System. It is, however, but a decided index (in architecture, a general law of structures) arranged so as to lie at right angles to the broader surfaces which bound the mass. The marmooric texture is most commonly found in real however irregular beds, as at Montmartre, and in some points near Fairburn in Yorkshire, on the line of the Yorks and North Moord railway. At these places fibrous, marmooric, and flaky sulphate of lime may be obtained in association.

From what is known to take place at the present day, and from appearances in the distribution of the gypseum and salt, it is evident that the deposits of these masses owe their origin to the processes of segregation since the deposition of the earthy masses in which they appear. In neither case is it a question of or even possible that the irregular masses of gypseum and salt are deposited at Axmouth, Aust Passage, and the Trent's mouth could be formed. The marls in which they here lie were deposited as fine mud, and if we suppose merely a slow extraction of the liquid, so that its contained salts might remain, the arrangement of these salts in such irregular masses during crystallization presents no particular difficulty.

Salt shows itself in the Cheshire mines as either granular, broadly laminated, or fibrous; in great beds or mingled near by as gypsum. Salt in these cases, probably in regard to its origin, similar suppositions will apply, the solid beds (of limited extent however and irregular area) being due to a great evaporation of liquid over the previously deposited salts. That such water, in the case of salt generally, was derived from the sea, is almost certain, from the occurrence of iodine and bromine in the brine springs connected with them. (Daubeney's Memoir, in Phil. Trans.) But it does not follow that the area in which the salt was formed was near the sea, or for some time previously or subsequently, connected with the sea. Lagoons may have been the theatre of the evaporation supposed, and earthy sediments, such as occur in Cheshire and Poland, may have been drifted in by the currents which once formed the sea, and it is not difficult to imagine a repetition of the processes such as might produce the two great beds of rock-salt in Cheshire. It is not known that organic remains of any kind accompany the salt of Cheshire, but this is almost true of the whole range of the red marls, in which these deposits lie.

We find, then, associated together, abundance of red oxide of iron, salt, and gypsum, but no organic remains. The prevalence of red oxide of iron in the strata is accompanied by a paucity or total absence of organic remains. In the Saliferous System these red strata extend through several hundred feet of thickness, and it is found, in general terms, that the types of organic life above and below are widely different. In these rich beds, the red sandstone contains few organic fossils, and separates two distinct groups of these productions. Some great physical changes must then be supposed to have occurred previous to the beds during the Saliferous period, and to have influenced both chemical and vital phenomena.

M. Adolph Brongniart (Prodrome d'une Histoire des Végétaux Fossiles, 1829), viewing the series of fossil plants, gives four great periods of ancient vegetation — the first widening of the early frondiferous and sandy sandstone (saliferous) strata; the second including these strata; the third including the oolites and chalk; the fourth, the tertiary strata. Of these the flora of the second period (chiefly terrestrial) is very limited, and may be looked upon as a transition group of plants connecting the earlier and later periods. Similarly the series of marine invertebrata which lie in the Saliferous system have characters intermediate between the early (palaeozoic) and later races of preadamicic types. This change in the vertebrate fauna is gradual, but a careful scrutiny, this 'transition' character of life is resolvable into two parts; we discover in the Saliferous period two formations, marked in geology by the two formations in which the Saliferous strata are usual.

The lower of these, the Magnesian Limestone formation, contains corals, brachiopoda, and fishes, so extremely similar in detail or analogous in their general history to the corresponding forms of the mountain-limestone, that it is impossible in any fair classification that for this group of fossils from the Palaeozoic series; while, on the other hand, the upper of the two formations, the Red-Sandstone and Keuper strata, presents almost no resemblance to the Lower Palaeozoic. This, however, is precisely the wish to call it, Mesozoic series of the Oolites. And this is confirmed by a serious review of the nature and distribution of the fossil plants. In the Upper Red-Sandstone and Keuper we have Pierophylla and Cycadeous plants allied to those of the Oolites; in the Lower Red-Sandstone (Rothliegendes), Calamites and Lepidodendra of the coal series.

It appears then that the rocks of this great and varied Saliferous System may be best placed in relation to the other systems of strata by help of a further analysis, as in the scheme subjoined, and as an index to the other groups of strata to illustrate our general view:

<table>
<thead>
<tr>
<th>Proposed titles depending on the series of organic affinities</th>
<th>Ordinaries titles</th>
</tr>
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<tbody>
<tr>
<td>Upper Caenozoic strata</td>
<td>Pliocene Tertiaries.</td>
</tr>
<tr>
<td>Middle Caenozoic strata</td>
<td>Miocene Tertiaries.</td>
</tr>
<tr>
<td>Lower Eocene Tertiaries.</td>
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<tr>
<td>Upper Cretaceous System.</td>
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<tr>
<td>Middle Oolitic System.</td>
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<tr>
<td>Lower New Red Formation.</td>
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<tr>
<td>Upper Magn. Limestone Formation.</td>
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<tr>
<td>Lower Carboniferous System.</td>
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<tr>
<td>Middle Eifel and South Devon.</td>
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<tr>
<td>Lower Primary strata.</td>
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</table>

The determination of two of the types of the Palaeozoic strata is yet imperfect, because the series of forms intermediate between the transition and carboniferous periods is not fully investigated. It is probable that the Eifel and South Devon fossils make the middle Palaeozoic type.

SALIH-BEN BAHLÉH (called by Abulfaraj, Hist. Dynast., p. 154, Salih Ben Nahlis), an eminent Indian physician, who came to Iraq and practiced at Bagdad in the middle of the 13th century, who writes (cf. Fallas, Hist. Haronis, fol. 172 on 193 (A.D. 756 to 808). He was distinguished, says Ibn Abi Osielah, Oiain At-Abri fi Tabakat Al-Atteba (Fontes Religiosus de Classibus Medicorum, editor. 7, c. 7). Amongst the learned men of India, his name is held in their estimation, and had power of influence in the promotion of science.' He acquired great reputation

* See an extract from this work (chap. xii.), translated by the Rev. W. Curton, with remarks by Professor H. H. Wilson, in the Asiatic Journal.
by discovering that Ibrahim Ben Salih, the cousin of the khalif, whom Jabir Ben Bachitsha had pronounced to be dead, was only apparently so; or, more properly, was, as an author and circumspect account. It appears that he first went alone into the room where Ibrahim lay, and immediately there was heard a sound as of one striking the body with the palm of the hand. Then the khalif got up, and threw others admitted, and in order to prove that Ibrahim was alive, 'Salih took out a needle that he had with him, and thrust it in between the nail and the flesh of the thumb of his left hand, when he immediately plucked away his hand and drew it towards his body. He then ordered all the clothes that he had on to be removed, that he should be washed till the scent of the hand was removed; after which he called for some kundus, and blew some of it up his nose. In about ten minutes his body began to move; then he sneezed, and sat up in his bed, speaking that he had been asleep, and complaining only that he had been bitten by a dog in the thumb, and that he still felt the pain, at the same time showing the thumb into which Salih had thrust the needle. Ibrahim lived a long time after this circumstantial account had carried the Princess of the basha, daughter of Almahadi, and obtained the government of Egypt and Palestine, and died in Egypt.

With respect to the kundus, we are told in the 'Kamus' that it is the root of a plant which is yellow inside and black outside, and is some time having not only the power of softening and clears away the ringworm. When it is reduced to powder and blown up the nose, it causes sneezing and enlightens the weary eyes, and stops blindness.' See Avicenna (Canon, lib. ii., tract 2, cap. 137, p. 286, ed. Venet. 1546), who says that the kundus was the secret ingredient in the balsam in the time of the Emperor Diocletian (Comment. in Discor. de Medic. Mater., lib. ii., cap. 192) supposes it to be the same as the Greek ἔρπέα, on which there is a chapter in Dioscorides (toco cit.), and which he denotes as an office of a bishop.

SALI was twelve priests of Mars Gradivus, who formed an ecclesiastical college or corporation at Rome. They were chosen from the patricians, and established by Numa to take care of the twelve anciats, or sacred shields of Mars. The name is said to have been found in the palace of Numa, and was supposed to have fallen from heaven. To secure its preservation, Numa commanded the armourer Mammuris Veturius to make eleven other shields exactly like it; and the twelve were deposited in the temple of Mars on the Palatine hill, and committed to the care of the Salii. (Liv. i. 20; Dionys., ii. 70, 71; Cic., Rep., ii. 14; Ovid, Fast., iii. 327; Festus, s. v. Mam. Vet.)

On the calends of March, and on several successive days, the Salii were the sentinels of Mars; on which occasion they carried the shields through the city dressed in their official garments, which consisted of an embroidered tunic with a brazen belt, the trabea, and the apex, or conical cap, a sword by their side, a spear or staff in their right hand, and a fan in their left hand. The name signifies hymns or songs called Axamens (Festus, s. v.) in honour of Mammuris Veturius, and all the celestial deities, with the exception of Venus. (Macrob. Sat., i. 12; Virg., Aen., viii. 286; Varro, De Ling. Lat., vii. 36, ed. Müller.) These songs were in later times scarcely understood even by the priests themselves. (Quint. i. 6, p. 54, Bipont.; Hor. Ep. ii., 85.) At this festival the Salii were accustomed to take part of an entertainment in the temple of Mars, which was previous to the time and excellence. (Sueton., Claud., 32; Cic., Ad Att., 9; Hor., Carm., i. 37.) There was a magistrate at the head of the collegium.

Another corporation of Salii, also consisting of twelve members chosen from the patricians, was established by Tullius Hostilius in fulfillment of a vow which he made in war with the Sabines. These Salii were also called Collini or Agonenses, to distinguish them from the Salii established by Numa, who were surnamed Palatini. (Dionys. ii. 70; iii. 32; Varro, De Ling. Lat., vi. 14; Güting, Geschichte der City, ii. 546.) It is said that a great number of the Salii and adventurers in the Gebel of the Altorbien, p. 143, &c.; Dictionary of Greek and Roman Antiquities, article Anxile.)

SALINAS, FRANCISCO, a profoundly learned musician, was born in 1613, at Burgos, the capital of Old Castile, of which city his father was quatter or treasurer. Blind from birth, he had recourse to the study of music, an art to which his deprivation naturally led him. In his programme, as well as to the Greek language, as well as to philosophy, and then commenced reading the Greek authors on the science of music, with whose writings he thoroughly acquainted, commenting on them in an equally learned and ingenious manner, and correcting various ancient generat; and this he did in the diapason and octaves, and on the doctrines of Pythagoras, Aristoxenus, Ptolemy, &c. The remaining three books chiefly relate to rhythm and the feet of the Greek and Roman versification.

Salinas died, according to Thurnus, in 1590. He was highly esteemed by pope Paul IV., who created him abbot of St. Pancratius, in the kingdom of Naples. A full and clear analysis of his works is given by Sir John Hawkins (History of Music, iii. 123); to which Dr. Burney has added many interesting additions in the third volume (page 290) of his History.

SALINS. [Jura. Department.]

SALISBURY, or NEW SARUM, a city in Wiltshire, locally in the hundred of Underditch, but having separate government, from the General Post Office, London, by railroad to Basingstoke, and from thence by Overton and Andover.

This city had its origin in the thirteenth century as a bishop's see or a bishop's See or a bishop's seat. It was within the fortifications of Old Sarum [SARUM], being exposed to injury from the captains of that fortress, with whom they were at feud, determined to remove their church to another site; and Herbert Pauper or Poore, who held the archbishopric at Salisbury, and was determined on commencing a new church on the lands belonging to the see on the site of the present cathedral (A.D. 1229). The inhabitants of Old Sarum being attached to their bishops and clergy, determined on removing also, and thus the city of New Sarum or New Thurso rose out of the ruins. A charter granted by Henry III., making it a free city, and giving to the inhabitants a fair and a market, contributed to its prosperity, and in the succeeding reigns severalparliamentary charters were held here. It was fortified by a wall and ditch; and the creation of a bishopric in 1246, by Henry III. brought the great western road (which had previously passed through Old Sarum) through this town. Salisbury was the place of rendezvous for Richard III.'s army on occasion of his taking of the Pale of Gloucester, and the annual market was brought here and held in the market-place, A.D. 1483. During the protectorate of Cromwell (A.D. 1655), Salisbury was occupied by a band of 200 royalist insurgents under Sir Joseph Wagstaffe, who had come over from the Continent. Penruddock, Grove, Jonas, and other gentlemen of Wiltshire, who seized the sheriff and judges then holding the assizes, and proclaimed Charles II. king. The rising was speedily put down; and the leaders, except Wagstaffe, who escaped, were executed. The city, with the late alteration in its boundaries, occupied part of a peninsula formed by the river Avon on the west and south, and by the river Bourne on the east. The village of Fisherton Anger, now included in the municipal and parliamentary limits, is on the west side of the Avon, at the junction of the two rivers. The western is Wilt and the Nadder, which meet at Bemerton, two miles west of their junction with the Avon. The principal part of the city lies immediately to the north of the extensive parkland, before the late alterations in its boundaries, much improved of late years; and the principal streets have a stream of water from the rivers conducted through them by canals lined with brick. Fisherton Anger is on the road to Bath. South of the Avon is the suburban village.
of Harnham on the Dorchester and Exeter road. The area
and population of Salisbury, in 1831, were as follows:—

| Parish of St. Edmund    | Total | Pami-
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<td>St. Martin</td>
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<td>St. Thomas</td>
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<td>Cathedral Close</td>
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<td>92</td>
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<tr>
<td>Old City of Salisbury</td>
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<td>Fisherton parish [part of]</td>
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<td>Miltford (tything)</td>
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</tbody>
</table>

New City as determined by Boundary Act 2336 11,672

The cathedral is considered one of the most beautiful in England. The close is entered by several ancient gates. The freedom of the cathedral from the encumbrance of contiguous buildings adds much to the imposing beauty of its appearance. The church consists of a nave and choir with two side aisles, a space on the east of the choir, and the Lady-chapel at the east end; a large transept with an aisle on its east side; a smaller transept east of the former, with an aisle on its east side; a central tower and spire; a north porch, a misericord gallery, and various arcades to the north and south of the eastern transept; cloisters and a chapter-house.

The principal dimensions are as follows:—Extreme length of the church without, 474 feet; within, 450 feet, thus divided: nave, from the western door to the organ-screen, 229 feet, breadth 91 feet; Lady-chapel, 151.5 feet; Lady-chapel, 69.5 feet: width of west front, 112 feet; breadth of nave and choir, 34 feet, or, with the aisles, 78 feet; great transept, length without, 230 feet, within, 206 feet; width, with aisle, 57 feet; smaller transept east of the former, length without, 135 feet, within, 104 feet; breadth, with aisle, 44 feet; Lady-chapel, width, 37.25 feet: height within of the vaulting of the nave, choir, and transepts, 81 feet; of the aisles and Lady-chapel, 40 feet; height without to the ridge of the roof, 115 feet; to the spire, 267 feet, to the summit of the spire, 404 feet. The cloisters form a square of 181-75 feet within the walls, and have a width of 16 feet between the side walls and windows; the height of the vaulting is 18 feet. The chapter-house is an octagon of 58 feet diameter internally, and 52 feet in height to the vaulting. (Britton's Salisbury Cathedral.)

The eastern end of the cathedral is of remarkable beauty; but the west front is less pleasing, from its formal square outline. The spire is remarkable not only for its elevation, but for the curious and ingenious contrivance of its timber framework, and for the skill and boldness with which it was raised on a tower not designed originally to support such a burden. The episcopal palace is a large building of various dates and styles, with an extensive and tastefully laid out garden. There is in the cathedral close a college or almshouse for ten clergymen's widows. The close is under the civil jurisdiction of the bishop, recorder, and canons residentiary, who are justices. The three parish churches of the city are large; St. Edmonds's and St. Thomas's are fine buildings of perpendicular date.

The other public buildings are the council-house, erected in 1755, and devoted to the use of the corporation and the business of the city; the prison and criminal law and broad well, erected A.D. 1818; the infirmary, a plain and commodious building; the Salisbury and Wiltshire library and newspaper, with a small museum annexed to it; a small theatre; and several dissenting meeting-houses and almshouses.

The woolen manufacture, once extensively carried on here, has now much declined; the manufacture of fine cutlery has also declined; but the silk manufacture has been introduced with some success: it employed, when the Municipal Corporation Commissioners made their report, 120 persons. There are also 2000 or 3000 females employed in the boarding schools; and every fortnight for cattle, and on Saturday for cheese and provisions: there are four yearly fairs, but they are falling into disuse.

Salisbury returned members to parliament from 23rd Edward I. The boundaries of the city were considerably enlarged by the Boundary Act, and the suffrage, previously much restricted, extended by the Parliamentary Reform Act. The number of electors on the register in 1834-5 was 689; in 1835-6, 889. The extended parliamentary boundaries were adopted for municipal purposes; the city divided into three wards. The corporate body consists of six aldermen and eighteen councillors. The assizes and the Easter sessions for the county are held here, also the city sessions and a court leet and court of record belonging to the bishop. Salisbury is the place of election and a polling-station for the southern division of Wiltshire.

There were, in 1833, in the four parishes just enumerated, two infant-schools, with 164 children, partly supported by subscription or endowment; a classical grammar-school, founded by Queen Elizabeth for 8 boys; four other endowed grammar-schools, with 10 boys and 5 girls, and the masters of the collegiate church of the cathedral; two grammar-schools, with 216 boys and 150 girls; seventeen private boarding or day schools, with a number of children not ascertained; and nine Sunday-schools, with about 1400 children.

SALISBURY, a town and market and ancient borough of the natural family of Taxaceae, known in honor of R. A. Salisbury, a modern botanist. Distinction. The tree, which is the only one of the genus, has long been known by the Japanese name Gingko. The genus is characterised by having monocious flowers. The male flowers disposed in a diliform naked cajkin, with calyx or corolla; stamens numerous; the anthers composed of two cells, which are pendulous and united only at the apex. Female flowers are solitary and terminal. Ca/yx 4-fid, or 5-fid, from the three primary stigmas, which, in the peduncle, surrounds the base of the solitary ovule. Fruit forming a drupe, which has its base supported by a fleshy cup, with a juicy white pulp. Seed nut-like, with an oesculate shell, kernel white. Embryo axillary, dicotyledonous, radicle above.

The Gingko grows naturally in Japan, and is much cultivated in China, and is found in many gardens in Europe; fine old specimens may be seen at Kew and in the Apothecaries' Garden at Chelsea, and in the royal gardens of the Duke of York. It is remarkable for the form of its leaves, which are wedge- or fan-shaped, deeply cut in the centre or bilobed, and finely striated with veins, having some resemblance to the leaves of some species of Adiantum, whence the common name of Maidenhair-Tree.

The pulp of the fruit is austerely-tasted, but the kernel is sweet, with some degree of bitterness when raw, but agreeable as a dessert when roasted like chestnuts. They are much eaten in China. Dr. Abel says he saw the fruit exposed in the markets in China, but could not find out to what purpose it was applied.

The Salisbury is best planted on a deep sandy loam, with a dry subsoil, as it will not grow with a wet bottom. The situation should be sheltered, but it may be more exposed than many exotic plants. It is frequently planted against a wall in order to afford protection, but this does not appear to be necessary in the south of England. Salisbury can be grafted with much facility, and thus male and female flowers may be easily produced on the same tree.

SALIVARY GLANDS. The principal glands by which the saliva is secreted are six in number, three being situated on each side of the face, viz. the parotid, the submaxillary, and the sublingual glands. Of these the parotid is considerably the largest, and has been already described. [Parotid Gland.] The submaxillary gland, which is the next in size, has its principal mass situated immediately behind and beneath the middle of the lower jaw, below the mylohyoid muscle, and on the posterior border of which a portion of it is continued, and leads to the submaxillary or Whartonian duct.

The latter passes forwards and inwards, and opens on the surface of the mucous membrane of the floor of the mouth. The sublingual gland is the smallest of the chief salivary glands; it is situated close
by the duct of the submaxillary, into which severs, of its ducts open; others have their orifices on the surface of the mucous membrane of the mouth, by the side of the frenum linguæ, and further outward. 

of these is a much larger number more which secrete saliva, and which are situated in the substance of the lips and cheeks immediately beneath their mucous membrane, on whose surface their ducts open. Indeed the whole interior of the lips and cheeks is lined by a large number of small glands which in its structure closely resemble the salivary, and probably do not differ from them in function.

The saliva which is secreted by these glands, according to the general laws of secretion [GLAND; SÉCRÉTION], is, with respect to its composition, a transparent, colorless, astringent, rather viscous liquid, which is usually weakly alkaline, but during the mastication of food is often slightly acid. It is composed of a great proportion of water, mixed with portions of the epithelium of the mucous membrane lining the mouth, and holding in solution about seven parts in one thousand of albumen, sali-

The purpose served by the saliva seems to be the softening of the food, with which it is intimately mixed in mastication. Whether it is of any further use in digestion than to help to solid food to pass along the esophagus without pain is as uncertain as to the necessity of this purpose is absolutely necessary; and glands for its formation exist in all classes of animals from the insects upwards (with the exception of fish), and even in many that are lower in the animal kingdom than the insects. In all these it appears to serve the quamous purpose of the peculiar properties assigned to the saliva of some animals being for the most part drawn from erroneous observations. The poison of venomous snakes, for example, is secreted by glands quite distinct from those of the true saliva; the use of the tongue is perfec-

The quantity of saliva secreted when the mouth is at rest is usually sufficient to keep its internal membrane moist and slippery. When, however, the jaws are actively moved, and especially during feeding, or even at the thought of a meal or of certain kinds of palatable food, the quantity is greatly increased. During the twenty-four hours it is probable that from sixty to ninety grains of saliva are secreted by one parotid gland [Mitscherlich], and the quantity produced by all the salivary glands of an adult man together may there-

With the exception of the parotid, which is often the seat of inflammation [MÜMPFS], abscess, and malignant disease [PATOID GLAND], the salivary glands are remarkably little obvious to disorder. The most common affection is an acquire lymphadenitis of their ducts or, otherwise, when small cysts similar to those called Ranulele [RANULA FORM]. These are often met with about the lips; they rarely need surgical treatment, but when they do, that adapted to ranule may be employed. The only other affection worth noticing is treated of in the following article.

SALIVATION, or PTYALISM, is a superabundant secretion of saliva. This sometimes occurs as an idiopathic disease, originating without any evident cause. Dr. Christison [Callei] has observed, in several instances in which the quantity of saliva discharged amounted to three or more pints daily. Irritation of the salivary glands, accompanied with profuse secretion, is also an occasional attendant upon common inflammations of the throat and mouth, and on those that accompany eruptive diseases, especially small-pox. But far more frequently salivation is the effect of medicines or poisons. Some preparations of gold, copper, antimony, and iodine, croton oil, digitals, and even opium, are apt to produce it; and it is almost a constant effect of the long-continued or copious administration of mercury.

The quantity of mercury required to produce salivation varies greatly in different persons. In some, two or three grains are sufficient; by others such large quantities may be taken with which they do not appear insusceptible of its action. No general rule therefore respecting the quantity of mercury that may be safely given to any one can be made; but in no case can there be safety without caution and careful watching of the effects produced by it.

Salivation from the use of mercury is distinguished from that arising from other causes, by its being preceded by a peculiar brassy taste in the mouth, a taste of the breath, and tenderness, redness, and sponginess of the gums. They are soon followed by the increased flow of saliva, and if mercury be still taken, or if the quantity already taken be increased, the mouth and throat become swollen and tender, and ulcers and sloughs quickly form on the mucous membrane. In ext-

The best treatment of mercurial salivation is exposure to cool pure air, a nutritious diet, and mild purgatives. Ga-

The genus Salix, or willow, the name of a genus of plants, which, in conjunction with Populus [SALICACEAE], constitutes the natural order Salicaceae. In many parts of the world, this is one of the most important plants, on account of the capacity of their growth, the toughness and lightness of their wood, and their uses in medicine and the arts, have caused them to be extensively cultivated. But although largely cultivated and well known parts of the world, the botanical arrangement of these plants presents considerable difficulties, and few genera have had more time and labor spent upon them than Salix; and up to the present time the most able botanists differ as to the real nature of many species or varieties.

The genus Salix is known by possessing dichotomous flowers, catkins many-flowered, imbricated, composed of a single flowered flexible bract. The barren flowers have a small lateral abrupt gland, sometimes double; filaments 2, 3, 4, or more; longer than the bract, and in some part or another.

The bark is used in the north of Europe for the purpose of forming mats in the same manner as the bark of the common linden-tree. In Tataria the wood fibre is macerated and separated, and the most destructive gums are removed, from which cloth is woven. Willows are much used in the manufacture of charcoal; and it has been proved that willow charcoal is superior to that procured from the wood of most other trees for the preparation of gunpowder. The bark of willow contains the tanning principle, and, according to Sir H. Davy, some of the species, especially S. Babyloniaca, S. alba, and S. purpurea, contain as much alkali as the oak itself. From the bark of some is obtained a vegetable principle called salicin, which acts upon the system in the same manner as the vegetable alkaloids, and has a purgative property.

The willow is considerate the emblem of despairing love. It is often associated with the cross in the churchyard.
Willows are extensively cultivated in this country as timber-trees, coppice-wood, and for the purpose of making hoops and basket-work. In the culture of willows, one of the first points to be attended to is the determination whether the plant is male or female. The female is generally the more vigorous growing plant; and in consequence, where timber or coppice-wood is required, it is essential that the female should be selected. If, however, the object is to prepare the wood for basket-making, the male plant ought to be selected. All willows that are intended for making timber, hoops, poles, or basket-trees should annually ripen their shoots. Hence the earlier the shoots are ripened, the better should be the soil in which they are planted, on account of the necessity of ripening their wood. The willow grows naturally in a moist soil, and wherever planted, it should be within the reach of the stream or of the flood. Rivers, brooks, or ditches, are the best situations for planting them. But wherever they are placed, care must be taken that the soil be drained, for although they require much moisture, they will not grow in a saturated soil.

In the culture of the willow the osiers and for hoops, great care is required in order to produce them in perfection. All willows may be propagated by cuttings. There are however many species that will grow from seeds; and probably, with the improvement of the art, may be cultivated by the short method. All the willows are liable to the attacks of various insects, and on that account afford a valuable field for entomological research.

The larvae of casius ignipennis, cerambyx mochris, and nitisus gracis are found in the wood of willow. The larva varies in the same variation, and is so numerous as to destroy the tree in a few years. Cryptorhynchus lapathi is an insect that frequently commits great havoc in osier grounds. The larve of the lunar hornet sphinx (Tricholium caeruleum) bores the trunk of S. caprea, and feeds upon the leaves of the tree, and thus destroys the living tree. The following insects are also recorded as attacking and living on willows: nematus capreus, chrysomela vulgatissima, the larve of brepha Parthenium, notodonta secalis, the larve of halinthus, ischnopsis, arctomys, eremocera capreus, the larve of pyroceras rubens, melasoma populi and tremula, balaninus salinivasus, tachymeres salicis, aphis salicis, cocces capreus, and c. salicis.

In order that the species of this genus may be studied successfully, a number of points require consideration, and it is only lately that an approach has been made to accuracy in their investigation. The flowers of the salix are subject to many anomalies which have been productive of not a little difficulty, and have sometimes led to the supposition that they are sterile, or at least incapable of vegetable development. The principal anomalies that are found are: 1. male and female flowers occurring in the same catkin; 2. stamens apparently changed into pistils; 3. stamens imperfectly formed; 4. union of the filaments of the stamens. In the study and description of the species, it is of importance that the tendency to these anomalies should not be overlooked. Another difficulty in the way of the study of this genus is the occurrence of hybrids. This has been denied by Sir J. E. Smith, in his article 'Salix,' in Rees's Cyclopaedia: he says, 'We can also contradict another common opinion taken up by botanists, who found a difficulty in discriminating the species, that they frequently generate male varieties. In a garden where for twenty or more years every British willow, and many foreigners, have been cultivated together under our inspection, and where abundance of seedlings have come up every season; though many of these have been propagated by cuttings, none of them have yet produced even any variety has occurred. The greatest difference of aspect indeed, and the strangest diversities of shape and size in the foliage and stipples, are seen, according to the treatment of each individual with respect to pruning, watering, and allowing your willow to grow from an old root.' On the contrary, Koch, a German botanist, who has published a commentary on this genus, and who has certainly studied it more profoundly and philosophically than any other writer, says that the greatest difficulty with which the botanical student in this genus has to contend is the great number of hybrids, the existence of which in the genus Salix no one can doubt, is another obstacle. No one will accuse me of arrogance in assuming to know S. rubra and S. viminalis; and yet on the banks of the Redzsyn near Erlangen there are many thousand trees of these two species; and, at the same time, many intermediate forms of which I can refer to as examples. The catkins of these afford no distinguishing marks; for what seems at one time to belong to the former species, at another time appear more clearly allied to the latter. A few well-conducted experiments would soon set this question at rest.

Regarding the species, Koch has not followed the suggestions of Linneus, or the arrangement of Sir J. E. Smith. He observes, 'that if the usual arrangement of the species be adopted, in which the sections are characterised by having the ovaries naked or pubescent, the leaves glabrous or downy, the fruits entire (as in Smith's 'English Flora,' &c.), then species widely separated by nature and habit must necessarily be grouped together, not to mention that these characters are in themselves liable to the most obvious changes.' With regard to the fruits of the species, Koch says, 'a character taken from the catkins appearing earlier than, at the same time with, or later than, the leaves, is of great importance; but one taken from the situation and insertion of the leaves is still more so. The capsule offers important characters; its length relatively to the gland, which is never wanting, is a very constant character, varying only in a few species. The colour of the young shoots varies greatly, often so much as to cause the varieties to appear as new species. The form of the leaves in the same species, and even in the same plant, can never be depended upon. In some species they are serrated or entire, green or hoary on the under surface, and glabrous or hairy on the same plant. The common plant of England, salix caprea with willow ovaries. The bracteae are sometimes obvate, and only half the length of the ovary; and sometimes in the same species lanceolate, and reaching as far as the style. The style and stigmas likewise vary in length, and are occasionally more or less hairy in the axil. Stigmas with glands have only been found in the same species. The stigmas vary in size, but never in form; hence they afford the very best characteristics for distinguishing species.' (Koch, De Saliciis Europaeis Commentat.).

There are at present described about 220 species of Salix; of all which we shall not here give a description, but refer the reader to works that give a full account of the species, with their arrangement. (Koch, De Saliciis Europaeis Commentat.; Hooker's British Flora; Loudon's Arboricult. et Fruiticet. Britannicum.) In this last work all the information that could possibly be collected with regard to this genus is to be found. We shall arrange here the more common species, omit the heads Sallows, Osiers, and Willows. These terms are often applied to any of the species, but some have more frequently one of the designations than the other.

Sallows.

These are trees or low shrubs belonging mostly to Borror's group Cinerose, and are characterised by downy branches, and mostly obvate, grey, hoary, toothed, more or less wrinkled, and stipuled leaves, very veiny beneath. Varieties serico-tomentose. Salix cinerea, grey sowth: stem erect; lower leaves entire, upper serrated obvate-lanceolate; glaucous downy and reticulated with veins beneath; stipules half-heart shaped, serrated; ovary silky, style short, stigma mostly entire. It attains a height of 30 or 30 feet, and is abundant in England on banks of rivers and in moist woods. Salix aquatica, water sowth: stem and branches erect; leaves slightly serrated obvate-lanceolate, rather glaucous beneath; stipules roundish, toothed; ovary silky, stalked, stigmas nearly sessile. This is also a British species and one which Koch has made a variety of S. cinerea. The olive-leaved sowth (S. oleifolia) is also referred to Koch by the three species. Salix aurita, round-sерed sowth: branches trailing; leaves obvate, somewhat serrate, convex, obtuse with a small hooked point, hairy, and reticulated with veins on both sides; stipules roundish, convex, toothed; ovary silky, stalked, stigmas sessile. Salix caprea, goat willow: stem erect; leaves roundish, pointed, serrated, waved, pale, and downy beneath; stipules somewhat crescent-shaped; catkins oval; ovary stalked, ovate, silky, style short, stigma mostly entire. It is a native of Britain, and is distinguished early in the spring by putting forth its handsome yellow blossoms before other trees have assumed their
Salix

The bark is much used for tanning, and the wood is used for making implements of husbandry. It is also grown for hedges, and in medicine the bark is sometimes used as a substitute for cinchona.

OISERS

The species of Salix called mostly by this name belong to Borrem and Vitisaceae, which are described as trees of a more or less considerable size with long pliant branches and lanceolate leaves; ovaries nearly sessile, hairy or silky; their styles elongated; their stigmas linear, mostly entire. Any willow however that has long pliant twiggy branches and is grown on this account is called an Osier.

Salix viminalis, common osier: leaves linear-lanceolate, obscurely crenate, white, and silky beneath; stipules very small, sublanceolate, branches straight and twiggy; ovary upon a stalk, lanceolate, sub-lanceolate, long, mostly entire. This is the species that is used for the various kinds of basket-work, bands, &c., and for this purpose is largely cultivated in this country.

Salix stipularis, siered osier: leaves lanceolate, pointed, slightly wavy, obscurely crenate, soft and nearly naked above, white and downy beneath; stipules half-heart shaped, stalked, very large; gland cylindrical; ovary ovate, nearly sessile, stigma linear, undivided. It is a native of England and is employed for the same purposes as S. viminalis, but is inferior to that species.

Salix incana, hoary osier: leaves linear-lanceolate, dentilcated, covered on the under surface with a hoary tomentum; catkins arched, slender, almost sessile, subtended by bracts at the base with a gland beneath; lemmas lanceolate, long, distinctly marked, long, definitely marked; the stalk twice the length of the gland; style elongated; stigmas bifid; bracts sub-glabrous, ciliate, with short hairs. This species is found wild in the lower Alpe valleys, on the Pyrenees, Cevennes, Alpe de Daffphiny, Switzerland. Tyrol, Austria, and Carpathia. Its distinct character renders it an interesting species to the botanist.

Willows

Amongst these we shall include a few species useful in the arts and medicine, belonging to the various groups into which Koch and Borrem have distributed the species of Salix.

Salix Rosseliana, Russell or Bedford willow: leaves lanceolate, tapering at each end, serrated throughout, very glabrous; foot-stalk glandular or leafy; ovary tapering, stalked, longer than the bracteae; style long as the stigmas. A native of Britain, growing in marshy woods, using a small white leaf. This tree was first brought to the by the late Duke of Bedford, and has on that account received its present name. The best history of it is to be found in the introduction to the Duke of Bedford's splendid work, "Saliciflorae Britanniae," 1838. It was one of the species of that was a favourite with Dr. Johnson at Lichfield, and hence called Johnson's willow. It was lately destroyed by a hurricane, having attained a height of 60 feet and a girth of 13 feet. The growth of this species is very rapid, and as it may be extensively used for poles, &c., it is a profitable tree for growing in plantations. Its bark is said to contain much tannin as the oak. The medical properties attributed to the bark of S. fragilis belong properly to this species. It is astringent and tonic.

Salix alba, common white willow: leaves elliptical-lanceolate, pointed, serrated, silky on both sides; lower strucures glandular; stamens hairy; ovary smooth, almost sessile; stigmas deeply cleft; scales notched. It is a native of Europe and of Asia Minor. It is more extensively planted as a timber-tree than any other species. It grows rapidly, attaining a height of 30 feet in 10 or 12 years. Hundreds of miles of road between Moscow and the Austrian frontier are lined with this tree. The bark is used in the north of Europe both for tanning and dyeing. The wood is very useful, and is employed for making the handles of all sorts of instruments, in turnery, millwork, coopers, weatherboarding, &c. Willow hats and bonnets are made from this wood. Willow willows of this willow may be used in medicine instead of S. Rosseliana, but it is not so valuable. It is frequently and under that name is called the 'Huntingdon Willow,' recommended by Gilpin and others.

Salix petandria, the weeping willow: leaves lanceolate, serrated, glabrous, glaucous beneath; at the same time with the leaves; ovary smooth, almost sessile; stigmas papillose. This is the most favourite species of the genus, is a native of Asia, on the banks of the Euphrates near Babylon, whence its name; also of China, of Egyp and other parts of North Africa. It is said that this willow was introduced into England by the poet Pope, who, being with Lady Suffolk when she received a parcel from Spain containing withes, which appeared alive, took one, and planted it in his garden. After a time it came so well known as Pope's willow at Twickenham. It is however more probable that it was introduced by the botanist Tournefort into Europe. This tree is increasing in cultivation, and the twiggy willow is one of the greatest favourites in China, as might be inferred from its constant introduction into Chinese pictures. Growing on the banks of its native Euphrates, it was the willow at which the weeping daughters of Zion 'hanged their harps.' (Psalm 137)

Salix purpurea, sweet bay-leaved willow: stamens 3; leaves elliptical-lanceolate, acuminate, serrated with glandular glabrous, with several glands at the base; ovary lanceolate, glabrous, nearly sessile; style small; stigma bifid. It is one of the latest flowering willows, not expanding its flowers till the beginning of June. The flowers are very fragrant, especially when bruised, resembling in some measure the sweet bay (Laurus nobilis), hence its name. It is one of the most useful of willows for ornament, and on account of its late flowers, its deep green almost evergreen leaves, its powerful fragrance, and compact growth, it may be used for basket-work. Nees von Esenbeck prefers this willow to a medicine that to any other species, on account of its salutary properties.

Salix purpurea, purple willow: branches trailing, decumbent; leaves partly opposite, obovate-lanceolate, serrated, very smooth, narrow at the base; stamens 5; stigmas very short, nearly sessile. It is a native of Britain, and attains a height of 2 or 3 feet high. It is characterised by the elegant slender- ness of its twigs and the redness of its catkins, which make it desirable for the shrubbery. Of all the willows it possesses the largest amount of bitter principle in its bark, and on this account it has been recommended to the use of mankind. Salix vitellina, the yellow willow: leaves lanceolate with glandular serratures, acuminate, more or less silky beneath often so above; ovaries lanceolate, sessile, glabrous; style short, stigmas bipartite; scales lanceolate. It is a native of Great Britain in hedges, borders-grounds, and other places. As an ornamental tree, it is very striking, both among evergreen and deciduous shrubs, on account of its bark possessing conspicuous colours.

Salix purpurea, the blue willow: this name is not referred to the following British species, which will be found fit for timber growth, as they attain a height of 30 or 40 feet in 20 years: S. triandra, long-leaved triandrous willow; S. Meryariana, Meyer's willow; S. Amygdalina, almond-leaved willow; and S. Arm., almond-leaved willow.

SALIX, MEDICAL PROPERTIES OF.

The banks of several species of willow have been long celebrated for their astringent and antiseptic qualities; but from the great difficulty of determining the species, it is not ascertained which is entitled to the preference. The Salix Rosseliana appears to possess the greatest quantity of tannin; but the powdered principle termed salicin seems to exist in the greatest proportion in the S. Helix, or Rose Willow; while the S. petandra, L. (see Lauren), and S. Alba, the sweet or bay-leaved willow, possesses, both in its bark and leaves, the largest amount of bitterness and resin, and a most balsamic odour. The banks of S. alba, S. fragilis, and S. capreae are also celebrated for their healing properties. If the species be selected, the bark should be stripped in spring from branches not less than three years or more than six years old, and from trees growing in moist rather than swampy places. It should be carefully dried in the shade. The fresh bark has a faint odour somewhat resembling bitter almonds; the dried bark is devoid of odour. The taste is at first acutaneous, afterwards bitter and astringent. The degree of astringency may be easily tested by adding to a decoction of a suitable quantity of the bark, and trying its gelling power. Tincture of a salt, rubs will not affect it. (Day's Agriculture, 2d ed., and J. J. chem., C. P. editor.) According to the analysis of Palliser and Caveston, the bark of S. alba contains a green fatty matter similar to that of Cinchona, a yellow slightly bitter bittersweet matter, mucilage, albumin, and other substances. From its acetic acid, which with tartaric forms a salt easily soluble in water and possessing the properties of these substances, salicin has been found.
Willow bark possesses astringent, tonic, and febrifuge qualities, which render it a valuable substitute for Cinchona, and as it often suits the stomach better, it is well calculated for the treatment of agues among the poor. In debility of the stomach and relaxation of the mucous membranes, it is often used in decoction. In the latter-extracted African, made with cold water, of the powdered bark of Salix pentandra, is preferable; but any of the others may be made equal to it by the addition of bruised cinnamon bark.

The nature of Saline is not ascertained. It has neither bearing to the case, as it is a febriferous and antispasmodic, but is a saline compound of a vegetable alkali (Salicina) and a volatile odorous acid. That it has febrifuge properties seems incontestable, but they are much weaker than those of Quina; it must therefore be given in considerably larger doses. It may also have been employed in febrile, and also in conjunction with many other salts, without undergoing decomposition or entering into combination.

Sallee or Salee. [Marscoco]

SALLOWES. [Saxlex]

SALLUSTIUS, or SALLUSTIUS, with his full name CAIUS SALLUSTIUS CRISPUS, was born B.C. 86, in the seventh consulship of Marcus, at Ameternum, a town in the country of the Sabines, near the sources of the Anennus, II. 5. 1. He was not only born, but he has been well known in afflictful circumstances. He received instruction from the grammarians Atteius Philologus, who is said to have supplied him with an epitome of Roman history, from which he might choose subjects for his own composition. (Sallust, de Bello Jug. c. 12.) For the manner in which he acquired the quaternary in the plebs, B.C. 52, in which year C Ludius was killed by Milo.

Sallust was a strong opponent of the aristocratic party, and accordingly in his tribunals he took an active part in the proceedings instituted against Milo. (Asconius, in Cicero. Milon. p. 38, 45, 49, 50, 51, ed. Orelli.) In B.C. 50, he was expelled by the senate and the censors Appius Claudius and Pansa. In B.C. 46, he was convicted of the corruption of the Roman government, and he was accused in the presence of the censors' troops in Campania, on which occasion he narrowly escaped with his life. (Dion, xiii. 52.) He accompanied Caesar the same year into Africa, where he was actively employed in the war (Hirt., De Bell. Afric., c. 14.) The same year (B.C. 46), he left Sallust governor of the province (Hirt., Ibid., c. 97), where, according to Dion Cassius (xiii. 9), he acquired immense wealth by the plunder of the country. On his return home, Sallust built a famous and agreeable house, which was afterwards used by the emperors, and was not destroyed till the time of Alaric.

About this time he is said to have married Terentia, the divorced wife of Cicero. He died, B.C. 34, four years before the battle of Actium.

The moral character of Sallust has been drawn in the darkest colours by many writers. He has been accused of the most unbounded profligacy, which has been represented as the most inexcusable on account of the praises he has bestowed in his work on the vices and temper of the times. These accusations, however, do not rest upon any sufficient authority, unless we except the tale told by Varro, that Sallust was detected in adultery with Milo's wife, and severely punished by the husband (Asul. Gel., xxv. 1. 13, 14, in Sophocles' tragi- comies, [Sat., i. 2, 41], 'ille fugelis ad mortalitas casisSimilarly, according to one of the antient scholars.

Sallust was a strong party-man. He thoroughly de- spised and hated the aristocratic party, and the censors, who were enemies to the consul. He had denounced Pompey, the leader of the aristocracy, as a man 'orsi improbi, animo inver- eundio,' and accordingly it was only to be expected that his own character should be attacked and traduced in every possible manner. Lenanus, the freeman of Pompey, wrote a famouse poem against Sallust (Soet, De Ill. Gramm., 15); and a rhetorician under the early emperors, when it had become the fashion to praise the old Pompeian party, wrote a declamation against the character of Sallust, which is still extant, and falsely ascribed to Cicero. That Sallust was not better than his contemporaries may easily be believed, and there seems no reason for doubting the statement of Dion Cassius, that he followed the example of his contemporaries in plundering the province of which he was governor.

Sallust wrote a history of Catiline's conspiracy, and of the war with Jugurtha, and also a general history of Roman affairs from the death of Sulla, A.C. 76, to the appointment of Tiberius Gracchus, the elder, B.C. 133. The two first works have come down to us entire; but of the latter we have only fragments; and its loss is the more to be regretted as it contained an account of one of the most important periods of Roman history, respecting which our information is very imperfect and unsatisfactory. It was written in five or six books, addressed to Lucullus, and appears to have contained an introduction, in which an account was given of the civil wars between Sulla and Marius. It connected his histories of the Jugurthine war and the Catilinarian conspiracy. The only fragments of it of any length are four orations and two letters, which are characterised by Sallust's usual style.

The merits of Sallust, both as a historian and a philosopher, have been low by many modern critics. The objections which have been made to the moral reflections and dissertations in Sallust's writings as unsuitable to the nature of historical compositions, have arisen from a misunderstanding of due attention which they had in view. This does not appear to have been so much a consequence of the narration of the particular events which he chose as the subjects of his history, as the elucidation of certain great political facts. In his 'Jugurtha' his object was to show how the instability and total want of principle in the aristocratic party, and how both their private and public profligacy at length deprived them of the power which they had possessed since the time of the Gracchi. In his 'Catiline' he had the same object to a certain extent in view, though he did not show the vices of those who had by a popular party occasioned their loss of power, but rather to describe the consequences to which those vices had at length led, for it must be remembered that Catiline and his associates had been brought up in the school of Sulla, and belonged to the aristocracy.

In estimating the value of Sallust's writings, it should also be borne in mind that the Romans possessed no works worthy of the name of histories before his time. Preceding his time there were merely narrators or annalists, who relate events in years and years in which they happened, without any attempt to trace the causes and results of the events which they described. Sallust studiously avoided the annalistic style of his predecessors, and appears to have made Turenne's model, to which he had been so much indebted, the basis of his own. The fragmentary parts of the Augustan age objected to the use of the antiquated words and expressions which Sallust sometimes employed (Suet., De Ill. Gramm., 10), but it is small proof of the excellence of Sallust's style that Tacitus closely imitated it.

Besides the works already mentioned, two epistles have come down to us under the name of Sallust, addressed to Julius Caesar, on the management of the state (De Republicis Ordinandis); but these are evidently not the work of Sallust, and are supposed by Niebuhr to have been written, at the latest, in the second century of the Christian era. (Römische Geschichte, vol. iii., p. 401.) There is also extant a declamation against Cicero, falsely ascribed to Sallust.

The first edition of Sallust was published at Venice, in 1470. The edition of Curtius, which was published at Leipzig, in 1725, 4to., with a valuable commentary, has formed the basis of most of the subsequent editions. The best modern editions are those of Kritz, 2 vols. 8vo., Leipzig, 1828, 1834, which does not however contain the fragments, and of Gerlach, Basel, 1823-1831, 3 vols. 4to. An accurate edition of the text, with the principal variations, but without the fragments, has been published by Dr. Wust, 2 vols. 8vo.; in it, Dr. Bunsen, of Potsdam, the son of the king of Spain, Madrid, 1775, 4to.; in Italian, by Alferii; and in German, by Gerlach, Prenzau, 1827.

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SALLUSTIUS, a Platonic philosopher, who lived in the fourth century of the Christian era. He wrote a work in Greek, 'On the Gods and the World,' which was originally published by Leu Allatius, Rome, 1638, 12mo. The best edition of this work is by Orelli, Zürich, 1821, 8vo. It has been translated into Latin by Herder, Berl., 1749, 8vo, and into German by Schultes, Zürich, 1779, 8vo.

SALM. As far back as the tenth century, there have been in France two counties bearing the name of Salm: the county of Ober-Salm (with the rank of a principality) in the diocese of Metz, between Arlon and Luxembourg; and the county of Nieder-Salm, near the Ardennes, the duchy of Luxembourg and the bishopric of Liège, which subsequently made part of the circle of Burgundy. It would be equally tedious and useless to trace the division of the family of the counts of Salm into different branches, and the various changes of territory during a period of eight centuries. The two principal lines, subdivided into several branches, subsisted till the French revolution, during which their territories were annexed to France, and in the sequel other possessions were assigned to them from the secularizations on the east of the Rhine. At present, the elder line is divided into three branches:—1. Salm-Salm, which possesses revenues from estates in Bavaria. 2. Salm-Kyberg, whose revenues may amount to 180,000, or 200,000 florins. 3. Salm-Horstmar, which, after various changes during the French revolution, was placed, with the rank of a principality, under Prussia, from which it receives a rent of 20,000 florins, an indemnity, and the cession of the judicial and civil administration. The second line is that of Salm-Reifferscheid, divided into the four branches of 1. Salm-Reifferscheid Kranheim; 2. Salm-Reifferscheid-Raadhuis; 3. Salm-Reifferscheid-Hampach; and 4. Salm-Karden. Some of these branches are extinct, and others are mediæval, that is, they have lost the exercise of their right as sovereigns, which is transferred to the members of the German confederation in their present possessions.

SALMASIUS, CLAUDIUS. The Latinized form of his real name CLAUDE DE SAUMAISE, was born near Sémur in Auvergne, in the year 1588 or 1596, more probably the latter. His father, who was a member of the parliament of Burgundy, was a person of considerable learning; he translated the work of Dionysius of Alexandria into French verse, Paris, 1597, 12mo. Young Salmasius was educated at home by his father, and is said to have made such astonishing progress in his studies as to be able to read French by the age of six. He was then sent to Paris, and at the age of sixteen he was sent to Paris to prosecute his studies, where he became acquainted with Casaubon, by whose influence he was induced, contrary to the wish of his father, to embrace the Roman Catholic religion, in which he had been educated. At Heidelberg he obtained the friendship of the jurist De Godefo, and of Grotius, and appreciated his talents, and recommended him to the notice of all the great literary men in Germany. During his stay in this city, he prosecuted his studies with the greatest perseverance, and pursued not only the Greek and Latin writers which were then published, but also numerous others, which existed in manuscript in the university library. He devoted the whole of every third night entirely to study, till at length his excessive application occasioned a long and serious attack of illness. About this time (1608) his first publication appeared, which was an edition of the De Suburbicario Regnibus et Ecclesiis, a work in Greek by Naos Moschus, on the primacy of the pope, and also of another work on the same subject, by a monk of the name of Barlaam, both of which were accompanied with a Latin version and a critical apparatus. This publication soon after an edition of Floris, Par., 1609, 8vo, which was published to grace his father.

After spending three years in Germany, he returned to France, and shortly after his return published a short treatise 'De Suburbicario Regnibus et Ecclesiis,' in opposition to the views of the 'Historia Augsbergenses Scriptores Sex,' fol., which Casaubon, shortly before his death, had intended to edit as a sequel to his edition of Sutonia. The commentary of Salmasius on these writers is full of valuable information, and may still be consulted with profit. In 1629 Salmasius published his edition of Tertullian's work 'De Paello,' with a commentary, in which he treats at great length of the different garments worn by the ancients.

In the following year (1632) Salmasius married the daughter of Mercier, who was a person of elevated rank, and is frequently mentioned by his son-in-law in terms of the highest respect and inkindness. At the time of his marriage Salmasius resided for many years in the neighbourhood of Paris, chiefly engaged in the preparation of his great work, which was published at Paris in 1629, 1 vol., fol., under the title of 'Pinaxia Exercitationes in Castra Salmi,' with an appendix entitled 'De Homonymis Hymnorum Exercitationes, nomen de Manu et Saccharum.' The treatise of Salmus (SALMAIUS) was evidently selected by Salmasius on account of its treating of so many various subjects in antiquity, and thus enabling him to discuss without the trouble of systematic arrangement almost any subject which he chose. It is a work of astonishing erudition; not only does it embrace questions connected with Greek and Roman history, geography, and languages, but it also treats at great length of the plants, herbs, and minerals known to the ancients. In order to qualify himself more completely for the work, Salmasius studied the Hebrew, Persian, and Arabic languages, with which he shows an extensive acquaintance. He was a man of a lively imagination, and embraces too many subjects to be thoroughly treated of by one man. In this, as well as in most of his other writings, Salmasius frequently shows great carelessness in the statement of facts, combined with much arrogance and pretension.

Upon the publication of this work the reputation of Salmasius reached its greatest height. He was solicited by various princes and states to settle in their dominions. He was invited by the Venetians, by the university of Oxford, and by the Academy of the Leopoldines. He finally accepted an invitation to Leyden, and at length settled at Leyden in 1632, where he received a public salary, but did not discharge any duties as professor.

In addition to his father's death in 1640, Salmasius returned to France to settle his father's affairs; and while there Richelieu pressed him to remain in his native country, and also offered him a very large pension if he would write his life. After the death of Richelieu, Mazarin renewed the offers of Richelieu, but Salmasius rejected all their solicitations, and returned to Leyden, where he remained till 1654, when he went to Sweden to pay a visit to Queen Christina, who had written him the most pressing invitation, and had said she could not live happy without him. The climate of Sweden did not suit him, and he accordingly returned in the following year.

After the death of Charles I. of England, Salmasius was employed by Charles II., who was then in Holland, to write a defence of his father and of monarchy, and which he accepted with great delight. He was appointed Bishop of Regia pro Carlo L., 1649; to which Milton repaid in his 'Defensio pro Populo Anglicano.' MILTON Salmasius prepared a reply to Milton, but did not live to finish it. He died in September, 1655.

In addition to the works which have been mentioned in the course of this article, Salmasius also wrote and edited the following works: 'De Usuris,' Leyd., 1638, 8vo; 'De Modo Usuariam,' Leyd., 1639, 8vo; 'Discursus de Fide Ac Tempore,' Leyd., 1640; 'Notes de Pervigilium Veneris,' Leyd., 1658, 12mo; 'Commentaria in Simplike Enchiridion Epistlicum,' Leyd., 1640, 4to; 'Interpretatio Bipersicam Athanasii de Calidisi,' Leyd., 1640, 8vo; 'De Hellenistica Commentariis Controversiis de Origine et Dialectis Graecis Linguis,' Leyd., 1645, 8vo; 'Observationes in Jus Atticum et Romanum,' Leyd., 1643, 8vo. A collection of Salmasius's Letters was published by Antony Clement, after his death, to which his Life is prefixed. LYYY.
 Counties in England, 1736, 8vo.; 'History of Hertfordshire,' Lond., 1728, fol.; 'Antiquities of Surrey,' Lond., 1736, 8vo.; 'History and Antiquities of Essex, from the Collection of Mr. Strangeman,' Lond., 1740, fol.

SALMON. [SALMONIDAE ]

SALMONIDAE (Salmon tribe), a family of fishes belonging to the Malacopterygii Abdominales. These fishes have the body covered with scales, the first dorsal fin has soft rays only, and the second dorsal is small and destitute of spines; the pectoral fins are large, and form an air-bladder, and have numerous rays. The more typical species appear to be confined to the northern hemisphere.

The genus Salmo, as at present restricted, contains those species, such as the salmon and trout, in which the upper boundary of the mouth is formed chiefly by the superior maxillary bones, the intermaxillaries being small, confined to the fore-part, and situated between the maxillaries; usually these latter bones descend in front of the superior maxillaries, and form the upper boundary of the mouth. The maxillary bones, intermaxillaries, palatines, vomer, and even the tongue, are furnished with teeth; the branchiostegous rays are about ten in number; the natatory bladder, or air-bladder, extends the whole length of the abdomen.

Numerous species of this genus are found in the seas of the northern hemisphere, but are furnished with the common salmon (Salmo salar, Lin.), a fish too well known both in flavour and appearance to require any particular description. This fish, Cuvier states, is found in all the Arctic seas of the ocean. In the spring, Mr. Yarrell observes that fishes ascend the lake in such situations much earlier than others, depending on the time of their arrival into breeding condition. 'Fishes issuing from large lakes afford early salmon, the waters having been purified by deposition in the lakes; those swallowed by melting snows in spring months are later in their season of producing fish, and yield their supply when the lake rivers are beginning to fail.' The causes influencing this,' says Sir William Jardine, 'are almost undecidible; and when they are computed, the influence of the season is shown in the same district, they are of less easy solution. The northern rivers, with little exception, are however the earliest, a fact well known in the London markets; and going still farther north, the range of the season and of spawning may be influenced in a great degree.'

The salmon spawn in the middle of summer. From some further observations in Mr. Yarrell's excellent work, it appears that the temperature of the water has considerable influence.

The number of fishes procured for food increases as the season advances, the salmon appear to ascend only as far as the river is influenced by the tide, advancing with the flood, and generally retiring with the ebb, if their progress be not stopped by the various impediments. It is observed that female fishes ascend before the males; and the young fish of the year, called grisle till they have spawned once, ascend earlier than those of more adult age. As the season advances, the salmon ascend higher up the river, beyond the influence of the tide; they are observed to be getting full of roe, and more or less out of condition, according to their forward state as breeding fish. Their progress forwards is not easily stayed; they shoot up rapidly with the velocity of arrows, and make wonderful efforts to surmount cascades and waterfalls; and when supplied with food, they ascend with an elevation of eight or ten feet, and, gaining the water above, pursue their course. If they fail in their attempt and fall back into the stream, it is only to remain a short time quiescent, and thus recruit their strength to enable them to make another effort.

'The fish having at length gained the upper and shallow pools of the river, preparatory to the important operation of depositing the spawn in the gravelly beds, its colour will be found to have undergone considerable alteration during the recent efforts to reach the bed of the water. The animals are much checked with orange-coloured stripes, which give it the appearance of the cheek of a Lagurus; the lower jaw elongates, and a cartilaginous projection turns upwards from the point, which, when the jaws are closed, occupies a deep cavity between the two intermaxillary bones of the upper jaw; the body is flushed of the golden orange tinge, and the salmon in this state is called a red-fish. The females are dark in colour, and are as commonly called black-fish; and by these terms both are designated in those local and precautionary regulations intended for the protection and preservation of the breeding fish.'

The process of spawning is thus described in Ellis' Memoir on the Natural History of the Salmon: 'A pair of fish are seen to make a furrow, by working up the gravel with their noses, rather against the stream, as a salmon cannot work with his head down stream, for if he does, he is going into his gills the wrong way, drowns him. When the furrow is made, the male and female retire to a little distance, one to the one side and the other to the other side of the furrow; then they throw themselves on their sides, again come together, and hold on to one another, and thus they bring their spawn into the furrow at the same time. This process is not completed at once; it requires from eight to twelve days for them to lay all their spawn, and when they have done they take themselves to the pools to recruit themselves. Three pairs have been seen on the spawning bed at the same time, and even closely watched while making the furrow and laying the spawn.'

The adult fish having spawned, being out of condition and unfit for food, are considered as unclean fish. They are usually called kalts; the male fish is also called a kipper, the female a baggit. With the floods of the end of winter and the commencement of spring they descend the river from pool to pool, and ultimately gain the sea, when they quickly change their colour, for they are seen in autumn for the same purpose as before, but always remaining for a time in the brackish water of the estuary before making either decided change, obtaining, it has been supposed, its proper animal in the form of animal either external or internal, by each season of change. The same thing is proved in salt water, being destroyed by contact with the fresh, and vice versa.'

It is moreover probable that the constitution of the fish is such as to require a gradual change; that the salmon is considered as affected in passing from the salt into the fresh, is evident from the change of colour which accompanies the difference of the state of the element.

To Mr. John Shaw of Drumlanrig, Dumfriesshire, naturalists are indebted for numerous important and interesting communications, by him. This gentleman has no doubts connected with the natural history of the salmon, and more especially to determine the developments and growth of the salmon-fry. Mr. Shaw's first paper, entitled 'An Account of some Experiments and Observations on the Parr and the Salmon of the Firth of Clyde,' was published in the 'Edinburgh New Philosophical Journal' for July, 1836, vol. xxii. His second paper, in which he gives an account of 'Experiments on the Development and Growth of the Fry of the Salmon from egg to Parr at the Overtoun, near Six Months,' is published in the same work, vol. xxiv., p. 165; and lastly in the 'Transactions of the Royal Society of Edinburgh, vol. xiv., p. 547, the author gives a summary of his preceding papers, and adds the result of further investigations.

The author, who has lived the whole of his life, with the exception of a few seasons, on the banks of streams where salmon are in the habit of depositing their spawn, had long been of opinion that the fish commonly called the parr, and supposed to be a distinct species from the salmon, was the natural produce of the salmon; and in order to satisfy himself of the development of this fish, he caught seven specimens of the parr on the 11th of July, 1833, and placed them in a tank supplied by a stream of wholesome water. There they continued to thrive remarkably well, and were seen catching flies and other insects, or sporting on the surface in perfect health. In the month of April following (1834), they began to assume a different aspect from that which they exhibited when placed in the same tank; and on examining some of them in May, they were found to have assumed the usual appearance of what are called salmon smolts or fry, being of a fine deep blue on the back, with a delicate silvery appearance on the sides and head, almost white. 'A circumstance occurred about the first week of May,' observes the author, 'which it may be proper to mention as illustrative in a manner what may be deemed the migratory instinct of these fishes. They seemed to me at this time to be disposed in number and position of the stream, that some had left altogether out of the pond, and were lying dead at a short distance from the edge.' In March 1832, I again took twelve parrs from the river, of larger size, that is, about six inches long; they then bore the perpendicular bars, and other usual characters of that
The salmon differ from the species of Salmo in having two ranges of teeth in each palatine bone, but there are only a few in front of the vomer: they have eight branchiostegous rays; the ventral fin is on a line with the anterior dorsal. They are taken in the sea, and at the mouths of great rivers. Mr. Yarrell, in the supplement to his volumes on British fishes, describes a new species of the present genus, when he names the Hebridal Smelt (Omerus Hebridenis), a name suggested by the locality in which the specimen was found.

Genus Mallotus, Cuvier.—This genus is founded on a single species, the Salmon Granlundicus of Bloch, a small fish employed as a bait in the cod fisheries: its teeth are dense, like the pike on velvet, in both jaws, as well as the palate and tongue; the branchiostegous rays are eight: number; the scales are thick and covered with minute points; the anterior dorsal and ventrals are situated rather behind the middle of the body; the pectorals are large and rounded, and almost meet beneath.

Genus Thymallus, Cuvier.—Of this genus the Grayling (Thymallus vulgaris) is the type. This fish is common in some of our streams, but is a local species; it differs chiefly from the trout or salmon in having the mouth less deeply cleft, the orifice square, the anterior dorsal very high, and the scales very numerous.

Genus Coregonus, Cuvier.—Here the teeth are very small, and the species are often edentate; the scales are very large, and the first dorsal is not so long as it is high in front. Numerous species of this genus are found in fresh water, and the large Coregonus, or Lake Trout, of Vendace (C. Willughbi, Jardine) afford British examples of the genus. The Gwyniad of Wales, says Mr. Yarrell, was formerly very numerous in Llyn Tegid (Fair Lake) at Bala, until the year 1803, when pike were put into the lake, when they ate the eggs of the fish, and the latter has become very rare. Another very numerous species is the very numerous in Ullswater and other large lakes in Cumberland.

The Vendace was originally described by Sir William Jardine, and is the type of the 'Edinburgh Journal of Natural and Geological Science.' This author considered the fish in question as very closely allied to the Salmon albus of Linnaeus, but the difficulty of determining this point has induced him to apply to it the name of our distinguished naturalist. It is only known to inhabit the lakes in the neighbourhood of Lochmaben in Dumfriesshire.

Genus Argentina, Linnaeus.—But one species (Argentia spp. argenta, Linna.) of this genus is known, an inhabitant of the Red Sea, and the body is horizontally depressed; the tongue is armed, as in the trout, and the ventrals and anal fins, with strong curved teeth; in front of the vomer is a transverse range of little teeth; the branchiostegous rays are six in number; the air-bladder is very thick, and is considered by many to be a very necessary piece of anatomy, as the very substance which is used in colouring artificial pearls.

Genus Cunina, Cuvier.—These are Salmonesidae with the same general form and small mouth, as observed in the Gravines, but differ in the number of the branchiostegous rays.

Genus Anostomus, Cuvier differs chiefly from the last in having the lower jaw turned up in front of the upper one, and gibbous, so that the little mouth appears like a peculiar slit at the end of the muzzle. The species inhabit the rivers of South America.

The genus Gasteropectus of Bloch also has the opening of the mouth directed upwards, but the abdomen is compressed and prominent; the ventrals are very small and far anterior to the origin of the first dorsal; the body is elongated, and in the upper jaw the teeth are sharp and denticulated.

The species of the next genus, Seranax, are remarkable for the very high, and compressed heads, which is furnished with small scales; their teeth are sharp, some of a triangular form, and denticulated; there is often a broad transverse spine in front of the dorsal fin. They inhabit the rivers of South America. To these may be added the Anostomus, of which Andrews, of Liverpool, has described species of numerous genera of the order of Salmonesidae; and Sternoptyctus of Hermann.

SALOMON, JOHANN-PETER, a composer of music, was born at Bonn, in the year 1748, and educated for the profession of the civil law; but...
like many others, having been led away from so dry a pursuit by at least one of the Musæ, he was allowed to indulge his favourite inclination, and soon became celebrated not only for his performance on the violin, but for his knowledge of the harmonic art in all its branches.

When young he entered the service of Prince Henry of Prussia, at Berlin, who soon became much attached to his youthful musician. For this accomplished and amiable prince he composed several French operas. He afterwards accepted appointments at several of the large towns, and in the metropolis, with an abundance of empty praise, but speedily sought the English shores, in hope of obtaining more solid reward, and was not disappointed. Arriving in London, he was imme-diately encumbered with commissions and engagements, and enriched many of the nobility, and his cheerful disposition, superior manners, and good sense soon obtained for him the friendship of those who at first patronised him on account of his professional talents. In 1790 he formed the project of giving a series of subscription-concerts, and carried it into effect, in the most spirited manner, the following year.

These constitute an epoch in musical history, for they led to the production of those twelve grand symphonies by Haydn, known everywhere as 'composed for Salomon's Con-cert-room,' which have, according to some persons, set the standard for imitation, and so exemplified the immutable principles, and embodying all that is beautiful in the class of art to which they belong. A further account of these, and of the concerts, will be found in our biograph­i-cal sketch of Haydn.

The Creation was produced at the Opera-concert-room, at the risk and under the direction of Mr. Salomon. In 1801 he, in conjunction with Dr. Arnold and Madame Mara, opened the Haymarket theatre, during Lent, for the performance of oratorio. This was a splendid experiment for the attainment of benefit on immutable principles, and embodying all that is beautiful in the class of art to which they belong. A further account of these, and of the concerts, will be found in our biograph­i-cal sketch of Haydn.

SALON, a town in the department of Bouches du Rhône in France, on a cross-road from Arles to Aix. A Roman town, a patrimoine site, and an inscription, which has been dug up shows that there was a temple erected in honour of Tiberius Caesar; but the present town appears to have risen under the first Counts of Provence. Salon stands in a plain on one of the branches of the canal of, not only the principal roads to Gospin, but also to various points in the interior.

The townsmen carry on trade in these articles, and in wool, cattle, olive oil, and almonds. There are five fairs in the year. Michael Nostredamus died at Salon, where his son Michael Nostredamus the historian was born.

SALON'I. [Thessalonica.]

SALONE [from the Italian salone and its augmentative salone signifies, in its stricter architectural meaning, a room answering in some respect to the idea of a hall. This is, in large houses, a room of spaciousness, but loftiness also, height being the character of a saloon in like manner as length does to that of a gallery. Thus if the plan be square, the proportions may vary from those of a cube to a cube and a half, or even more in height, but should never be much less than the first-mentioned. Like all others however, this rule admits of exceptions, because a room may be both lofty in itself and in comparison with the others in a building, although its proportions may be strikingly so. It is further usual for a room of this description to be either a perfect square in plan or of some shape that can be inscribed within such figure, that is, cir-cular, octagonal, or octagonal with a central window. But present however the term is not understood in so strictly techn­i-cal sense, but the name of saloon is indiscriminately or ostentatiously bestowed on any unusually large room, be it octagonal, circular, or square. In some cases, however, it would answer better to that of gallery. Except for banquets, the saloon may be considered, in modern residences, what the hall was in the mansions of olden times. Its destination differs from that of drawing-rooms and other apartments of that kind, as serving rather as an approach to and communication between them, and as a room of general rendezvous for the visitors at a house.

SALPA. [SALPACKA.] SALPA'CEA. Lamark places the genus Salpa in his classification of Tunicata (Tuniciers libres, Acetidies) with the following definition: 'Animals disintegrated, either isolated or assembled in groups, without internal communication, and not forming essentially a common mass.' These form his second order of Tunicata, with the title above; and consist of the genera Salpa, Acetida, Bipyram-, bulia, and Mammaria. Pyrosoma is arranged under his second section: 'Animals floating with their common mass in the bosom of the waters,' in his first order (Tuniciers libres ou Botryliques). M. de Blainville (Malacologist) makes the Salpacea the second family of his fourth order Heterobranchia, with the following character:

Body free, or not adherent, more or less cylindrical, with a thick external envelope, which is subarticulated, transparent, pierced with two apertures, which are ordinarily very large and distant, nearly terminal, one incen-trimal; the other excentrical. The branchium, in the form of a narrow band, traverses obliquely the respiratory cavity of the incen-trimal orifice. The mouth of the branchium is divided into two tubes which terminate in the mouth; one of these, the incumbent branchium, contains the incumbent branch (Salpa); a, the aggregate Salpacens (Pyrosoma). (1825.)

Chamisso, in his Memoir on Salpa, had previously (1819) taken, like Lamark, the bilabial aperture for that which corresponds to the mouth; but Cuvier, in his last work, (Voyage dans l'Amérique du Sud, 1836,) perceived the necessity of the organization of these animals, which, according to him, move by making the water enter at the posterior extremity, and ejecting it by the anterior extremity, consequently going backwards; and a third aperture behind (Labium).

The following is Cuvier's description of Salpa; but we should premise that he places this genus in the first family of his Acetales sans couquilles (the second order of his aceta-losean mollusks), and Pyrosoma in the second family Acetalis Aggregis.

The Biphores (Thaliu; Brown; Salpa et Dasyis, Gm.) have, says Cuvier, the mantle and cartilaginous envelope oval or cylindrical, and open at both ends. One of the side of
the anus the aperture is transverse, wide, and furnished with a valvule, which permits the entrance but not the departure of the water; on the side of the mouth it is simply tubular. Muscular bands embrace the mantle and contract the body. The animal moves in making the water enter at the posterior aperture, which has the valvule, and in forcing it to go out by that on the side of the mouth, so that it is always pushed backwards, which caused many naturalists, Chamerio and others, to take the posterior aperture for the true mouth, but it is evident that it has no reason for changing the denominations of these parts because an animal swims on its back (which the Biphores generally do) with the head behind. Thus it was that the organization of the Petro- trachaeum (which always swim with the back downwards, as is the case with an infinity of Gastropods with and without shells) was mistaken. The branchiae form a single tube or riband furnished with regular vessels, placed scarfwise in the middle of the tubular cavity of the mantle, so that the water strikes it incessantly in traversing the cavity. The heart, the viscera, and the liver are knotted into a nucleus (pelotonum) near the mouth and on the side of the back; but the position of the ovary varies. The mantle and its envelope sparkle in the sun with iridescent colours, and are so transparent that one sees through them the anatomy of the animal; in many species they are provided with perforated tubercles. The animal has been sometimes seen to go out of its envelope without appearing to suffer. But one of the most curious phenomena attending the Biphores is that during a long time they remain united together, as if they were in the ovary, and thus swim in long chains, where the individuals are disposed in different orders, but always in the same order in each particular species. M. de Chamisso declares that he has proved a fact still more singular, namely, that bodies of individuals which have thus come forth from a multiple ovary have not a similar one, but produce only isolated individuals differing in form, which in their turn yield ovaries similar to that from which their mother came forth, so that there is alternately a less numerous generation of isolated individuals, and a numerous generation of aggregated individuals. These alternate generations do not resemble each other. It is certain, continues Cuvier, that one observes in some species small individuals adhering to the chain of certain ones by a sort of peculiar sucker, and of a different form from those which contain them. He adds that these animals are found abundantly in the Mediterranean and the warm parts of the ocean, and that they are often endowed with phosphorescence. (Régne Animal.)

M. Rang (1829) adopts the arrangement of M. de Blainville, but as provisional only, remarking that there is the greatest want of information with regard to the Hetero-branchiata, and that it is most difficult to procure. He states that M. de Blainville is right when he says that either the one near the other aperture is the mouth or the anus, for, as Cuvier had demonstrated in his anatomical memoir on the Biphores, the mouth and the anus are very small apertures, hidden in the bottom of a vast canal which forms the envelope of the animal; for the rest M. Rang is of opinion that the term anterior should be applied to the extremity where the nucleus is found, and posterior to its opposite; he had remarked that the animal, which generally receives the water by the posterior aperture, can also take it in by the anterior opening. He admits the division proposed by M. de Blainville, because although it is very true that the Biphores unite either in a linear or radiating direction, he has satisfied himself, after numerous observations, that this disposition only takes place when the animals are young. But it is not the same with Pyrosoma; the animals which form comprises are probably aggregated throughout life. M. Rang arranges the following genera under this family:

Simple Salpeceans.

Genera, Salpa, Cuv.; Timoriensis, Quoy et Gaim.; Monophoros, Quoy et Gaim.; Phylliora, Péron et Lesueur.

Aggregated Salpeceans.

Genus, Pyrosoma, Péron.

The circulation of the Biphores formerly observed by Kuhl and Van Hasselt, and since by MM. Quoy and Gaimard, appears to be very singular. The current is stated to change its direction periodically; and, according to the

* Cuvier, in a note, says, "Some authors state that this tube is placed at the back, and that the water traverses it: a fact of which I have in vain sought to assure myself.

researches of M. Milne Edwards, referred to as inedita in the last edition of Lamarck (1849), the case is the same with all the Tunicata.

Salpa.

M. de Blainville divides the genus into the following sections and subdivisions:—

Species as it were truncated, without any prolongation going beyond the apertures.

A. Recurved species; the two terminal orifices very much approximated; aggregation? Example, Salpa polymorpha, Quoy et Gaim.

Salpa polymorpha.

B. Straight species; the orifices distant and terminal; the carinaligous envelope consisting of three pieces; aggregation linear, oblique, two and two. Example, Salpa ragnata. Length two inches. Locality.—Strait of Banda.

C. Straight species: the orifices distant; the envelope of a single piece, aggregation circular. Example, Salpa spinata. The body is marked with two dorsal lines, one yellow, the other white, and on each side of the belly is a violet line. There is also a variety with interrupted lateral lines. Locality.—The Mediterranean Sea.

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Body pointed at one or both extremities, arising from a prolongation reaching more or less beyond the apertures.

D. A prolongation at the anal extremity only; the aperture of the side very small; aggregation? (Genus Monophoros, Quoy et Gaim.)

Example, Salpa conica, Quoy et Gaim. (Voyage de l'Uranie).

E. A prolongation nearly of the same size at each extremity; mode of aggregation linear, oblique, two and two or three. Example, Prolongation to the left. Example, Salpa fusiformis.

Salpa fusiformis.

2. Prolongation to the right. Example, Salpa Zonaria. Sheath flesh-colour; zone yellow. Locality.—The ocean near Antigua.

Salpa Zonaria.

F. A prolongation at each extremity; the anterior much the longest and vaulted; aggregation? (Genus Timoriensis, Quoy et Gaim.)

Example, Salpa falciformis.
Two protrusions, in the form of horns, at the extremity only; aggregation?

Example, Salpa bicornia.

Locality.—Braits of Sunda.

These protrusions at the posterior extremity; aggregation?

Example, Salpa tricuspisulata.

M. de Blainville adds, that though he has referred, almost without any doubt, Salpa conica and friolidea to this group of animals, he could not not to deal that with two protrusions, one external, not terminal, the other internal and terminal, united among themselves towards their base by means of their external envelope, so as to compose numerous and regular rings, which caused them to form a long fluted cylinder, rough with points externally, hollow and mammillated internally, and open at one extremity only. (Rang.)

Cuvier states that this great cylinder swims in the sea, by means of the combined contractions and dilatations of all the individual animals which compose it. The branchial orifices are pierced near the points, and the anus opens into the interior cavity of the tube. Thus, says Cuvier, one may compare a Pyrosoma to a great number of stars of Botryll (bryozoans), strung one after another, but the whole of which would be moveable.

Mr. George Bennett, in his interesting ‘Wanderings in New South Wales,’ after some valuable remarks on the luminosity of the ocean, proceeds as follows:—On the 8th of June, being then in latitude 30° south, and longitude 21° 5’ west, having fine weather and a fresh south-easterly trade-wind, and the range of the thermometer being from 78° to 84°, late at night the mate of the watch came and called me to witness a very unusual appearance in the water, which he, on first seeing, considered to be breakers. On arriving upon the deck, this was found to be a very broad and extensive sheet of phosphorescence, extending in a direction from east to west as far as the eye could reach; the luminosity was confined to the range of animals in this shoal, for there was no similar light in any other direction. I immediately cast the towing-net over the stern of the ship as we approached nearer the luminous streak, to ascertain the cause of this extraordinary and so limited a phenomenon. The ship soon cleared through the brilliant masses, from which, by the disturbance, strong flashes of light were emitted; and the shoal (judging from the time the vessel had passed through the masses) may have been a mile in breadth; a passage of the vessel through them intensified the light around to a far stronger degree, illuminating the ship. On taking in the towing-net, it was found half filled with Pyrosoma (Atlantica?), which alone with a beautiful pale greenish light, and there were also a few small fish in the net at the same time; after the mass had been passed through, the light was still seen aster out until it became invisible in the distance, and the whole of the ocean then became hidden in darkness as before this took place. The scene was as novel as it was beautiful and interesting, no more so from having been sustained, by capturing the luminous animals, the cause of the phenomenon.

'The second was not exactly similar to the preceding; but though also limited, was curious, as occurring in a high latitude during the winter season. It was on the 19th of August, the weather dark and gloomy, with light breezes from north-north-east, in latitude 40° 30’ south, and longitude 138° 3’ east, being then distant about three hundred and sixty-eight miles from King’s Island (at the western entrance of Bass’s Straits). It was about 8 o’clock p.m., when the ship’s wake was perceived to be luminous, and the illuminations of the same light were also abundant around. As this was unusual, and had not been seen before, and it occasionally also appeared in larger or smaller detached masses giving out a high degree of brilliancy, to ascertain the cause, so unusual in high latitudes during the winter season, I threw the towing-net overboard, and in twenty minutes succeeding in capturing several Pyrosoma (pyrosoma), giving out their usual pale-green light; and it was, no doubt, detached groups of these animals that were the occasion of the light in question. The beautiful light given out by these molarious animals soon subsided (being seen emitted from every part of their bodies), but by moving them about, it could be reproduced for some length of time after. As long as the luminosity of the ocean was visible (which continued most part of the night), a number of Pyrosoma Atlantica, two species of Phyllosoma, an animal apparently allied to Leptoceras, as well as several crustaceous animals, all of which I had before considered as intertropical species, were caught and preserved. At half-past ten p.m. the temperature of the atmosphere on deck was 52°, and that of the water 51°. The luminosity of the sea gradually decreased during the night, and towards morning was no longer seen, nor on any subsequent night.

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In the museum of the Royal College of Surgeons in London (Preparations of Nat. Hist. in spirit) the following species will be found preserved:

Lutaria, MacLeay : compound and floating, having their branchial cavity open at the two extremities.

No. 119. C. Pyrosoma Atlantica. This is well described in the catalogue as remarkable for the beauty and variety of the colors that are reflected when the animal is irritated.

Byphoridae, MacLeay. Aggregated, in their young state, and floating.

Specimens of Salpa are well shown from No. 119 D, to No. 128, both inclusive. Of these 119 D, Salpa Confedera? Forskali; Dugay, Banks; the Chain Dugaya; is thus described.—In March, 1801, these Dugayas were observed in the sea near Cape Finisters; they were very near the surface, and formed chains several yards in length. From being subject to the undulations of the waves, they sometimes appeared to have a serpentine motion. When raised up out of the water, they readily separated. The bodies composing them were exactly similar, and lay parallel to each other; they exhibited a remarkable synchronous contractile movement, repeated about fifteen times in a minute; the action of contraction being rag-d, that of re-
laxation slow and gradual. Their substance was a transparent jelly, enclosed in a very fine capsule: at one extremity was an opaque central spot, which, at the other end, was covered by a film which appears to radiate toward the circumference of the body. (MS. note by John Howship, Esq.)

No. 124 presents a fine specimen of Salpa Tiletii. The carinate gill lamellae cover the stomach and liver. The rhinophores are many carinate gills; others may be observed scattered over different parts of the outer sac.

In 127, Salpa maxima, the outer tunic is laid open, and a part of the stomach. In 128 (Salpa maxima also) the specimen is laid open, and the stomach, oblique intestine, and transverse muscular bands are more completely exposed. (Cat. part iv., fig. 1.)

Mr. Blandine is of opinion that Pyura Molinae forms the passage between the simple and the aggregated Ascidiæans.

SALSETTE, an island in the Indian Ocean, close to the west coast of Hindustan, and included in the British presidency of Bombay and the province of Agra. It is a little to the north of the island of Bombay, with which it is united by a causeway which was constructed in 1803. This causeway is very useful to the natives of Salsette, who bring vegetables, &c., and store it by barter for rice.

Salsette is a enjoying of about 19' 4" to 19' 17' N. lat., and from 72° 50' to 73° 2' E. long., with an average length of about 18 miles, and an average breadth of about 10 miles; its area is more than about 160 square miles.

The island consists for the most part of rocky hills, in some parts of considerable elevation, but covered with underwood to their tops; the jungle in many parts being very thick, while in the valleys there are groves of mangoes and palms, and some fine timber-trees. The tara-palm and coco-nut grow almost spontaneously among the jungle, but some care is bestowed on their cultivation, though little on anything else. There are tigers in the jungle, and great numbers of.OWE in the islands of the island are fertile, and capable of much improvement, but little has been done for it by the British government, with the exception of an excellent road which has been made round it.

Tannah and Gorbunder are the only towns. The latter is little better than a poor village, but Tannah is a neat and flourishing town on the eastern coast of the island, chiefly inhabited by descendants of Portuguese and by Hindus. The Portuguese are Roman Catholics, and have converted a great many of the Hindus, at the same time that they themselves have adopted most of the habits of the Hindus, and have become almost as dark-coloured. There is a small but regular fortress, and a considerable cantonment of British troops at Tannah. A wild race of people inhabit the island, and the soil is thin and rocky. There are three distinct houses, with the Hindus, who inhabit the lower grounds, but bring down their charcoal to particular spots, whence it is carried away by the Hindus, who deposit in its place a settled payment of rice, clothing, iron tools, or other necessaries.

The chief objects of curiosity in Salsette are the temple coves of Kennesw, which resemble those of Ellora, Elephanta, and Carice. [ELORA, ELEPHANTA, POONAR.] They are numerous, but for the most part small, cut in two of the sides of a hill, at different heights, and of various forms. Some of the smaller ones seem as if they had been the residences of monks or hermits. The largest cave is a Buddhist temple, a rectangle about 50 feet long by 20 wide, terminated by a semi-circle. The entrance is formed by a lofty portico, over which, but down the steps of the temple, there is a large octagonal column, with three lions sculptured on the top, seated back to back. A colossal statue of Buddha, with its hands raised in supplication, is on the steps of the temple, at different heights, and of various forms. The plane of the steps, and on the walls of the temple, is decorated with twenty-five standing figures, which seem to represent dancers, nearly naked, but not indecent, are carved on the whole which separates the vestibule from the temple. The temple is entered by a large door, above which are three windows contained in a semicircle. On the six columns of the temple, surmounted by the temple on every side except the entrance. In the centre of the semicircle a mass of rock has been left, cut in the form of a dome, with a sort of spreading coronal on the top like the capital of a column. The ceiling of the cave is a semicircular arch, curiously ornamented with slender ribs of teak-wood, of the same curve as the ceiling, which they seem to support; this however is not the case.

Salsette is supposed to contain about 50,000 inhabitants, who are chiefly occupied in fishing, of whom about 18,000 are of Portuguese origin. The Portuguese occupation passed over the island in the 16th century; but it was taken from them by the Mahrattas in 1714, and conquered from the Mahrattas by the British in 1774.

(Heber's Narrative of a Journey through the Upper Provinces of India in 1824.)

SALSOULA, a genus of plants of the natural family of Chenopodiaceæ, so named from salso, 'salt,' in consequence of many of the species yielding kelp and barilla. The species are chiefly found on the sea-shore in temperate parts of the world, and also in hot parts of the world where there is a great demand for salt water, which is used for the purpose of preserving. The species characterised by having perfect flowers; the perianth free, small, persistent, enveloping the fruit with its base, and crowning it with its enlarged sej stead limb; stamens five; styles two; embryo spiral; herb or small shrub, smooth or pubescent; leaves alternate or opposite, roundish, palmate, sick; flowers axillary and sessile.

S. kali, so named from yielding barilla or kali, that is, alkali, is found on the coasts of Europe, and on many parts of the world, and is one of the species which is used for the purpose of preserving. S. laevigata is a species found on the southeast coast of Spain, where some palms are taken to extend both it and the following species by cultivation, for the purpose of yielding barilla when burnt:—The following species are native of the coast of S.W. Africa.

These barillas are collected and burned, forty or fifty of them in a hole in the ground.

S. sodas is found on the southern coast of Europe, and in the north of Africa.

As we cannot conceive that the species which yields the soda of Alcántar is a new species, and not yet described, which they propose calling S. berit. Other species are described by Forskål as yielding sodas on the coasts of the Red Sea.

S. biddefora. Dr. Roxburgh describes as a native of salt barrens lands near the sea, where it is gathered for fuel only; but as the taste is strongly saline, it would no doubt yield good fossil alkali, and he gave it as his opinion that the plant, with two Indian species of Salicornia, might be made to yield barilla sufficient to make soap and glass for the whole world.

S. indica is another Indian species, growing in summer localities. The green leaves are eaten by the natives.

SALT. See SALT.

SALT TRADE. The principal part of the salt of England is made in the valley of the Weaver in Cheshire. [CHESHIRE, vi., 43.] When the salt duty was repealed in 1824, there were seventy-five works where salt was raised in the Weaver valley, but of this number, six were at Winsford, three at Middlewich, and two at Nantwich, all in Cheshire; two at Shirley Whig in Staffordshire; six at Drudwich in Gloucestershire; and two in Durham. There were at the same time thirty-five works on which salt was made by evaporation, forty-five of which were in Hampshire and the Isle of Wight. In Scotland, at the same time, there were fifteen salt-works, and in all of them salt was made from sea-water. The rock-salt is used to strengthen the brine from salt-springs, from which the salt used for domestic purposes in England, and also a large portion of what is exported, is produced by evaporation. The Cheshire brine-springs are from twenty to forty yards in depth, and are very productive. [Oxford.] The chief works are at Middlewich, and at Nantwich, and are supplied with male and female lions, 43,572 tons for each year. Mr. Porter states (Progress of the Nation, i. 346) that by adding 100,000 tons for the produce of other counties, and for that part of the Cheshire salt which is not sent to Liverpool, 'it is probable that the total production of salt in England will be very nearly ascertained.' It may not therefore be far from the truth to estimate the annual production of salt in England at 300,000 tons. The sources of supply are said to be inexhaustible; and latterly the salt-manufacturers have so far extended their works, that the opening of new markets
would be of the greatest advantage to them. The Staffordshire rock-salt is chiefly exported from Hull, and that of Goole is chiefly exported from the port of Goole. The capital employed in the salt-manufactures is said to be about £1,000,000, and the population engaged in it from 10,000 to 12,000.

A duty of 10s. per bushel was laid on salt in 1799, which in 1805 was increased to 15s. In 1823 this duty was reduced to 8s., and in 1829 the 5th January for the whole of Great Britain was wholly repealed. The charge of collecting a gross revenue of 1,496,387. on salt, in 1821, was 33,879l., or the moderate per centage of 2s. 5s. 3d. Salt used in the fisheries was duty-free, and in 1821 the quantity so used was 2,600,000 lbs. Salt used in the manufacture of gauze, shawls, &c., by bleachers, was also exempt from the duty. A duty of only 5s., which was afterwards reduced to 2s. 6d., was charged on salt used for agricultural purposes. In the years 1820-1, the net amount of revenue which the duty on salt produced averaged 1,224,519l. annually. In the eight years from 1801 to 1808, the average annual consumption of salt was 1,283,739 bushels; from 1810 to 1817 the average consumption 2,068,495 bushels; and from 1827 to 1834 it is computed by Mr. Porter, in the work already quoted (p. 349), at 30,077,752 bushels. The annual consumption of an adult is said to be 16 lbs. During the existence of the duty, the retail price was 4d. per lb.; it is now 3d. The consumption is at present five or six times greater than the duty on salt took from Salton. The manufacture of gauze, shawls, &c., is now used more largely by the poor, and is employed in manufactures and in agriculture to an extent which is only compatible with cheapness. From 1827 to 1830 inclusive, the annual exports of rock and white salt (the former for the use of man, the latter for the use of animals) averaged 9,385,719 bushels; from 1831 to 1834 the exports averaged 9,814,545 bushels each year. The number of bushels exported in 1839 was 11,857,394, equivalent to 293,740 tons (valued at £1) which, it is computed, was 1/30th of the produce of the year. The States of America took 3,519,998 bushels; British North America, 1,668,839; Russia, 1,513,792; Belgium, 1,154,145; Prussia, 1,143,520; Holland, 799,166; Denmark, 593,950; western coast of Africa, 393,574; Germany, 283,242; and to a small extent were furnished with salt from India, including 180,894 bushels to the Isle of Man and the Channel Islands, and 137,252 to our Australian settlements.

The British government in India monopolises both the manufacture and sale of salt, and the exportation of British salt to India is prohibited, and the salters involved in the manufacture and sale of British salt have been made by the salt-manufacturers and ship-owners to obtain admission for British salt into the ports of India at a moderate duty; and the latter especially complained of the disadvantage of not being allowed to take so convenient an article of merchandise as salt; and the price of the finest Cheshire salt is about 3d. or 4d. per bushel; and after paying all charges and freight to Calcutta, at the rate of 20s. per ton, they state that the best salt could be laid down at 9s. 6d. per ton, and that frequently it would be taken out as ballast. The salt monopoly had existed in India long before the swa py the Company commenced; and its modification and abolition are considered only as questions of time. In the years 1839-182-3-4, the gross salt revenue of the three presidencies averaged 2,184,415l. annually, and the net revenue 1,578,623. It is believed that a moderate duty on British salt would yield as large a revenue in the course of a few years, if the monopoly was abolished, while commerce would be benefited by the interchange of goods. The cost of rock salt for British salt; smuggling in salt, which is extensively carried on, would cease; and in place of arbitrary and harsh restrictions, the consumer would obtain a better article at a cheaper rate. (From Select Committee of the House of Commons, Salt, British India, 1846.)

SALT. [PLATA, LA.]

SALTASH. [CORNWALL.]

SALT COATS, a town in Ayrshire, on the coast of the Firth of Clyde, and about 9 miles from Ayr. It is a borough in Arrochar and partly in Stevenston Parish. It was erected into a burg of barony by James V. in 1528, but it appears to have fallen into such decay that in 1661 there were only four houses in the town. Early in the 18th century it began to revive through the exertions of Sir John Cunningham, to whom the town belonged, who opened coals-works in the neighbourhood, erected large salt-pan, and made a harbour capable of admitting vessels of above 200 tons. The parish church of Ardrossan is in Saltcoats: it is a tolerably large building.

Erected nearly seventy years since; there are also the Gaol chapel, a neat building, of Gothic architecture; the town-hall, a moderate-sized building, of two stories, with handsome spire, clock, and bell; and the banking-house of the Ayrshire Banking Company. The population is estimated at about 4000, a considerable number of whom are sailors, colliers, and weavers. There were, in July, 1837, above 2000 persons in the Arrochar side of the town, chiefly kept in work by the Glasgow and Paisley manufactories; they produced gaizes, shawls, trimmings, silks, &c. Many women were employed in sewing and flower-making.

The salt-panes have been injured by the importation of English salt from Lithuania, the manufacture of it under the title of the 'bitter or mother-water of the pans. Some ship-building is carried on. The vessels that trade from the harbour amounted, in November last, to about thirty, of from 20 to 250 tons each: the aggregate tonnage was about 7000 tons, and the number of seamen employed about 150.

The exports are coal, freestone, herrings, and earthenware chiefly to Ireland; and the imports, chiefly from Ireland, are oats, butter, and lime-stone. Some salmon and other fish is also carried near the town, and several boats are yearly sent out to the herring fishery. There is a good market, and a yearly fair, on the 28th Thursday in May.

There is a post-office, and a communication is kept up by coach with Glasgow and Kilmarnock, and by steam-boats, which run direct from Ardrossan to Greenock, with Glasgow, Ayr, and Stranraer. The canal from Glasgow to Johnstone in Renfrewshire, and the connected railway from Ardrossan to Johnstone, at present incomplete, contribute materially to benefit Saltcoats.

A salt-water channel passes from Saltcoats and the Arrochar chapel, there are three dissenting meeting-houses. The parochial school of Ardrossan parish is in the town, and there were, in 1837, a free-school for girls of both parishes, supported by the local inhabitants, and seven private schools. There are a subscription library and a Sabbath-school library; a public reading-room in the town-house; a parochial society for both parishes, for various purposes of religious benevolence; a 'benevolent society; a female benevolent and missionary society, a savings' bank, and several benefit, as they are termed in Scotland, friendly societies.

(See New Statistical Account of Scotland.)

SALT FLEET. [Lancashire.]

SALTILLO. [MEXICO.]

SALT PETRE. [POTASSIUM.]

SALTS. The term salt, originally restricted in its application to common salt, which it still means when used merely by itself, is now applied to a vast number of substances which have in many cases few properties in common.

Common salt is the principal of a class composed of a metal and such bodies as chloride, iodide, bromide, and chloride of lithium, potassium, and fluor-spar, &c., as well as the cyanides, sulphocyanides, and ferrocyanides (though the last three are very differently constituted from the former), included by Berzelius in his class of haloid-salts (from δαλαί, sea-salt, and ḳῶς, form), because in constitution they are analogous to sea-salt. The whole series of the metallic chlorides, iodides, bromides, and fluorides, such as chloride of sodium, iodide of potassium, and flour-spar, &c., as well as the cyanides, sulphocyanides, and ferrocyanides (though the last three are very differently constituted from the former), included by Berzelius in his class of haloid-salts.

It was for many years admitted as an unquestionable fact that common salt was formed from the chemical union of sodium and soda; and hence it was very commonly called muriate of soda. But it has been shown by Davy, that the acid and alkali during their action on each other suffer mutual decomposition; and that while water is formed by the union of the hydrogen of the acid with the oxygen of the alkali, the chlorine of the former and the sodium of the latter unit to form chloride of soda. It has since been proved that this occurs with all what are called hydriodics, when they act on metallic oxides, but not with metallic oxides, and that soda give chloride of sodium and water, hydrogic acid and soda yield iodide of sodium and water, hydrogic acid and sodium give chloride of sodium and water, hydrogic acid and soda yield iodide of soda and water, &c.

While then the hydriodics, by the decomposition which takes place, do not yield soda-salts with the metallic oxides, yet hydro-salts may be formed by saturating these acids with the vegetable alkalis; for example, hydrochloric and hydrogic acids yield respectively hydrochlorate and hydriodate of quina, when made to act upon this base. With
ammonia hydrochloric acid forms the salt called sal-ammoniacum. The mineral ammonium chloride is not amenable to the chlorides, chloride of ammonium being formed by the conversion of the ammonia into ammonium, by the transference of the hydrogen of the hydrochloric acid to the ammonia, which is theoretically supposed to consist of one equivalent of azote and four equivalents of hydrogen, instead of one equivalent of azote and three equivalents of hydrogen, which exist in ammonia.

The Oxy-salts form another numerous and important class of compounds: these are formed when an oxacid is mixed with an alkalic base, as, for example, when sulphuric acid unites with soda, the result being sulphate of soda. The sulphates of potash, lime, magnesia, &c. are similarly constituted; but a question has lately arisen whether these salts are not also analogous to the chlorides, in containing a metal rather than an oxide; thus, instead of supposing that sulphuric acid, composed of one equivalent of sulphur, and three equivalents of oxygen, is combined with soda formed of one equivalent each of sulphur and oxygen, it has been, and with some plausibility, supposed that the oxygen is transferred to the sulphuric acid, forming a compound which has never yet been isolated, consisting of one equivalent of sulphur and four equivalents of oxygen, and that this is combined with sodium. Professor Graham proposes to term this compound and the ones of equal proportions of oxygen and sodium for such compound, while Professor Graham denominates its sulphate-oxide composed of sulphate-oxygen and sodium.

Another class of bodies has been described by Berzelius and is within the description of salts; namely, the sulphur-salts. In this country however they generally are classed together as double sulphurates; thus, according to Berzelius, the well-known copper pyrites, or double sulphurat of iron and copper, is a sulphur-salt. Electro-positive sulphurates form perfect crystals, and sulphurates of electro-positive metals, and therefore correspond to the alkaline bases of those metals; and the electro-negative sulphurates, sulphur-acids, are the sulphurates of the electro-negative metals, and are in proportional opposition to the acids which the same metals form with oxygen. Hence, if the sulphur of a sulphur-salt were replaced by an equivalent quantity of oxygen, an oxysalt would result.

In general properties the various classes of salts, and indeed the individuals of the same class, differ as widely as possible; some are crystallizable, others uncrystallizable; they are colourless, and of various colours; rapid and insipid; soluble and insoluble in water, alcohol, and other menstrua; volatile and fixed in the fire; decomposable or unalterable by heat. The double salts, especially those of potassium and potash, compose each other when brought into contact are called incompatible salts.

Salts have been conveniently, though not quite correctly, divided into the vegetable, earthy, and metallic salts; or, speaking most of the two former belong to the latter, and to be made must be added the ammoniacal salts and the salts of the vegetable alkalies. Again, salts constituted of the same elements may contain one or other in excess; thus soda and various other bases combine with three different portions of carbonic acid. The first is the neutral carbonate, containing one equivalent of acid and of base; the second contains one-half more carbonic acid, and is called the sesqui-carbonate; and the third contains twice as much carbonic acid as the first, and is the bicarbonate.

Super-salts are such as contain an excess of chlorine or of acids, and sub-salts such as contain excess of base. Dr. Thomson has proposed, and it is very conveniently adopted in practice, the description of excess of acid in the super-salt by Latin terms, and that of excess of base in all bases of the Latin and Greek: thus while a compound of two equivalents of chlorine and one of a base, or of an acid and base, is called a bicloride or bi-sulphate, as the case may be; a compound containing one equivalent of chlorine or acid to two of base, is termed a di-chloride, &c.

SALUZZO, a province of the Sardinian states, is bounded on the north by the provinces of Pignerol and Turin, east by the provinces of Alba and Montferrat, south by the provinces of Asti and Biella, and west by the provinces of the Conti and Maritime Alps, which divides it from France. The western part of the province stretches along the eastern slope of the Alps, forming several transverse valleys, through which flow the Po, the Vaira, the Maira, and some minor streams, all of which at first run eastwards, but after emerging from the highlands, turn to the north and flow through a wide and almost level plain, partially bounded on the north by the oak forests of the Alps and the hills of Monferrato, where they all join the Po above the town of Carignano. [Po, Basin of] The plain, which belongs partly to the province of Saluzzo and partly to those of Alba and Turin, abounds in corn, vasts, fruit, hemp, and other manufactures, being irrigated by canals. The rearing of silkworms is also a considerable branch of industry. The mountains are covered with chestnut trees, which supply food to a great part of the peasantry. The population of the province of Saluzzo amounts to about 25,000 souls.

The principal towns are,—1. Saluzzo, a bishop's see and a considerable town, built on the slopes of a hill which is one of the lowest projections of the group of Mount Vesuvius, it has an old castle, once the residence of the marquises of Saluzzo, a sovereign house of the middle ages and a cathedral, several other fine churches, a royal college, an hospital, and about 10,000 inhabitants, who carry on a considerable trade in the products of the soil, and have also manufactures of silk, leather, &c. 2. Verriga, a town of 15,000 inhabitants, 10 miles east of Saluzzo, as the banks of the Maira, on the road from Turin to Genoa, and in the middle of the fine plain above mentioned. It is a fine market-place, a collegiate church. There is a small market-place, and a native of the place, two hospitals, and manufactories of silk, cloth, and linen. Many of the provincial nobility and landed proprietors have their residence at Verriga. 3. Arcigna, six miles north of Savigliano, a town of about 2500 inhabitants, on the garden of Piedmont, is just above the confluence of the river Po and the Maira; it has a handsome county residence of the princes of Carignano. 4. Dronero, in the valley of the Maira, a busy town on the mountain-road leading from the Po to Pinerolo, it is a pleasant, healthy small town which gives the title of count to a distinguished family of Piedmont. 5. Barga, in the upper valley of the Po, a town with 7000 inhabitants.

(Berger's Geographical Dictionary, et Statistique de la Haute Italie.)

SALVADOR, SAN, the capital of the state of Salvador, and until lately the seat of the federal government of the United States of Central America, is situated in 13° 40' N. lat. and 60° 15' W. long. The town is built on an undulating ground, in a kind of valley, surrounded by high hills covered with woods, among which, in a north-eastern direction, and at a distance of about nine or ten miles, is the volcano of S. Salvador, which at different periods has caused great destruction of property. The river, which runs through the city, rises about seven miles south of the town, flows in the south of it, and falls into the river Lempa. It is sup- posed that the site of the town is more than 2000 feet above the level of the sea. Accordingly it enjoys a temperate climate, which, however, is influenced by the position of sugar, the plantations of which alternate in the vicinity of the town with extensive orchards. The town itself is laid out with considerable regularity, the streets crossing each other at right angles, except in the suburb where this plan has not been strictly adhered to. The pavement is very bad. The houses are low, consisting mostly of a ground-floor. In the centre of the city is a plaza, or square, three sides of which are lined with shops, with porches before them, supported by columns in the middle of them. On the fourth side is the cathedral, an edifice which has no great claims to architectural beauty. The population is about 18,000. There are some manufacturing of iron, especially of cutlery, and the streets made here are highly finished. The most characteristic cotton-stuffs are also made here. The number of white families is not great, and the mestizos, or ladinos, as they are called here, constitute the bulk of the population. The commerce is not great. Some sugar and indigo are sent to Puerto Cortez, and with it the produce of the province; the advantage of having natural baths of every degree of temperature. (Juarros, History of the Kingdom of Guatemala; Hall, Retz, near Guatemala; Hall's Central America, and Montgomery's Narrative of a Journey to Guatemala.)

SALVADOR, SAN, DE BAYAMO, is a town in the
island of Cuba, in the eastern Intendencia, in 29° 40' N. lat. and 76° 35' W. long. It is built in a hilly country, which supplies excellent pasture for cattle, and contains some plantations of sugar and coffee. The population amounts to 75,000, among whom, the negroes amount to 15,000 and 320 free people of colour. The produce of the country is brought to this town from a considerable distance, and hence sent to the harbour of Mananzillo, where it is shipped.

Humboldt's *Voyage aux Régions Equinoxiales du Nouveau Monde*, 2011, Salvador, San de Bahia', commonly called Bahia, a city of Brazil, the most commercial town in South America, and also the largest and most populous, next to Rio de Janeiro, is situated in 13° 9' lat. and 36° 6' W. long. It is bounded on the south by the bay which leads from the Atlantic to the Bahia de Todos Santos, or All Saints' Bay, and this strait constitutes its harbour.

The Bahia de Todos Santos extends, from south to north, about 33 miles, from Cape S. Antonio to the mouth of the river Sergipe, and is about 28 miles across in the widest part. Its opening is to the south, and in this opening there is an island, called Itaparica, which is about 23 miles long, and 9 miles broad. It is wooded and collected by this island, the western, called Barra Falsa, which is only two miles wide at the narrowest part, has some shoals, especially at its southern extremity, which prevent even vessels of moderate size from entering the bay. The last-mentioned island and the mouth of the river Sergipe and Paraguassú, the two largest rivers which fall into the bay. By these shoals the greatest part of the bay is rendered unfit for receiving large vessels, but there is water enough on them for the country vessels, which bring the produce of Recôncavo (Bahia) to the town of S. Salvador. The common anchorage begins at the distance of from three to four miles from Cape S. Antonio, the most southern point of the peninsula which separates the bay from the Atlantic. Where the bay is broadest and the tides most rapid is called the Port of the Sea, and the marine is called the Port of the Sea. It is an anchorage of great advantage, being on a considerable space along the eastern extremity of the suburbs of the town, from the pavilion of which the whole bay, with its green island, and the Atlantic Ocean, can be seen. The islets are planted with rows of trees introduced from Europe and the East Indies, and the intermediate spaces are embellished with various parts of Brazil, Southern Europe, and Southern Asia. Contiguous to the Passado Publico is the Forte de Santo Pelio, the most important fortification of the town, which protects it against attacks on the land side. It existed before the town was taken by the Dutch (1624), but was much enlarged and improved by them; and they intended to make a wide mouth from the fortress to the sea, but this plan has only been executed in part. The Dique, or causeway of the fort, has a considerable space on the eastern extremity of the suburban Barril, between gentle eminences and pleasant bushes and woods. Canoas are frequently seen in the mouth. At the north-eastern extremity of the town is the Forte Barbalho, which defends the great road that leads from the town northward to the interior of the province.

The population of Bahia is stated to exceed 180,000, and is fast increasing. The negroes probably form nearly two-thirds of it, and about one-tenth of the negroes are slaves.

The number of inhabitants belonging to the mixed races is also considerable. It is not easy to determine the number of whites, as many of the inhabitants claim a place among them, though their complexion and features do not support this claim. The negroes and the mixed races form the principal part of the population, and the other population is the principal cause of the outbreaks by which in recent times the peace of the inhabitants has been disturbed.

Bahia contains a college, in which Greek, Latin, mathematics, logic, metaphysics, and rhetoric are taught by eight professors. There are also other schools in which some branches of knowledge are taught by priests who have not taken orders; but they are under the superintendence of the clergy. Persons desiring the required instruction in a seminary under the direction of the archbishop. Those who wish to study the law generally go to Coimbra in Portugal, and the students of medicine to Paris or other parts of Europe.

Rio de Janeiro has great buildings, including a commercial point of view. Rio de Janeiro is separated from the interior provinces by three ranges of high mountains, each consisting of several ridges, all of which have such steep
declivities that it is hardly possible to make roads over them on which carriages can be used. The expenses of transport for heavy goods are therefore very considerable throughout. But from Bahia the country towards the interior does not rise by steep ranges, but by long slopes and wide terraces, and in these parts there are no obstacles to making roads. The state of the country and the vegetation has not been very different from what it is felt, but these advantages are so obvious, that the cotton of Minas Geraes and of Goayz is already brought to Bahia, even from places which are nearer to Rio Janeiro than to Bahia. Three roads lead from Bahia to the interior. The most northern leads to the province of Tapajus, traversing Cacoelita, Jacobina, or Villa Nova de Rainha, and Joaizeiro; the last-mentioned town stands on the banks of the Rio de Santo Francisco. The central road goes to Goayz, stopping at Canto, and passing through the towns of Cinceira and Villa do Rio de Contas and Cayetane on the banks of the Rio de Santo Francisco, whence it passes into the southern districts of Goayz. The most southern road begins at Jaguaquere, opposite the island of Ilapar, and passes thence in a south-western direction to Conquista and Rio Parlo, whence it traverses the Serra do Gram Mogul, and enters that portion of Minas Geraes which is called Minas Novas, where the cultivation of cotton is rapidly increasing. Many roads from the towns in the interior of Brazil reach the places of consumption, and the produce of the country is brought to market. But only a very small portion of the goods exported from Bahia is brought to the place of embarkation from the interior. By far the larger part is collected in the Reconcavo [BAHIA, vol. iii., 279]; but considerable additions are also made to the exports from the countries north of the Cape de Santo Antonio, as far as the mouth of the Rio de Santo Francisco, and even the town of Maceso in Alagoas.

The provinces of Sergipe and Alagoas, having no harbours which admit large vessels, send their sugar and cotton to Bahia. The coast south of Bahia, as far as Porto Seguro, has also no harbours for large vessels, with the exception of the port of Porto Seguro, which is very much frequented by the vessels of the coasting trade. By far the most of the goods which are consumed in the interior of Brazil reach the places of consumption, and the produce of the country is brought to market. But only a very small portion of the goods exported from Bahia is brought to the place of embarkation from the interior. By far the larger part is collected in the Reconcavo [BAHIA, vol. iii., 279]; but considerable additions are also made to the exports from the countries north of the Cape de Santo Antonio, as far as the mouth of the Rio de Santo Francisco, and even the town of Maceso in Alagoas. The largest articles are sugar and cotton. The production of sugar has rapidly increased. In 1807 it amounted to 23,000 cases, and in the following year to 20,000. In the eight years from 1807 to 1815, the exportation of the sugar class of goods was estimated at 50,000 cases, and last year (1840) the exportation of this article alone was between 60,000 and 70,000 cases. Each case weighs about 1200 lbs. Thus the present exportation of sugar is between 72 and 84 millions of pounds. The largest quantity, about 36,000 cases, goes to Germany, 22,000 cases through Hamburg, and 14,000 cases through Trieste, and between 12,000 and 15,000 cases go to Lisbon and Oporto. Smaller quantities are taken to France, Italy, and other countries of Europe. The most important article, next to sugar is cotton, of which more than 50,000 bales are exported, nearly the whole of which goes to Liverpool; a small quantity goes to Bordeaux. The tobacco, amounting to between 1000 and 1500 tons, goes mostly to Port-

tugal, the Mediterranean, Hamburg, and the United States of North America. Rice, about 100,000 arrobas, is only exported to Portugal. Coffee, about 1000 arrobas, is mostly sent to Hamburg. Bahia carriages on an active commerce with the province of Rio Grande do Sul, and with Monte Video and Buenos Ayres; it receives from these places chiefly jerked beef, which is the common food of the sailors, and cattle, and is sent to Rio Janeiro. Tobacco is also sent to Rio Janeiro. The exports are said to amount in value to 20,000,000.

The imports amount nearly to the same sum. Those brought from England consist of different kinds of cottonfabrics, wood-

earthware, iron and steel, wrought and unwrought, hard- 
ware and cutlery, tin, hats, ropes, arms and ammunition, etc. All the manufactures of the United Kingdom are sent to Bahia from the British fisheries in North Ame-

rica. France sends from Nantes and Bordeaux some articles of fashion, furniture, hats, dry fruits, wine, and brandy; from Holland and Belgium are brought, glasses, wigs, gold and silver wares, glass, glassware, porcelain, leather, boots, pitch, potatoes, and some articles of rough furniture, use coarse cottoncloth. From the Cape Verde Islands are im-
ported sulphur, gum-arabic, and salt.

The number of vessels annually entering the harbor of Bahia was in 1840, 654, of which 570 were only about 50 tons, but now they exceed two hundred, and probably two hun-
dred and fifty. Many vessels bound to the East Indian

resort to this place to get water and fresh provisions.

The bay was discovered in 1603 by Christopher Cazaux and received from him the name of Bahia de Todos a Santas. The town was built in 1549 by Thomé de Souza. It was taken by the Dutch in 1624, but in the following year was retaken by the Portuguese. In 1635, the Dutch, under the command of Prince Maurice, were again able to take it. When the independence of Brazil was declared in 1822, the Portuguese general Mador

refused to surrender Bahia, and it was taken by the Brazilian troops, after a long siege, on the 2nd of July, 1822. Bahia has suffered much from insurrections among the slaves, which have left much bloodshed and even to civil war.

(Lindley's Narrative of a Voyage to Brazil; Hendon's History of Brazil; Spix and Martinus, Reise in Bra- 

zu.)

SALVADOR, a genus of plants which has been place in different families, but usually in Chenopodiaceae. It was

attached to Plumbaginaceae, but under the name of Salm- 

sacces. The species are few in number, and found only in the hot countries of the world, from India to Eastern Arabia, and on the coasts of the Mediterranean, whence they extend along the north of Africa, from the Nile to Senegambia. The genus is characterised by having a small leaved calyx; corolla united into a single purple, quadra-

petalous, membranaceous; staminates four, perigynous, connecting the lobes of the coroll; anthers subglobular, two-celled, opening inwards and vertically; ovary free, one-celled; ovule single, straight from the base, anatropous; stigma sessile, undulate at the apex, with a short, short style, and a large globular, toothed stigma. They are mostly on the leaves of the species, which are brown when dry, and the berries are said to be edible.

SALVADORACEAE, a natural order of monocotyle-

dons, comprising only one genus, Salvadoria. It is charac-

terised by possessing a superior ovary, regular flower, single carpel, single style with a simple stigma, and a uni-

celled fruit with a single seed. The position of the genus Salvadoria has always been doubtful: by one author it has been referred to Chenopodiaceae, although it has a mono-
petalous corolla; by others it is referred to Myrtaceae from which it differs in the position of its stamens and the structure of the ovary, and is placed in the natural order of Plumbaginaceae and Plantaginaceae; with the former it agrees in habit, and with the latter in the number of the petals of the flower, its membranaceous corolla, and stamens. It is found in Indian and North African plants, not

eatable fruit.

SALVAGE. [Shipping.]

SALVADOR. [Sauvageard.]

SALVADOR ROSA. [Rosa Salvatka.]

SALVADOR ISLA. A species of Eulophia hughii, a genus of plants belonging to the natural order Lamius or Lamiaceae. It belongs to the Monotropical division of Exogenous plants and is known by its 2-lipped tubular or campanulate caly-

biculate corolla, with the upper lip usually arched; 2 stamens with halved anthers, having a flat dilated connec-

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which is placed vertically with the anther on the upper end. The species of this genus are well known both as ornamental and as liberal dispositions. The early days of spring, the best known and that which is used most frequently in this country is the *Salvia officinalis*, the garden sage. It is a native of various parts of the south of Europe. It is a small shrub, with erect branches, hoary with down, leafe at the base; entire, stalked, oblone, narrow at the base or rounded leaves; nearly simple racemes; many-flowered distinct whors; rampanulate, corolla five or three times as long as the calyx, with a large projecting tube reched inside, the lips erect, the upper lip straight, the lateral lobes of the lower one reflexed. This plant is much used in cookery, and is supposed to assist the stomach in digesting fat and sluggish substances. Sage tea is also commended as a stomachic and a gentle stimulant, it is said to promote the infusion of sage-leaves to that of their own teas, and that the Dutch once carried on a profitable trade by carrying sage-leaves to China, and bringing back four times the weight of resale.

*Salvia pomifera*, apple-bearing sage: leaves crenate, hoary, articulated with veins, lanceolate; heart-shaped at the base; calyx 3-lobed, bluish. It is a native of rough open hills in Crete and various parts of the Levant. It is remarkable for its stature, which strongly resembles *Cynips genius*, which produces upon its branches little protuberances similar to gall upon the oak, but much larger. These nodular growths contain an acrid aromatic juice, and on this account are valued by the inhabitants of Crete.

*Salvia sclarea*, common clary: leaves oblong heart-shaped, rugged, villous, doubly crenate; bracteate coloured, conecao, longer than the calyx. This plant is a native of Italy, Thrace, and Thracia, and is one of the longest known of the exotic herbs found in British gardens. It is sometimes used for making wine, which has a taste resembling that of Frontignac, and is remarkable for its narcotic qualities.

*S. splendens*, Indica, formosa, and fulgens are all hand-sooty, but are less efficacious; and from the same causes. All the plants of this genus are raised without much difficulty, and the most tender will live through the winter against a wall, and flower beautifully all summer. *S. chamomarius* of the blue flowers, which is frequently found in gardens, with flowers of an intensely brilliant blue.

*S. pratensis*, meadow clary, and *S. verbenaca*, wild English clary, are natives of Great Britain.

**SALVIATI, IL, FRANCESCO ROSSI,** so called from having been born in the south-east of Italy. *Salviati,* was the son of Michel Anghio Salviati, and was born at Florence in the year 1510. He studied painting first under Andrea del Sarto, and afterwards under Baccio Bandinelli, and was fellow-student with Giorgio Vasari, between whom and him there was a great friendship. They lived together at Rome, and although the superior genius of Salviati prompted him to a higher class of design than that to which Vasari attained, the latter, with a remarkable freedom from jealousies, always distinguished the eminence of his friend. Indeed in his 'Le Vite di più eccelenti Pittori,' he speaks of the work of his fellow-pupil and countryman in the Palazzo Grimaldi at Venice, representing the history of Phycis, as the finest work in Venice. Whilst at Rome Salviati painted the Annunciation and Christ appearing to St. Peter in the Church of La Peca, and he embelished the vault of the chapel of his patron the cardinal with a series of frescoes representing the life of St. John the Baptist; he painted for the Prince Farnese a set of car-

**SALZBURG,** formerly the duchy of Salzburg, is now the circle of Salzburg, or of Salzach, in Upper Austria. It is bounded on the north and north-east by the circle of the Inn, on the east by the circles of the Hausruck and Traun, and on the west by the circles of the Steyr, the Steyr, and the Lillia, and on the west by Tyrol and Bavaria. The area is not above 2800 square miles, since the cession of part of the country to Bavaria, and the population is about 145,000. It is an Alpine country, like Switzerland and North Tyrol, it is covered by the Noric Alps, which form a frontier branch out from the Rhaetian Alps. It may be considered as consisting of one great valley, the valley of the Salza, from its source to the point where it leaves the mountains, and of numerous lateral valleys, which open into it, most of which are traversed by rapid torrents. 'The principal valley, one of the most lovely,' says Hassel, 'that has been formed by nature, and adorned by the industry and magnificence of man, begins in the western corner of the country, runs first to the east, then to the north, and, especially on the right side, along the southern frontier, is enclosed by lofty mountains, the continuation of the central Alpine chain, which passing through Tyrol, to the eastern frontier of Salzburg, forms an almost continuous chain of glaciers, here called Kees, presenting all the varieties of Swiss scenery, defiles, avalanches, cascades, lakes, &c.' Some of these mountains are covered with eternal snow. The chain of calcareous rocks which accompanies the central Alps to the south forms the frontier on the other sides, and its highest points are 8362 feet above the level of the sea. The country is open to the north only where the Salza issues from the mountains, and forms a fruitful plain, which however is marshy in some places. The principal rivers are the Salza, the Traun, and the Steyr. The height of the mountains that called the Zellersee is ten miles long and above two broad. Of the many mineral waters, the hot springs of Gastein are the most celebrated. The cascade of the Krinonler Ache (as it is the name of a mountain torrent in the middle of the country) is the most striking in Austria; the torrent falls in five breaks from the height of above two thousand feet,
forming at last a magnificent arch. There are other very fine cascades. The climate is much more severe than we should expect in a country situated between 46° and 48° N. lat. Even in the neighbourhood of Salzburg, the hills, which are much lower than those of the south, are covered with snow by the end of September, though it does not lie permanently till November. In the south the winter lasts with little intermission, from the beginning of November, and storms and frosts do not cease till the end of June. The heat in the summer is very great in the valleys, and vegetation is rapidly brought forward. Most of the valleys are very fruitful, and produce corn, flax, and hemp. The vineyards cover every part of the mountain-side, and the woolen manufacture is on a large scale.

The middle mountain-region is covered with forests, and the upper with fine Alpine pastures, which afford subsistence to numerous herds of cattle, and to a breed of remarkably strong and large horses. Wild animals become more and more scarce, but there are still chamois, goats, marmots, bustards, and heath-cocks. The corn produced is in general of excellent quality, but not sufficient for the home consumption. The products of the mineral kingdom are gold, silver, copper, iron, lead, cobalt, arsenic, rock candy, marble, saltpetre, salt, sulphur, asbestos, and serpentine. The once celebrated mines of gold and silver now yield little; those of copper, iron, lead, and arsenic are very productive, and the salt-works and marble-quarries are very important, as they supply a large proportion of the country make their own clothing. The inhabitants are a robust race; they are characterised by superstitions prejudices, but also by natural good sense, honesty, and industry, and are much attached to their antient festivals and customs.

Salzburg was formerly governed by archbishops, who possessed very great privileges. In 1802 it was secularised, and, together with Berchtesgaden, Blechstadt, and the greater part of Nassau, assigned to France. The grand-duke of Tuscany, as an inducement for that country, which was taken from him by the treaty of Luneville, in 1801, and erected into the kingdom of Etruria. Ferdinand was an Elector of the German empire. By the treaty of Presburg, in 1805, Salzburg was restored to Austria. Ferdinand, in exchange, received the principality of Würzburg, which had been secularised and given to Bavaria in 1802. By the treaty of Vienna, 1809, Austria ceded Salzburg to Napoleon, who gave it to Bavaria in 1810. After the peace of Paris, in 1814, Salzburg was restored to Austria, and Würzburg to Bavaria, and Ferdinando was reinstated in his Italian dominions. The religion of the majority is the Roman Catholic; formerly the Protestants were numerous, but Count Friesian, prince-archbishop of Salzburg, who is the presiding bishop of Austria, had in 1733, opposed and persecuted them in so cruel a manner, that above 30,000 emigrated to other countries in Germany, especially Prussia, to England, Holland, Russia, Sweden, and Austria, where their industry and skill proved highly beneficial.

In antient times we find Salzburg inhabited by the Celts, who, as dwellers on the Taunus (which is the name they still give in their language to the mountains), were called by the Romans Taunenses. Under the Romans Salzburg belonged to the province of Noricum, and Juvavia was built by Hadrian on the place where Salzburg now stands. The decline of the Roman power led to the ruin of Juvavia, which was plundered and destroyed by the German tribes. The town was nearly a desert when the monk, St. Godehard, or Rupert, arrived there towards the end of the seventh century, under the reign of Theodo II., of the family of the Agilolfings. He built a chapel on an island in the Weller-lake, and preached the doctrines of Christianity to the ignorant inhabitants, who were gradually attracted in considerable numbers. Theodo had a monastery and church built for him, which was dedicated to St. Peter, and was richly endowed with the lands of the district around. In 798, by Pope Leo III., to the archiepiscopal dignity by the consent of the emperor Charlemagne.

Salzburg, the capital of the province, is situated in 47° 0' lat. and 13° 40' E. long., on the banks of the Salza, on which the town is built, and the rivers Wildach and Perband, which joins it on the left and the Capuchines on the right, leaving in many places only a narrow space on the banks, on which are rows of trees, and the houses are built of red marble from the neighbouring quarries, with flat roofs. The magnificence of the archbishop's palace and the city adorned with so many splendid buildings, charmed in the Italian style, that Salzburg was called Little Rome. It is surrounded with walls and bastions, and eight gates, one of which, called the new gate, is a passage cut through the Mühlberge, 300 feet long, 30 feet high, and 24 broad. Salzburg is still the seat of an archbishop and considerable part of the mountain is a forest, which was abolished in 1060, and a lyceum or academy was established on its stead, which has a library of 30,000 volumes, a botanical garden, and a geological museum. The monastery of St. Peter has a library of 40,000 volumes. There are several chapels, a theatre, four hospitals, a lunatic asylum, and many other charitable and useful public institutions.

The cathedral was built in the seventeenth century (1614-1669) by baron Solaro di Como, in the Roman style, with a facade of white marbled, and gold paintings by Sandrart, Remi, and others. St. Peter's church contains the tombs of Haydn and St. Rupert. The fine church of the ancient university was built 1696-1707, in a mixed Greek and Roman style. St. Peter's church contains many paintings of the first church. The church of the Benedictine nuns has some beautiful painted glass windows executed in 1480. The palace called the Winter Residence is a very extensive building ornamented with columns, but destitute of symmetry: it is now used as a hospital. The square is built on the highest point in the city, at the nest fountain in Germany, 45 feet high, made entirely of white marble. On the opposite side of the square is a magnificent palace called the Neubau. The town hall is a splendid building. The stable for 130 horses are accounted the handsomest in Europe. A stream called the Albrechts flows through them; the rakes are of white marble. Two riding schools, one for the summer, and one for the winter, are attached to the seminary collegiate of Schönstatt. There are also many public institutions, for instance some of the 26 churches, that deserves notice. In 1818 Salzburg was visited by a dreadful exhalation, which destroyed the beautiful church of the Holy Trinity, the two palaces of Count Ledorn, the Romanesque chapel, the splendid palace of the archbishops, and the famous residence of the archbishops, and the church of St. Sebastian, with the tomb of Paracelsus, and many other public buildings, with 100 houses. The damage was estimated at above five million florins. The palace of Mr. von Obermayer, the residence of the archbishops, and the shrine of St. Rupert, with the tombs of St. Rupert, the abbots of St. Severin, and the tombs of the Austrian emperors, are of German antiquities, unrivalled in Germany, made by Mr. Rosenberg, on his estate near Salzburg, is now at Munich. The process of Hohenalza, commanding the town, from where there is a most interesting prospect, is now used as a prison. There is in the town one military and three civil hospitals, also an infirmary for incurable patients, several schools, and many other useful and charitable institutions.

Salzburg is rich in Roman antiquities. One of the most remarkable is a Roman bath, now in the court-yard of St. John's Hospital. A very fine mosaic pavement has been discovered here, and a number of marble busts of emperors and other personages, and sculptures, in red marble, a Roman triumphal arch, and a Roman altar, in St. Rupert, in the suburb of Seybach, on the road to Hallein. The city is also rich in sculpture, and is the chief centre of Austrian art and industry. The city is surrounded with walls and towers, and has six gates. It is divided by the Jeste into the old and the new town, and has two suburbs.
Bokchorn and Ferwee. There are six churches, most of them venerable for their antiquity, two hospitals, a gymnasium, extensive and less dependencies, and public parks. The population amounts to 7222. The principal manufactures are of woollens, linen, cotton, gloves, shoes, tobacco-pipes, and needles. There are likewise tanneries, breweries, and distilleries. The inhabitants carry on a considerable trade in cattle, corn, and hemp, and export large quantities of their own manufactures, especially woollen clothes and linen. The whole surrounding country is supplied with shoes from this town.

SAMA'DRA, a genus of plants of the natural family of Sim Cầnaceae, which was named by Gartniere, though the origin of the name is unknown. The genus, though containing but few species, includes Vittmanii of Vali and Niota of Lamarck. The genus is characterised by having asexual flowers, in the female, and also large, more or less pendulous after the calyx. Stamas 8-10. Ovaries 2-seeded, on a short stalk-like gynophore. Styles as many. Fruit of one or more carpels, usually drupaceous. The genus is composed of trees or shrubs, with simple alternate and reticulately-veined leaves. It is a genus that is particularly prized for its fruits, which are used in various culinary dishes.

SAMAR, a Persian dynasty under the khilafil, of which the founder, Ismael, was the first who had the title of Padishah (king). As the Mohammedan possessions increased in extent, the governors of the provinces gradually usurped the power, and the latter part of the dynasty being enfeebled by the jealousy of the form, his father Ismael, a chief who had been for some time rising into a power, of which the first foundation had been laid by his grandfather Sasan. Ismael passed the Oxus into the states of his rival, and prepared to dispute his possessions by arms; but the horse of Arman took the bit in his teeth and carried his rider into the camp of the enemy. His soldiers, left without a commander, fled, and thus a large portion of Persia was added to the dominions of the fortunate conqueror. Ismael endeavoured to comfort his prisoner, a kindness which Arman returned by sending to his captor a list of the places where he had stored his treasures. Ismael however refused even to look at this; and his people, not able to bear the heavy losses incurred in the unjust accumulation of these treasures. The ultimate cause of their discovery, say the historians of this dynasty, was as singular as any part of this extraordinary correspondence. The ruby necklace of one of the wives of Ismael was carried off by a bird of prey, who took it for a piece of flesh. Pursued by soldiers with shouts and clashing of arms, he dropped the splendid booty into a well, and in this well were found, after a diligent search, the treasure in question. Ismael was recognised as king by the people, who immediately turned against the Persians and took possession of the city of Susa. The dynastic name of the dynasty was superseded by Mahmoud of Ghizzi, who incorporated his dominions with his own empire, after they had held the greater part of Persia for more than 100 years.

SAMAR [PHILIPPINE P. 86].

SAMARAN [Java, p. 98].

SAMARCAND is a town in Asia, in the khanat of Bokhara, and situated near 40° N. lat. and 66° 40' E. long. It is built not far from the banks of the river Zer-sahan, which is a valuable valley, which extends on both sides of the river and is called El Sogd. The country about the town is traversed by a great number of canals which are used for the irrigation of the fields. The town is mentioned in the history of Alexander the Great, under the name of Maresanda, the capital of the Persian province of Margiana, and seems to have been a flourishing town. (Arrian, Anab., iv. 5.) In the times of the caliphs it acquired some fame as a seat of learning, but it attained its greatest glory in the fourteenth century, as the usual residence of the famous conqueror Timur. Ulugh-Begh, the successor of the great warrior, being of a different disposition, raised the fame of the town (in the fifteenth century) as a seat of learning, by his love of science and especially of astronomy. He ordered those astronomical tables to be made which go under his name. At that period it was a large and splendid town. But the family of Timur was driven from the throne by the late princes of the Uzbek, and the chief removed the royal residence to the town of Bokhara, Samarcand began to decline. We have no account of the present state of the town from an eye-witness. Meyendorff states that it still contains 50,000 inhabitants, that the mosques (schools) and meadows (high schools or colleges) are numerous, and built of white marble, which is got from quarries in the neighbourhood; and that the circumference of the town is about six miles. The tomb of Timur still exists: it is made of Jasper. There are no traces of the observatory of Ulugh-Begh. Burns says that the population is not more than 5000, or at most 10,000, and that gardens and fields occupy the sites where the mosques and streets, formerly stood. Many of the mosques are converted into houses or barns; but still they appear to be some buildings which attest its former splendour. Three of the mosques are perfect, and one of these, which formed the observatory of Ulugh-Begh, is very handsome; another mosque, Sheredah, is also of beautiful architecture. The town of Timur resides on a plain, which is irrigated by walls of which are beautifully ornamented with agate. Both travellers were prevented from going to Samarcand by the jealous policy of the government of Bokhara. There is a species of sycamore that has been supposed that this article was first made there, but probably the invention passed from China to Samarcand.

(Meyendorff's "Voyage d'Orenbourg à Bokhara; Burne's "Travels in Bokhara, &c").

SAMARIA. [PALESTINE].

SAMARITAN CHARACTERS, are the old Hebrew characters, which were disused by the Jews during the Babylonian captivity, but retained by the Samaritans, from which circumstance, and their connexion with the ten tribes of Israel, they are distinguished in the extant copies of the Samaritan Pentateuch, they have obtained their present name. They are nearly the same as the Phoenician characters. [ALPHABET, p. 367; HEBREW.]

SAMARITANS, the inhabitants of Samaria, had taken Samaria and carried the ten tribes of Israel into captivity (721 B.C.), he re-peopled the city of Samaria and the surrounding district, which formed the central part of Palestine [PALESTINE], from Babylon, Cuth, Ava, Hamath, and Sepharvaim; the latter part were not of the nation of the Israelites, were from this period called Samarians, and sometimes Cuthites. Being plagued with lions as a punishment for their idolatry, immediately after their establishment in the land, they asked aid of the king of Assyria, who sent them one of the captive priests of Israel to instruct them in the worship of Jehovah. The result of this was that served Jehovah without renouncing the worship of their own gods. (2 Kings, xviii. 22-41.) When the Jews, returned from the Babylonian captivity, began to build the temple and to lay the foundation of Solomon's temple, the Samaritans requested that they might share in the work, pleading that they had worshipped the God of the Jews ever since their settlement in the land. Upon the refusal of this request, they did all they could to hinder the work, and at last succeeded in causing it to be discontinued till the second year of the reign of the second year of the reign of the John, who obtained Alexander's permission to build a temple to Jehovah on Mount Gerizim, and appointed Manasseh its priest. (Joseph, Antig., xi. 8.) Ptolomeus and John think that Josephus has made a confusion between Darius Nothus
and Darius Codomasanna, and thus placed Sanballat in the reign of the latter; whereas he actually lived in the reign of Artaxerxes, in the days of his great glory, before whom he is mentioned as having a son-in-law, who was a son of the high-priest Joidas, and was expelled from Jerusalem on account of his marriage with Sanballat's daughter. (Neh. xii. 28; comp. Prideaux’s Connections, i. p. 591; John’s Rabbins, vol. ii. p. 126; Wulff’s Biblisches Realwörterbuch, art. ’Nehemias.’) The building of the temple on Gerizim seems to have put a final stop to the remains of idolatry among the Samaritans, but it widened the breach between them and the Jews, and from this time their religion became more and more foreign to the Jewish laws. The Samaritans readily submitted to Alexander, and aided him in the siege of Tyre with seven thousand men. When Alexander marched into Palestine (a.c. 332), the inhabitants of Samaria, one of the chief cities of Samaria, requested exemption from tribute in the Sabattical year, asserting that they were of Hebrew extraction; but when, in answer to the question ‘whether they were Jews,’ they replied that they were not, Alexander promised to consider of their request on his return from Egypt. Thither he took with him the Samaritans who had joined him before Tyre, and gave them lands in the Thebais.

The next year, while Alexander was in Egypt, some Samaritans put to death Andromachus, the Macedonian governor of Samaria, and an other Samaritan became governor of Samaria. The Samaritans, who, not content with permitting them, drove out the inhabitants of Samaria, and planted in it a Macedonian colony. From this period Shechem, or Sichem, was the metropolis of the Samaritans. During the persecution of the Jews, the Samaritans, who still showed kindness to the Jews, and dedicated their temple on Gerizim to Jupiter Hellenus (167 B.C.). John Hyrcanus made war upon them, conquered Sichem, and destroyed the temple of Gerizim; and it has stood, except about two hundred years ago (about 129 B.C.), but the Samaritans still continued their worship on that mountain. (John, iv. 20.) Samaria formed a province of the kingdom of Herod the Great, who rebuilt the city of Samaria, and gave it the name of Sebaste. After A.D. 130 the city was subject to Galilee, and was afterwards united to the Roman province of Syria. The Samaritans are still found in their old country, especially in Nabulous, near Sichem, and also in Egypt; and they have at various times corresponded with learned Europeans.

The religion of the Samaritans, at least after the building of the temple on Gerizim, differed but little from that of the Jews. They received however no part of the Hebrew scriptures except the Pentateuch [Pentateuch, Samaritans], but they did not disavow, and in point of fact, the notions of his office were more correct than those of the Jews. (John, iv.; Horsley’s Sermons, 24-26.) They have been accused by Christian writers of Sadducean tenets. (Josephus, Antiq. xi.; Pflüger’s Connections; John’s Bible.) Samson is a god among them, and schoolboys for making popguns, miniature muskets, &c. They have also been very generally employed for making flutes and rustic pipes. The pith, on account of its Industry and great lightness, is used for making small figures and balls for electrical experiments.

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There is a government magazine for salt and tobacco; and in the environs there are extensive plantations of rhubarb. The town is crossed by the river Ahoe, into which it discharges, in 1618, its only 2116 inhabitants (viz. 478 Christians and 2638 Jews), is stated by Stein in 1818 to have 7140 inhabitants; to Hassel, 1819, 7200; by Hirschelmann, 1834, 11,300; and by Cannabich, 1836, 11,290 inhabitants: we cannot accept for their accuracy.

SAMBRE. [French]

SAMBUCUS (from savus, a musical instrument), its name of a genus of plants belonging to the natural order Caprifoliaceae. It is known by possessing a five- or seven-calyx, which is generally disposed in a ring, five or seven sepals, flat, saucer-like stigmas; a roundish pulpy one-celled berry, barked by the remains of the calyx, with three or four seeds. The species are low deciduous trees inhabiting Eu- rope and North America. The best known is the common or black elder, Sambucus nigra; it is a small tree or large bush; the stem is irregularly, but always oppositely, branched; the young branches are clothed with a smooth grey bark, and filled with a light spongy wood. The leaflets are deep green. In the autumn, usually with an old one; the inoffensiveness is a cyme composed of numerous cream-coloured flowers, with a sweetish but faint and bony smell; fruit a globular purplish-black berry, with red or white stalks. This plant is a native of Europe, the north of Africa, and Asia Minor. It is found in the woods and thick woods of parts of Great Britain, and is generally found near human habitations. Considerable medicinal value has at all times been popularly attributed to this plant, and it is only recently that it has fallen into comparative disuse amongst medical men. The berries, flowers, leaves, and kernels, have all been used in medicine, and expectorant and diaphoretic properties have been attributed to them. In its rural districts of England a wine is made from the berries, which is in great request, and when drunk hot, is an agreeable stimulant. The flowers are employed for making a distilled water, which is frequently used as a refrigerant, and on account of its agreeable odour is introduced into many mix- tures of confectionery. The first year's branches, when dried, are employed for making cordials, and to excite the appetite of schoolboys for making popguns, miniature muskets, &c. They have also been very generally employed for making flutes and rustic pipes. The pith, on account of its Industry and great lightness, is used for making small figures and balls for electrical experiments.

SAMBUBA. [Sambawa.]

SAMBOR, one of the nineteen circles of Austrian Galicia, has an area of 2124 square miles, with 302,000 inhabitants, of whom above 16,000 are Jews. It is bounded on the north-west by the circle of Przemysl, on the north-east by Lemberg and Breszani, on the south-west by Stryc, on the west by Sanok, and on the south by the kingdom of Hungary. The southern half of the circle is mountainous, with rocky soil in the northern half a plain and very fertile. The Dniest and the Stryc are the two principal rivers, both of which rise in the Carpathian Mountains. The circle produces corn, pulse, and timber. Iron is found in some mountains, which supplies some smelting-houses. The salt-springs are of more importance. The breed of cattle is indifferent. The manufactures are unimportant; there are some of linen, hempen, cloth, thread, and wooden utensils. The capital of the circle, situated in 49° 31' N. lat. and 20° 14' E. long, in a beautiful and fertile plain on the banks of the Dniester, 46 miles south-west of Lemberg. It is tolerably well built, and with the suburbs, which are much more considerable than the town itself, has an inhabitants. There are here the civil tribunal for obtaining suits under the Penal Code, a criminal court, a district court for miners, a gymnasium, a high school, and other public institutions. The inhabitants manufacture and bleach linen, especially very fine damask. The making of salt likewise employs numerous hands.
east, in Syria from the south-east, at Mecca from the east, at Baghdad from the west, at Basra from the north-west, and at Surat from the north. These winds are extremely hot, and a considerable quantity of fine sand is generally suspended in the air, which, chimneyed by the wind, rushes over the desert. They affect the human body very powerfully, producing great heatfulness, and sometimes even death. They usually consist of a quick succession of hot and cold gusts of wind; and the difference of the temperature between the extremes is often so marked that twenty degrees of Fahrenheit's thermometer, is probably one of the reasons of their effect on animal bodies being so great. It is also thought that the hot gusts bring a pernicious kind of ardent poison which is generated when they blow. Formerly it was asserted that the hurtful effects of the wind could be avoided by a person throwing himself on the ground with the mouth downward; but modern writers say that the Arabs disapprove of such a proceeding, and perhaps justly, if it is true that the hot air is heavier than the atmosphere. To diminish the effects of the wind, the Arabs cover their faces with the keffeh, a handkerchief which they wear on their heads.

SAMBITES, an ancient confederacy of nations in Central Italy, known in history for its bravery and long struggle against Rome. The Sammites occupied an extensive tract of country on both sides of the central ridge of the Apennines, including the valleys of the Vulturines, Tamarus, and the valleys which they had probably acquired from the Sabines, Tifernus, Trinius, and Fronto, towards the Adriatic, and corresponding to the present provinces of Sannio and Principato Ultra, and parts of Terra di Lavoro, and of Abruzzo Citta, in the kingdom of Naples. To the south-east of them, by the PBeligni and Marrucini, and by the Adriatic, for the Tarentines, who extended along the coast of that sea, formed part of the Samnite confederation, and were also of Sabine origin. On the south side of the Apennines, on the south of the Apennines, on the south of the Campanians, being divided from the latter by the ridges of Tifata and Taburnus, and on the west by Latium Novum and the country of the Marsi. The Sammites were originally a colony of the Sabines, which migrated in remote times probably before the building of Rome, to the banks of the Vulturines and the Tamarus, and thence spread on one side as far as the plains of Apulia, and on the other to those of Campania. They were an agricultural and pastoral people, and as their numbers increased beyond the means of subsistence, they followed the custom of their Sabine ancestors, and sent forth colonies, which were the origin of the Lucanians, who gradually extended as far as the southern extremity of the peninsula. According to Livy (vii. 563), when first appearing in the Tifata, the Sammites of the town of the Tifata, the head town of the Pentri, now Boiano, at the foot of the lofty Mount Matei, near the sources of the Tifernus; it was, according to Livy (iv. 31), an opulent and important town; part of the walls, formed of irregular polygonal stones, still remains. 2. Bersia, now Kernia, on the opposite or western side of the Matei river. 3. Alia, now Alif, south of Alberia, in the valley of the Vulturines. 4. Manzurum, afterwards called Beneventum. [BENEVENT.] 5. Interamnon, the interamnon. 6. The small village of Arpia, on the road from Benevento to Naples. 7. Baelum, in the country of the Hirpinii; its remains are at Mirabella, near Frigento, not far from the sulphurous lake of Ampscusus, in the group of mountains which rises between Basilicata, Apulia, and the two rivers. The summer winds or storms, which sweep, at a distance of about eight feet in the air, are attended with a considerable quantity of fine sand, and occasion considerable destruction. In the mountainous part of the Calore, between Teglia and the villages near the banks of the river Calore. 4. Auffeda, or Alitana, the chief town of the Caraceni, in the valley of the river Sarus or Sorgo, where a village still bears the name of Alitana. 5. Acrudus or Acidumus, in the valley of the river Calore, on the borders of Apulia. 6. Taurasia, on the river Calore, where there are considerable remains, and several sepulchral inscriptions near the modern village of Taurasi. Pyrrhus was here defeated by Curius Dentatus. 11. Compsa, now Conza, in a strong position near one of the sources of the Aufidus or Osanto. 12. Sempronius, in the mountains east of Bovianum. 13. Abellum, now Avelino, in the country of the Frenlani, near the mouth of the modern Laris. 14. Aventino, near the site of the present town of Vasto. 15. Anxanum, the name of which is on a hill near the town of Lanciano; and farther north, 17. Ortona, which has retained its name, and was the chief fortified town of the Frenlani. The whole country of the Sammites was divided into numerous towns or large villages, the names of many of which alone remain, without a trace of their site.

The Sammites attacked at various times as many as eighty thousand of the Roman army. Their chief strength consisted in their infantry. Their government seems to have been a kind of aristocracy, in which the priests exercised a great influence. Livy (x. 38) portrays in a vivid manner the awful religious ceremonies with which they prepared for battle, and the fearful imprecatory denounced against those who should turn their backs on the enemy. In another place (ix. 40) he describes the army of the Sammites as splendidly accoutred, with shields embossed with gold and silver, and shining white and party-coloured tunics; and (x. 46) he speaks of two millions of possessors, such as the copper coin taken from them by the younger Papirius: all which shows that the Sammites were no longer a rustic people, but were acquainted with the arts of luxury, which they had probably acquired from their intercourse with the neighbours of Tarentum and of the coast of Campania. But they never became effeminate and corrupt like the Campanians, and they retained to the last their character of hardihood, perseverance, and devotedness to their country. Each of the nations of Samnite race had its own independent government, its magistrates, and its comitia. The chief magistrate of each nation was styled Meddix Tuteus, an Oscan denomination, as the Sammites appear to have spoken a dialect of the Oscan language, and bore Oscan characters. [Osci.] It was only in cases of urgent necessity, and resistance to a common invader, that the various Samnite states acted in concert, and then only for a time. This looseness and uncertainty of the federal union of the Sammites, if such it may be styled, was one main cause of the ultimate triumph of Rome over them, as well as over the Etruscans and other Italian nations, who were likewise divided into small independent states. Between the years 338 and 333 of Rome, the Sammites attacked the Etruscans, who had settled in the plains of the Osci or Opici about half a century before, and who had founded or colonised Vulturum, to which town the Sammites afterwards gave the name of Capua. (Livy, iv. 37.) B. The mountains which form a barrier between the Sammites and the Romans were incapable of being submitted a Samnite colony to share with them their houses and fields; but on the occasion of a great festival, when the old inhabitants were overcome by sleep after banqueting, they were murdered by the Samnite colonists, who formed a union with the Romans, and thus took the town of Capua, which they called Campania. The Campanians then sent ambassadors to the Roman senate to ask for aid against their formidable enemies, to which the senate objected, that there existed a league between the Romans and the Sammites, and that the Campanians in despair made a solemn surrender, in the name of their countrymen, of their towns and fields, the altars of their gods, and all they possessed of to the Roman people. Upon this the senate sent a commission of three persons, to see the Romans from molesting the Campanians, who were now subjects of Rome. The supreme council of the Sammites absolutely refused compliance, and some of their magistrates came out of the curia or council-hall, and in presence of the Roman
for renewing the war. Pontius bitterly reproached Post-
humius for this despicable subterfuge, and said to the
Senate that if the Romans did not approve of the
pretense, he was ready to lead back the whole army to the
same position which they had occupied previous to their sur-
render. He ordered his lieutenants to release the prisoners, and
gave them permission to go where they pleased. The war was
therefore continued between the forces of Sora and Frigellia, a
Roman colony, and killed all the inhabitants. One of the new
consuls, Papirius Cursor, marched against Luceria, which was
in possession of the Samnites, and in which the six
hundred Roman hostages were detained. After defeating the
forces which came to meet him from the town and obliged the
garrison to pass under the yoke. The war was carried on for several years, generally to
the disadvantage of the Samnites, if we are to believe Livy's
account, until 308 B.C., when the consuls C. Munatius Rufus
and Titurius Sabinus defeated and wounded, in consequence of which Pap-
irius Cursor was named dictator, and he defeated the Sam-
nites. But notwithstanding these repeated defeats, and the
evidently exaggerated numbers of the Samnites, who, accord-
ing to Livy, fell or were taken prisoners every year, and by
which the whole country of the Samnites must have become
deserted, we still read of large Samnite armies appearing
again in the field every succeeding year, and not only de-
fending their country, but overrunning Campania, invading the
villages of Apulia, and driving the Etruscans, the Umbri and the Marsi, Peligni and Her-
nici. Wars were carried on in those times in a very
different manner from what they were afterwards, in the
later states of the empire, when the Samnites were defeated and
put to flight by the Romans, and when the legions
year a certain number of citizens, mustered under the
new consuls, went into the field, fought a battle, and if
successful, made an inroad into the enemy's territory, and
after a few months, perhaps weeks, returned home with
their plunder and captives. But in those times, when the
walls of towns stood against these inroads, and the country-people retired
either within them or among the recesses of the mountains
until the invaders were gone, and thus the country remained
unsubdued. This was especially the case in a mountainous country. In such a
sense, the walls, if they have not been practicable to send out colonies, as in a con-
quered country, and in fact we find that even the colonies
which the Romans placed in the countries of the Volsini,
Ausones, Campanians, and Hernici, near the borders of Sam-
nium, such as Sora, Fregellia, Satricum, &c., were
reasonably taken by the Samnites or revolted against Rome, the or-
iginal inhabitants rising against the Roman colonists and
joining the Samnites. [Cognus.] But at last the strong-
hold, Curno, they began to fear, and Satricum,
Saticula, Allif or, were taken one after the other, and the
Samnite army, being defeated in the field by the consuls
Postumius Megellius, after an obstinate combat, in which his
colleague Minucius Augurinus was killed, and the Samnite
generals Valerius and Metalus, was so completely destroyed
as to be reduced to peace, in the year 303 B.C. The senate sent
the consul Sempronius Sophus with troops to Samnium to
examine the real disposition of the people, and the Sam-
nites having received the Roman soldiers in a friendly
manner and supplied them with all necessaries, the senate
granted them peace. [Livy, ix. 45.]

In the year 298 B.C. the Lucanians complained to the
Roman senate that the Samnites had urged them to join
in a new war against Rome, and upon their refusal were
ravaging their borders. The Picentes also sent information
that the Samnites had made to them proposals of alliance
against Rome. The senate sent a message to the Samnites
from abasing the Lucanians, which message being
regarded as an insult to Rome, the Roman army having
joined the Samnites with a large force, in which were
also auxiliaries from Cisalpine Gaul, the Romans
chose for their new consul Q. Fabius Maximus, notwith-
standing the presence of his colleague P. Decius
(Samnium) (297 B.C.) had, in the mean time, the Etruscan cities near Rome having
proposed peace, both consuls were at liberty to march
against Samnium. Fabius by way of Sora, and Decius
through Campania. After ravaging a large tract of country, Fabius led his army back to Rome, and for a long time the Romans could make no impression
on the enemy's ranks; but at last Fabius having sent the
hastati of the first legion round a mountain to attack
the Samnites in the rear, the latter, thinking that the other
consul with his army had arrived, made a precipitate retreat,
leaving 3040 killed on the field and 330 prisoners; but
the number, observes Livy, for such a victory. Decius
having become ill, went to Campania to take the
Samnites, the two consular armies spread through
Samnium which they ravaged for five months, during
which time Decius removed his camp to forty-five different
stations, and Fabius to no less than eighty-six, leaving everyv-
"
messenger ordered the prefects of the cohorts to proceed without delay to devastate the Campanian territory. Upon hearing this, the senate sent the fleets to declare war against the Samnites. Two armies were ordered out, one, under the consuls M. Valerius Corvus, into Campania, and the other, under A. Cornelius Cento, into Campania. Valerius, with about 15,000 legions, the Samnites abandoned their camp in the night. The Romans acknowledged that they never before met such long-headed enemies. The other consul having entered the confines of Samnium by the roads of the hills. The Romans, under their general surrounded by the Samnites, who were posted on the heights. A legionary tribe named Decius Mus, by its intrepidity and quickness in marching up to a height yet unoccupied by the enemy, was the means of extricating the Romans. The Samnites spent the night in the woods. A third battle took place near Suesoels, in the plain of Campania, in which the Samnites were again defeated. The two consuls re-entered Rome in triumph. In the following year, for sole melos, which broke out in the Roman army, and which was with difficulty quelled by the dictator Valerius Corvus, prevented any active operations in the field. In the subsequent year, the consuls L. Aemilius Mamertinus, entered the country of the Samnites, who sued for peace. There were no differences between the Samnites on one side, and the Sidicini, Latinis, and Campanians on the other, which led to the final war between the Latinis themselves and the Romans, and the total subjection of the former. In this last war the Samnites were defeated. In the year 332 B.C. a new war broke out with the Samnites, on the occasion of the Romans besieging the Greek town of Palaopsich, which was garrisoned by a party of Samnites, but which the Romans took by a secret understanding with the inhabitants. The Samnites were joined by the Lucanians. L. Papirius Cursor being appointed dictator to carry on the war, his master of the horse, Q. Fabius Maximus Rullianus, attacked the Samnites in his absence, and after a short engagement killed this brave soldier of discipline he was condemned to death by the dictator, and only saved by the interference of the soldiers and of the people of Rome. Papirius himself defeated the Samnites, who asked for and obtained one year's truce. But before the expiration of the truce, the Samnites having again attacked the Roman territory, the dictator, A. Cornelius Arvina, with M. Fabius Ambustus, his master of the horse, was sent against them. The Roman army, being surprised, could not be concluded an alliance, and then ordered his own cavalry, which he had kept in reserve, to fall upon the enemy's horse, which were cut to pieces. The Roman cavalry then returning, attacked the Samnite infantry in the rear, while the Roman legionaries pressed them in front with renewed ardour. At last the Samnites gave way, and the defeat was complete. Their general was among the killed. This disaster disheartened the Samnites, who exclaimed that this was a consequence of their having broken the truce, so that the wrath of the gods ought to be appeased. Accordingly the magistrates decreed that Brutulus Papius, one of the chief men in the country, who had instigated the renewal of the war, should be given up to the Romans. He was the prisoner, with his brother and the Roman prisoners who were in the hands of the Samnites. But Brutulus killed himself, and his body was sent to Rome, together with the prisoners. The Roman senate declined taking the property of Brutulus, and also refused to grant peace to the Samnites. (Livy, viii. 28, 39.)

In the following year, 321 B.C. the Samnites having made great preparations for war, gave the command of their forces to Caius Pontius, son of Herennius, an experienced officer, who had already served against the Samnites, and who was posted as the guard between Mount Taburnus and an offset of the Tifata river, through which flows the small river Isleurus, an affluent of the Vulturius. This was the direct road for the Roman army, which was posted to be followed by the consul. [Benvenuto.] Pontius sent emissaries, disguised as shepherds, towards the Roman outposts, who, being seized and questioned said that the Samnite forces were then encamped in besieging Luceria, a town of Apulia, which was an alliance with Rome. The consul T. Varro Calvus and Sp. Posthumius, after some consultation, resolved to march to the assistance of Luceria by the most direct way, which was across the Vulturius, at the confluence of the Isleurus, and then through the defile towards Maurocentum. Advancing through a narrow defile, they came to a precipice between the mountains, and farther on to another narrow defile, which they found barricaded with trunks of trees and pieces of rock, and looking up they saw the Samnites posted on the heights and prepared for battle. The consul ordered this spot of rock, and recrossing the little valley, but they found the other narrow pass, leading to the banks of the Vulturius, also barricaded and defended. The consul then ordered the army to encamp in the plain and to fortify themselves. The Senate and state of disarrayed and returned to Rome. The Samnites held council concerning what was to be done with the Roman soldiers when they surrendered. They sent to consult Herennius, the father of their general, an old man, retired from active life, who had a great reputation for wisdom. His answer was, to open a passage for the Romans and let them retire without molestation. This appeared absurd to the Samnite officers, who sent a second message to Herennius, who then said that they should put up with no less than 1,000 men. The Romans took the advice of Herennius, who was brought in a cart to the camp, and appearing in the military council, explained his meaning:—"If you follow my first advice," said he, "your generosity will win you the affection of the Romans and friendship of the consul, and it is probable, that, you then must destroy the Roman army, by which means you will render Rome unable to annoy you for a long time to come." But," said his son, and others with him, "supposing we take a middle course, and dismiss the Romans after imposing upon them those conditions which best a conquered army? By this means you neither make friends nor get rid of enemies; you spare those who will never forgive you for their own humiliation, and who will only be a danger to you in the future. The advice of Herennius was rejected. The Romans, after attempting to break through the surrounding enemy, and feeling the want of provisions, sent messengers to ask for honourable conditions. Pontius told them that they must consider themselves prisoners, and that they must give up their arms and file off, under a yoke or gallows, in presence of the whole Samnite army, after which they would be allowed to return home; that at the same time peace would be granted to the two nations on equal terms; that the Romans should evacuate the Samnite territory and withdraw the colonies which they had placed on the border, and a treaty of mutual alliance be entered into. The consuls, after much hesitation, replied that they could not agree to these proposals, but that they would enter into an alliance with the Romans, but they and all the officers, submitting to the conditions of peace dictated by Pontius, they and the legions becoming personally guaranteed in their person for their fulfillment, besides leaving six hundred hostages in the hands of the Samnites. Then came the ceremony of passing under a yoke one by one, the consuls first, despoiled of their consular robes and other insignia of their rank, then the officers in like manner, and lastly the common soldiers, and amidst the taunts and gibes of the surrounding Samnites, who struck and even killed those of the Romans who showed any resentment for the insult. The spot on which this transaction occurred became known by the name of the 'Lucerne Fork,' from its being in the neighbourhood of Caudium.

When the news of this mishap reached Rome, it produced universal consternation. The conditions of the peace being discussed in the senate, the consul Posthumius proposed to annul the treaty, offering to surrender himself, and the legions who had signed it, to the Samnites. Two of the tribunes of the people contended that this was not sufficient to annul the solemn engagement made with the Samnites, but they went further, and recommended the legions, escorted by a socia, 800 men, were led back to the Samnite camp, with their hands bound, and given up to Pontius, the socia saying that they were guilty of concluding a treaty without authority. Herennius, pretending to be intoxicated, and going on with the socia, and then drawing back, cried out, that as he was now a Samnite, and as such had struck an envoy of Rome, he had thereby afforded a sufficient reason to Rome
Pontius appeared with his hands tied behind his back: after the ceremony, he was beheaded.

In the year 290 B.C., the Samnites, worn out by their repeated defeats, sued for peace, which the Romans, likewise exhausted by their dearly-bought victories, felt disposed to grant. M. Curio, the tribune, being charged with the negotiation, concluded a peace, the conditions of which are not known. (Liv. Epitomae, xi.) ‘Thus,’ says Eutropius (ii. 9), ‘ended the Samnite war, which had lasted forty-nine years, against the most persevering enemy that Rome had ever had on the southern border of Italy.’ The result of this war, or succession of wars, was that the Romans extended their power over South Italy, Campania, and Apulia, and thus became neighbours, and soon after enemies, to the Tarentines. Tarentine was finally attacked on the expedition of Pyrrhus into Italy, and the first war of the Romans with an enemy from beyond the limits of Italy. In the war of Pyrrhus, the Samnites joined that prince, after whose second retreat from Italy and subsequent death they found themselves attacked by two Roman armies, under their old antagonists L. Papirius Cursor the younger and S. Cavilius, who utterly defeated them (272 B.C.). It was then that Samnium became a conquered country, and the Romans established colonies to Mantineum and other points. Plutarch says that Samnium ceased to exist, meaning as an independent state; and those who reckon this as the end of the Samnite war, give it a duration of seventy years, in which however there were considerable interruptions.

In the war of Hannibal the Hirpini joined the Carthaginians against the battle of Cannae, but the Pentri did not. At last, in the Social War, the Samnites having joined the Marsi, Vestini, Peligni, and others in the common league against Rome, were defeated and slaughtered without mercy by Sulla, who exclaimed that Rome could enjoy no repose as long as a number of Samnites could collect together. The devastation of Samnium by Sulla was most effectual; it was razed to the ground; Beneventum alone was spared. The last time the Samnites appear in history is during the war of Sulla against the younger Marius, when Pontus Telesinus, who had joined the latter at the head of 40,000 Samnites and Lucanians, stole a march upon Sulla, who was besieging Praeneste, and advanced within ten stadia of Rome, which was without any adequate defence. Telesinus told his own Samnites that he was the enemy of both Marius and Sulla, and that his object was to destroy Rome and restore freedom to Italy. Sulla however came in time to save the city. A desperate battle ensued; the Samnites defeated the left wing of the Romans, commanded by Sulla himself; but Crassus, who commanded the right wing, having defeated Cato and the officer of the praetor who was opposed to him, fell upon the flank of the Samnites, who were obliged to retire to Antennae, where Telesinus was killed. Between seven and eight thousand Samnites surrendered to Sulla, who marched them to Rome, and shut them up in the Circus Maximus, had them all butchered in cold blood, while he was haranguing the senate in the neighbouring temple of Bellona. The remainder of the Samnites were slaughtered in the same manner at the taking of Praeneste.

SAMOGITIA, now only an historical name, is an extensive tract of the ancient duchy of Lithuania, bounded on the north by Courland and the Baltic, on the west by the Bay of Riga, and on the south and east by Lithuanian Proper. It produces abundance of corn, honey, wax, timber, horses, and game. It now forms part of the Russian government of Wilna. The inhabitants have retained in greater purity than any others the peculiar customs and language of the Lithuanians. The places deserving of notice are, Kiezdan, a colony founded by Prince Radzewill for some Scotch emigrants, where they long flourished; and Polangen, the harbour of which, once of considerable importance, was filled up with earth by the Swedes at the instigation of the merchants of Riga.

SAMOS, an island in the Grecian Archipelago, called by the Turks Sason Adasi, lying between 37° 33' and 37° 46' N. lat., and extending from 26° 36' to 27° 8' E. long., is the site of the ancient city of that name, of about a mile from the promontory of Tragulium, or Cape Santa Maria, which lies between the gulf of Scala Nova and that of Balit.

The word Samos, as we are told by Strabo (viii. 603), means a mountainous height, and therefore may be considered as characterizing the physical features of the island, while the names Dryusa, Anthemus, Melamblyum, or Cyperia, given to it by the Greeks, are descriptive of a fertility and varied produce. Its early history is mixed up with that of Caria and Leleges, and of a subsequent establishment, after the return of the Hermulides, of Lesbians led by Cyrus, and Ionians expelled from Epidaurus under Teucer, who came over to found a colony, consenting to incorporate the new comers as their city. The date of this settlement is probably 988 B.C.

Very soon after the year 776 B.C., the Samians became remarkable for maritime enterprise and commerce. They not only improved the harbours of their islands, but improved also the roads on the coast of Caria, and opened the king of Egypt. Shortly after the invasion of Egypt by Cambyses, Polycrates became engaged in a war with Lacedaemon, in which the Spartans were finally repulsed by the island. His increasing power at length provoked a jealousy of the Persian monarch Darius, whose own Oroetes, allured him by treacherous promises to trust him in his power, and then murdered him. Darius says of Polycrates that he perished in a manner worthy of himself and his high designs, and that none of the tyrants, with the exception of those of Syracuse, ever compared with him in greatness of character. This was consistent with all we read of Polycrates. He seems to have designed to make Samos the mistress of the Aegean, to make Darius and Caria her subjects, and to extend her sway over the Archipelago in such a manner as to provoke the jealousy of the Persian government. He surrounded himself with all the princely luxuries which in those times could procure. Democles, the physician and Athenæon the poet were in his house; he was said to have transported superior breeds of animals to other countries. (Athenæus, lib. xii. p. 540, Can.) A seal was made by Theodorus, a celebrated artist. Of his curious anecdotes of life may be found in the work of Athenæus just quoted. The mole in the harbour of Samos, of which Herodotus speaks, was probably under his directions.

During the war, Samos, enriched by her trade with Egypt and the Mediterranean, and strengthened by the decline of the states on the Asiatic continent, assumed her sovereignty over the Archipelago in such a manner as to provoke the jealousy of the Persian government. The treacherously-wounded Darius was not over-deprived of his guidance, and a prey to civil war was the hand of Darius, who appointed Syloson, the brother of Polycrates, as governor. The resistance of the island was to this measure led Onetes, the Persian general as commander in chief, and Samos was delivered up to Syloson almost unopposed.

Shortly after this, we find the Samians joining a revolt of Ionia, and expelling their tyrant, Asaces, to Lycia. Syloson, the Persian governor, at the head of an immense force at the head of the Lade, but treacherously withdrew from the enterprise, and obtained favour with Darius, to whose empire they again made subject, but were released from it after a battle of Mycale.
The maritime strength of Samos was broken, and their government made democratic by Pericles, B.C. 440, who took the opportunity afforded by a quarrel between this island and Miletus to crush a power which might otherwise have become too strong. The Samians were allowed to retain their city, and the Athenians went on to Sicily, where they were defeated by the Syracusans under Nicias, B.C. 413. For a time the Samians were compelled to submit to Sparta's influence; but they eventually gained their freedom, and were restored to their ancient greatness, B.C. 366. Little mention of Samos is made in the history of the Macedonian Age. Its situation as a naval station made it the prey of the great monarchs then contending against each other, and after forming part of the Egyptian, Macedonian, and Syrian empires, it was finally made subject to Rome, B.C. 84. Samos was afterwards the residence of Marcus Antonius and Cleopatra, B.C. 32, and of Augustus, who gave it its inhabitants a titular freedom. It was reduced by Vespasian to the form of a province, though the memory of its ancient glory was preserved as late as the time of Herodotus, Herodotus, for the inscription Σαμος πατρίς τινος on its coins.

The ancient history of Samos exhibits very strikingly the vices and virtues of the Ionian race. In love of liberty, in commercial and naval activity, in fondness for art, not less than the rest of the Ionians, they met their fate during the Persian War. They threw off the Athenian masters, while no Greek state at so early a period as the time of Polycrates perhaps equalled them in the variety of their mercantile relations and enterprise in navigation. We find them in close alliance with Persia, king of Egypt, who granted them a separate temple at the establishment for Greek merchants at Naucratis, and their trade with Africa must have been carried on not only by the assistance of the Cyrenaeans, but by their set- tlement of Cyrene. Thus they were a threat to the Greek trade. At the time of the battle of Salamis, the Samians were an outpost of Greek civilization cultivated by the army of Cambyses on their invasion of that continent. (Herod., ii. 20.) Closely connected with their trade was the history of the early art of Samos. A school of sculptors, beginning with Ribecue and his sons Theodorus and Telesicles, at a period (according to Pliny, xxxv, 43) long before the expulsion of the Bacchaeans from Corinth, continued till the time of Polycrates. (Müller’s Archæological Researches in Greece, p. 258.) The three works then mentioned by Herodotus, the art of casting in bronze, and of him and his brother the well-known and remarkable anecdote is told, that after their stay in Egypt, they formed a statue, one-half being made in Ephesus by Telesicles, the other at Samos. Herodotus speaks of the seven days’ journey from Samos and Thessalonica. Without entering into the question of the general origin of Greek art, it seems probable from this, that the intercourse between Egypt and Samos had led these two artists to imitate the processes and unchanging proportions of the art of the elder country. The stiffness of the early style was much improved upon by another Theodorus, son of Telesicles, in the time of Polycrates, and the skill of the Samians in working metal had been already shown in the existence of the two statues mentioned, and was one of the causes that led Juno, temple of Juno at Argos, and ornamented with colossal figures and heads in high relief.

In the sister arts of architecture and painting the Samians were also eminent. Ribecue, who has been already mentioned, built the Heraion, or temple of Juno, the largest which Herodotus had ever seen (iii. 60). In this temple was a statue of the goddess by Smilis (an artist said by Pausanias to be a contemporary of Dædalus), of a very ancient date, and may see from its representation on the coins of the island.

Mendacles, a Samian, built the bridge over the Bosphorus for Darius Hystaspes, and also caused a painting to be made of his work and of the monarch passing over it with his attendants.

Notices of Calyphon, Timanthes, and other Samian painters, are collected from Pausanias and other sources by Panouf, 'Res Samiorum,' 53, who also quotes passages to show that the natural genius for design in the islanders showed itself in the improvements introduced by them in ship-building. The coins of Samos are very numerous and worthy of attention. The earliest autonomous coins bear the head of a lion or of a bull; a winged wild boar or a prow of a ship, the head of a griffin, or Jupiter, Juno, Neptune, Juno, and Minerva, are devices represented upon the imperial coins, the series of which extends as far as Caracalla junior; the usual reverse is the anchor figure of Juno, which resembles very much that of Danae, who was the coins of Ephesus; for a more particular description of which see Monnier, Description des Médailles Antiques.

This statue was still standing in the temple in the time of Pausanias.

Polytaeus, who was a native of Samos, is also represented in a sitting attitude on the imperial coins, touching a globe placed on a column with his hand, with the inscription, ΠΗΓΑΘΟΦΗΣ ΚΑΜΙΟΝ. Other types are Meleager attacking the boar, the river Parthenius personified, Nemesis, &c.

After being made a province by Vespasian, Samos was constituted the head of a theme under the Byzantine emperors. It was plundered and taken by the Arabs in the eighth century, and recovered by Leo in the thirteenth. A Turkish chief, Tsachus, seized it for a short time, but was soon deprived of it by Johannes Ducas. It was in the hands of the Venetians, and afterwards of the Genoese; and upon the taking of Constantinople (1453), was ravaged by the Genoese. At the time of Selim II. Szemerkendit, and the Czarks, Brzeczno, Altbas, to colonize the island, as the population had been much reduced by frequent piratical invasions. It has continued ever since under the dominion of the Turks; the inhabitants made an unsuccessful attempt to free themselves during the Greek revolution, in which the archbishop and clergy did not join.

The form of the island of Samos is irregular and indented; the greatest length is from west to east, and the circumference is about eighteen miles. It is separated from the continent of Asia by a narrow strait or bocage about six miles in length, and nowhere more than three in breadth, full of small islands. Through the island in a direction from east to west runs a high mountain called Cyaneanus, which forms the extreme eastern part of Trogliton, and terminating at its western extremity with the height of Kerkis, the Mount Cercus of the ancients, the loftiest point in the island.

Immediately opposite to Cape Santa Maria, between the rivers Meleselenus and Imbrasia, is the port of Tigani, the ancient harbour of the city of Samos, which has an artificial mole built across it from north to south. Herodotus speaks of an immense mole in this harbour, which he considers one of the greatest works of men. A little inlet at the distance of about five miles from Cape Santa Maria is the site of the ancient town of Samos. From the existing ruins Poocke (Travels in the East) gives a ground-plan of it, from which it appears that it was situated on a promontory situated in the bay of Aigina and occupying the south side of Mount Ampelus; the walls, of which there are still remains, are cased with white marble, and have square towers. At about sixty paces interval they enclose a quadrangular space; within them are the ruins of a theatre with the seats, built on the side of a hill. To the west of the city, towards the Imbrasia, are the remains of an aqueduct, which does not seem to be the one mentioned by Herodotus (iii. 69), which was carried through a mountain, and was one of the most worthy of admiration at Samos. Of the great temple of Juno hardly anything remains except a capital and base, engraved in Tournay. (Papage de Levent.) Its dimensions were ascertained by Mr. Bedford, an architect who accompanied Sir William Gell in the second Asiatic mission of the Dilettanti, to be—length 346 feet; breadth 189. It was a decastyle dipterous; had ten columns in front, twenty on the sides, a triple row at the pronaos, and a double row between the antae at the entrance of the cells in front. The columns were about seven feet in diameter at the bottom of the shaft, and about sixty feet high. The intercolumniation of the two fronts was fourteen feet, and was seven feet and a half, and in the flank of the pronaos something still less. There was no appearance of fluting in the columns. The material was the white and bluish-grey marble of the island. (Leake's Asia Minor, 348.) Opposite to the old city, about a mile to the west of it, is the
modern town of Cora, or Myaloi, the largest in the island, containing, in Pococke's time, about twelve small churches and two hundred and fifty houses. On the south side of the city is a large plain called Megalocampus, which has a chief temple, Pothma, on the ruins of which a new temple has been built. The river Imbrarius, on which is the small village of Milly. At the mouth of this river the land juts out to the south, terminating in Cape Colonna, opposite to the small island of Samopoula. To the west of this promontory is the village ofMattania, about four miles from Pococke.

Three miles from this village, opposite to the island of Nicara, and distant from it about twelve miles, is a hermitage called St. George's, with a grotto near it, on the top of Mount Panagia, and Panagia Phaneromena. The summit of this mountain is covered with snow all the year round, and has a lake at the top.

Five miles from Marathorochamps towards the north is the village of Castany. Proceeding along the coast in a north-east direction we come to Calavas, the most considerable town in the island after Cora. The port is a bad one, being much exposed to the north wind. Three miles to the east of this town is Farini, a village, ten miles from which, in a deep bay, is Vathi, a town with a good harbour capable of holding a large fleet. There is a small harbour four miles to the north-east, the mouth of which is well protected by little islands. On the east side of the island is another port, which Tournefort (Voyage du Levant) calls the port of St. Peter. There are a number of steep precipices, a great point in the island. The soil of Samos is very fertile, and produces very good wine, though this was not the case formerly, according to the testimony of the ancients. The muscat grape is much cultivated, and there is good timber on the hills, which have quarries of white marble in abundance.

Samos was formerly celebrated for its pottery, which was made from a particular kind of clay found in the island, supplied with water.

Travellers speak of the abundance of game and wild animals in the island.

The inhabitants, about 15,000 in number, living in eighteen villages, are nearly all Greeks; they are described by Montefiore and Poujoulat (Correspondance d'Orient, 1833) as being wretched in their condition and habits, and of a savage appearance. They are governed by a waivode and cadi; the former has the care of the revenue, and the latter administers justice. There is also a Christian governor, called an aga, chosen by the people. From Pococke's Travels in the East we get the following statement of the amount of the revenue yearly accruing from Samos in his time:—land-tax, 22 purses; barley or poll-tax, 20 purses; average revenue, 42 purses. Samos is the seat of an archbishop, who is also bishop of feara. His lands, with those belonging to the papas or priests, and calivers or monks, are more than half of the whole of the island. The late abbot of the monastery of the great church in Samos may be found in a rare work translated into English, under the following title: 'A Description of the Present State of Samos, Nicara, Patmos, and Mount Athos, by Joseph Georgiotes, archbishop of Samos, London, 1677;' which may be referred to generally for an account of the condition of the island during the seventeenth century.

For further information see Dapper's History of the State, or Reign of Samos, by Tournefort, Voyage du Levant; and Beauvau, Voyage du Levant, Nancy, 1619; in which work a bird's-eye view of the island is given.

SAMOTHRAÇE (Σαμοθράκη), a small island opposite the mouth of the Hebros in Thrace, from which it was 38 miles distant according to Pliny (iv, 22). It was chiefly celebrated for the worship of the Cabiri, which was said to have originated in this island. [Cami.] According to Herodotus (iii. 51), Samothrace was originally inhabited by two nations, whom the ancients learnt the religious mysteries which they solemnized.

In Homer the island is usually called Samos (II, xxiv. 78, 753), or the Thracian Samos (II, xiii. 12), and was said, according to some accounts, to have derived its name from a cave of the same name, or from the name of Samos, a young man of the island of Samos, who settled there (Paus. viii. 4, a. 3; Strabo, x., p. 457); but Strabo, who did not believe this account, derived its name from samos, which meant a height, or from the Suei, whom he supposed to be the ancient inhabitants of the country. Other accounts state that it was originally called Dardania, and that Dardanus, the founder of Troy, passed over from this island to Asia Minor (Strabo, viii., p. 331.)

The Samothracians joined the army of Xerxes when he invaded Greece, and are said to have supplied one of his ships distinguished at the battle of Salamis. (Herod., viii. 90.) In the time of Pliny it was a free state.

Samothrace, according to Pliny, was 32 miles in circumference. It contains a very high mountain, called by Pliny, from which Homer says that Troy could be seen (H. ii., xiii. 12.)

SAMOYEDES, one of the most widely spread nomads of Northern Asia. The tribes of the Samoyedes inhabit the Arctic regions of Northern Asia, the Kamchatka Peninsula, the shores of the Polar Sea, and the other on both sides of the Altai Mountains. Thus there are northern and southern Samoyedes.

The Northern Samoyedes wander about in the country which occupies the western portion of the coast of Siberia. The most eastern point at which they are found is the Gulf of Taimoors, which lies west of the peninsula that terminates in the North-east Cape, the most northern point of Siberia. From this gulf westward they occupy the whole coast to the Ural Mountains and, they are even found west of that range, on both sides of the river Pechora, as far as the banks of the river Mesen. Thus they inhabit the coast of the Polar Sea between 45° and 100° E. long. They are very like the people of the Tunguses in the conformation of their body. They have round, broad, and flat faces, thick lips, a broad and open nose, very little beard, and very coarse hair. They have black eyes, and black hair. They have bare heads and very prominent limbs. They have bare feet and bare arms, but they use leather slippers. They do not milk their cows, nor do they eat their flesh. They live chiefly on the produce of the chase, and the ferocious animal, with which they are furnished, is the rein-deer, which they use for sledge. They also raise a great number of horses. They are all great hunters, and all go armoured, and some are iron clad. They take also several kinds of fur-bearing animals, especially foxes. The sea supplies them with white bears, seals and some other animals, and dead whales are occasionally cast to their shores. From time to time they occupy themselves with fishing in the rivers and lakes, but the chase is their principal employment. They are heathens, and profess the religion called Shamanism. It is stated that the numerous tribes which belong to the Northern Samoyedes contain 70,000 individuals.

The Northern Samoyedes are divided from their southern kinsmen by an immense tract of country, occupied by the Ostiaks, and several tribes that belong to the Tunguses, especially the Teloquaries. The Southern Samoyedes inhabit that part of the Altai Mountains which extends from the sources of the river Yenesei, one of the principal branches of the river Obi (near 89° E. long.), to the south-western extremity of Lake Balkal, or to 105° E. long., where they approach the banks of the river Irtysh. Thus the extreme part of the Samoyedes in this part is the valley between two chains, called Ergih Tagak Taiga, on the north, and the Tungau Obia, on the south [Altai Mountains, vol. p. 395], in which the two principal branches of the Yenesei river, the Ta-Kim and the Kemchay, have their origin. This country is included within the territories of the Chinese empire; and these Samoyedes, called Sarassas, are tributary to the emperor of China, and obliged to a yearly tribute. The whole of this country, which is the home of the Southern Samoyedes, is a very rich country, and inhabited by the herd of rein-deer, which is the most southern region in which that animal is met with in Asia. They use the males as hunting animals, and the females for food. The people here have adopted agriculture, but they eat also the roots and seeds of the small-growing plants. The Soyotes, or Chinese Sarassas, however, inhabit a rich pasture country, and live on the products of their herds, consisting of horses, black rattle, and camels. These Southern Samoyedes exactly resemble their northern
kinisms in the formation of their bodies, except that they have a tolerably thick beard. The different tribes of the Samoyedes speak different dialects of one language, which varies greatly from the languages of all the neighbouring nations, though it contains a considerable number of roots which occur in the languages of some nations of Central Asia.

(Fallas. Reisen durch verschiedene Provinzen des Russischen Reiches; Klaphot, Asia Polyclot; Ritter, Erdkunde von Asien, vol. I.)

SAMPHERE, an herb in much request in some parts of the country as a salad and pickle. The true Sampphere is the Crithmum maritimum, a plant belonging to the natural order Umbelliferae, and not a bulbous plant. It has a long pod, green leaves, and flowers arranged in umbels. It grows on rocks by the sea-side. The species of Salicornia [SALICORNIA] are often called Sampphere, and are used in the same manner, but the latter are very much inferior to the Crithmum as an article of diet.

SAMPPO, river. [BRAMAPOTA.]

SAMSOE, OLE JOHAN, was born on the 2nd of March, 1759, at Nestved, where his father was a person in easy circumstances. At first he was educated at home by a private tutor, but was afterwards sent to the school at Colding, of which Justitirad Thorlacius was then the rector. He proceeded thence to the university of Copenhagen, where he distinguished himself by his superior abilities and attainments, and with the latter he formed some intimate plans with some of his most intimate associates was Rahbek, with whom he set out on a tour through Germany in the summer of 1782. The two friends visited Paris on their return in the autumn of the same year, and Rahbek proposed to him the idea of some decisive plans for the future, for though his father had left him what was at the time a considerable property, it was vested in Indian stock, which had fallen very greatly in the interim, while the expenses of travelling, of which he seems to have afterwards no account of Rahbek's expenses, has made him poor in his finances. At the advice therefore of a friend, he applied for the post of teacher to the royal pages, but did not hold it longer than about five years. His salary however was continued to him as a pension.

In 1793 he was made one of the masters of the Latin school, but resigned that situation in the following spring, his motive for accepting it having been chiefly to make such addition to his income as would enable him to marry a lady to whom he was attached; yet though all preparations had been made, and the day itself fixed, the marriage was broken off by mutual consent, and without breach of good understanding between the parties. Thus released from the duty of providing for a family, Samsoe gave up his other engagements, and devoted himself entirely to literary studies. Among Scandinavian tales, the first of which, 'Fritiof,' had been composed by him while at the university, he commenced a translation of Cicero's 'Offices,' and another of Garve's work on morals. His proficiency in Greek literature, and his admiration of Plutarch, suggested to him the idea of writing a work on ancient history, thrown chiefly into the form of biographies of the most conspicuous personages, connected by succinct narratives of intermediate events. Unfortunately he did not execute or even begin it, for nothing of the kind was discovered among his manuscripts. He now tried his talent in a different walk of literature, where success brings with it more sudden and more brilliant popularity. The enthusiasm with which his tragedy of 'Dyecke,' (founded on the history of the beautiful mistress of Christian II. and her ambitious mother) was received, would doubtless have led him at once to prosecute that career, and indeed the plans of two other dramas on national subjects were found among his papers. But he did not live even to be assured of his triumph, as he died January 24th, 1796, just a week before the first representation of his piece, which took place on the day of his funeral. 'Dyecke' makes an epoch in the annals of the Danish stage: written in prose, and divested of those pompous conventionalities which often serve merely to disguise feebleness, this drama captivates by the intrinsic interest of dialogue and situations, and by its forcible pathos. It is true that criticism has alleged many defects against it; yet if not perfect, it furnished a model which did not previously exist in the language, and as being the only dramatic attempt of the author, it deserves to be estimated by its beauties and its merits. This tragedy and his Tales form the two volumes of his posthumous pieces, edited by his friend Rahbek.

SAMUEL, BOOKS OF, two canonical books of the Old Testament, the first of which contains the history of Israel from the birth of the Prophet Samuel to the death of Saul (a.c. 1171-1055); and the second the history of David's reign for about forty years (a.c. 1055-1017). At this point the history is taken up in the First Book of Kings. The Jews and most Christian writers ascribe a portion of these books to Samuel (who, from the nature of their contents, could not have written the whole), and the remainder to the prophets Gad and Nathan, chiefly on the ground of the following passage in 1 Chron., xxxii. 29: 'Now the acts of David the king, first and last, behold, they are written in the book of Samuel the seer, and in the book of Nathan the prophet, and in the book of Gad the seer.' The first twenty-four chapters of the first book of Samuel, from Samuel's birth nearly to his death, are ascribed to Samuel himself. As to the remainder, it cannot be exactly determined what part was written by Gad, and what part by Nathan; but it is conjectured that Gad, who was very probably a pupil of Samuel, and a companion of David in his wanderings during the life of Saul (1 Sam., xvii. 3), wrote the history of David, from the death of Samuel to his being made king in Hebron (1 Sam., xxx.; 2 Sam., v.), and that the remaining part of the second book was written by Nathan. These three portions then were collected by Ezra when he formed the canon into one book: for in the Jewish canon the two books of Samuel form only one. John, on the contrary, ascribes the books of Samuel and of Kings to the same author, and places their publication about the forty-fourth year of the Babylonian captivity.

In the Septuagint these books are called the first and second books of Kings, or of the Kingdoms. [Kings; Chronicles.]

(The Introductions of John, Eichhorn, Berthold, De Wette, and Horne.)

SAMYDA, a genus of plants of the natural family of Samydem. The genus having all the characters of the family to which it belongs, is distinguished by possessing 10-12 stamens, all of which bear anthers; while the stigma is globose. The species consist of small trees or shrubs, found in the hot parts of America, such as the West Indies, Mexico, and Brazil, with a few doubtful species in the East Indies. The branches are sometimes thorny; the leaves alternate, entire, or serrate, with pellucid dutes and twin stipules; flowers single-flowered, solitary or fascicled with white but sometimes purple flowers.

SAMYDA/CERE, a natural order of apetalous plants, of uncertain station, and placed by De Candolle amongst polypetalous Exogones. They have three, five, or seven se
pals more or less cohering at the base; stamens perigynous, two, three, or four times as numerous as the sepals, with monodelphous filaments; superior one-celled ovary; indistinct ovules attached to pearly placenta; capsules with from two to five valves; numerous seeds fixed to the valves; fleshy albumen and a radicle pointing away from the hilum. The leaves are alternate with stipules, marked with round and linear pulvini dots. The peatmoss flowers and fruit of this order appear first in the Rosaceae, and its great diversity of genera, stems, and alternate stipulate leaves ally it to the Rosaceae. It is entirely an tropical order, composed of small trees or shrubs. The bark and leaves are slightly as-tringent. One of the species, Casearia ulmifolia, is used in Brazil against the bite of snakes, for which purpose the oppo-site the leaves are applied to the wound, and an infusion of them is taken internally.

SAN BLAS, a town on the western coast of Mexico, in the state of Xalisco, formerly the Piratería, and now a free port, is situated on an island formed by two mouths of the Rio Grande de Santiago as it enters the Pacific. It is the seaport of Tepic, and the chief maritime station in Xa-lico. It stands about three-quarters of a mile from the shore, on a very fertile island, rising abruptly one of a low, swampy, wooded plain or savannah, to the height of 150 feet, inaccessible on three sides, and with a surface of about 500 yards each way; within which limits the town is of course confined. From the plain, which is almost level, there is easy under water, and inhabited by cats, which render the town very unhealthy by causing a low fever, besides giving birth to myriads of mosquitoes and sand-flies. During the rainy season, from June to November, the place is perfectly uninhabitable, although the town is perfectly insulated. At this season, all the inhabitants who can afford it, remove not only themselves but most of their property to Tepic, and the population is in a few days reduced from 300 to 150.

At the shore is a village called La Playa, inhabited principally by fishermen and those connected with the arsenal, which, though now in a dilapidated state, was once of great importance. A good ropewalk still remains. A small estuary, the northern branch of the Rio Grande, is a safe boat-harbour and landing-place, but the anchorage in the roads, which is commanded by two batteries, is much exposed to westerly winds. San Blas affords good supplies of meat, fruit, and vegetables, but the climate is very hot in the summer, 92° to 99° in the shade, and 105° to 18° W. long. High- water, full and change, at 9h. 40m.; rise between 6 and 7 feet.

(Captain Hall's South America; Captain Beechey's Voyage to the Pacific; Sailing Directions, &c.)

SAN MARINO, Republic of, is a small territory, consisting chiefly of a steep mountain with its offsets and vales, covering an area of about 27 square miles. It is situated within the papal province of Umbro, and about ten miles from the coast of the Adriatic. The whole population amounts to about 700. The town of San Marino stands on the upper part of the mountain, the summit of which is crowned by a castle with three towers, on which the standard of the papal conclave is raised. The town is built and till low; the streets are steep, and only practicable for mules and donkeys. To square before the town-house is large, and command a fine view of the neighbouring Appennines. The church of San Leonardo is renowned for the descent from the Cross. Outside of the town is il Borgo, a suburb; and at the foot of the mountain are three or four villages, Serravalle, Aguarora, Peglio, &c. The inhabitants have cultivated every slip of ground that can be made use of, and they are at great pains to drive away the rear-silk-worms, the produce of which constitutes an article of trade. They have also some good cattle. They reap corn from the neighbouring Papal State.

The origin of the republic of San Marino is lost: the obscurity of the dark ages. Marinus, a holy hermit from Dalmatia, is said to have retired to this mountain in the fourth century of our era, and after his death the church was raised to his memory, and a village grew up around it. In the year 1350 a town by the name of Pieve Sanitarii cum Castello seems to have governed itself as an independent communi- ty; and we find in the twelfth century that the commune of San Marino purchased some lands from the neighboring counts of Montefelice. During the wars of the Guelphs and Guelfs, the people of San Marino took part of the part of the latter, together with the neighbours of Montefelice, and as such were excommunicated by Innocent IV. Towards the end of the fourteenth century, the peoples, in connection with Rudolph of Habsburg [Papal States], began to re- cestors to the Romagna, to enforce the submission of a pope see over the towns and lords of the country. (The rise, history, &c. of the Papal States, 1300 to 1500, by Edward Gibbon, bishop of Arundel, abbot of Westminster, in 1291, complained that the bishop of Cassena, no other place in Romagna would obey his orders. This report appointed a certain Theodoric, casam of 3.
San Remo has a communal college with about 400 students, several churches and parishes. The church Dell' Assunta, or Delta Costa, is a fine structure ornamented with several columns of alabaster and crowned by a handsome dome. The Palace Bores has a gallery of good paintings. The town being formerly deficient in good water, has been of late years abundantly supplied with it by an aqueduct through the care of its intendente, the Avvocato Nota, well known for his dramatic works.

San Remo dates its origin from the ninth century, having been a fishery, and it is now called the Commune of San Remolte, from the name of a bishop of Genoa who was buried there, and which had been destroyed by the Saracens. In the twelfth century San Remo was an independent community under a nominal allegiance to the German emperors. The guilds of the population, with Genoa and Nizza for the mutual protection of their respective shipping against the Pisans. In 1199 however San Remo placed itself under the allegiance of Genoa, with a reservation of its municipal franchises and immunity from arbitrary taxation. The castle or tower, or tower of the Shibn of the Riviera, last till 1728, when the Genoese have holding ancient duties upon the latter, the people of San Remo took arms and dismissed the magistrates sent by Genoa. But through the mediation of the Prince of Monaco, the former jurisdictions were re-established. In 1743 however, in consequence of fresh dissensions, the Genoese sent an armed force to San Remo, built a castle to overawe the town, and deprived the citizens of most of their privileges. Some time after an anonymous writer published 'Mémoires touchant la Superbe Impériale sur les villes de Gênes et de San Remo,' Raisborh, 1764, in which, referring to the old surnames of the emperors over the whole of the towns of this coast, he said that San Remo could not be bound by allegiance to Genoa, but was merely connected by a convention. The Genoese on their side attempted to prove that they could not be excluded from the Empire.' (Accinelli, Compendio delle Storie di Genova, vol. iii.)

San Remo has produced some learned men, among others Michel Angelo da San Remo, a Orientalist, who lived in the sixteenth century, and Pierre Mambretti, professor of mathematics in the University of Rome, and the author of several valuable works, especially on hydraulics, who died in 1793.

The only other place of any importance in the province is Ventimiglia, the ancient Album Intemenum, a well-built town of 5700 inhabitants, on the sea-coast at the mouth of the Rois, and a bishop's see. The cathedral, a structure of the middle ages, is said to be built on the ruins of a temple of June raised by the consul M. Asinius, after his last victory over the Ligurians. B.C. 167. (Livy, 39, c. 2.) The church of St. Michael is partly built with the remains of a temple dedicated to Castor and Pollux.

The town contains several Roman inscriptions. Father Francesco Aprosius, the historian, philologist and bibliographer of the seventeenth century, bequeathed a considerable library to the Augustine convent in the town, which was plundered of its best works, by the revolutists of Genoa, it is said, during the French invasion in 1797.

In the eleventh century Ventimiglia had its counts, who afterwards became feudatories of the city of Genoa. This relation was confirmed by the diploma of the emperor Frederick II., dated 1166, which granted to the counts of Ventimiglia all the land between the whole Riviers from Monaco to La Spezia, as an imperial fief, saving the rights of the respective counts and marqueses. In the thirteenth century Ventimiglia was a subject of dispute between Genoa and the Anjou counts of Naples. In April, 1794, the French, who had already taken possession of Nizza and Monaco, appeared before Ventimiglia. The Genoese governor, not having the means of resistance, could only protest against this violation of a neutral territory. The French then spread along the Riviers, from whence two years after, they penetrated into the plains of Lombardy.

Between Ventimiglia and San Remo, on a hill above the road, is the village of Perinaldo, the birth-place of the astrologer, the Bishop of Bordeaux, and the Marquis of Maraldi, likewise an astronomer, who died at Paris in 1729.

The province of San Remo has for a long time the extreme boundary of the Genoese territory. It has been also considered, geographically speaking, as the western boundary of Italy on the west. The road from Perinaldo to San Remo, which descends from Tenda, flows along their eastern or Italian base. The country of Nizza, which lies to the west of the mountains, is open on the side of Provence, the Var being rather a conventional than a geographical boundary. In the Antonine Itinerary the boundary between Italy and Gaul is placed at the mountain Corno della Turba, the Val di Valsantafranca and Monaco, upon which a splendid trophy was raised by the senate to Augustus, in commemoration of his having finally subjected all the Alpine tribes, of which an inscription, given by Piny (iv. 20), recorded the names. A fragment of this inscription, with the word 'Valla,' or 'valley, deviccis,' is seen upon a gate leading to the square of S. Giovanni in the village of Turba, as well as fragments of columns and other remains. The following church was built with stones taken from the monument, the massive columns of Augustus, still remained in the seventeenth century, and was used as a castle to defend the pass; but Marshal Villars, in the wars of Louis XIV., blew up the greater part of it.

The remaining part is called by the natives 'Il trofeo di Augusto.'

SAN SEBASTIAN. [Sebastian, S.]

SAN. [Arabia]

SANADON, NOEL-ETIENNE, was born at Rouen, Vol. XX-3 D.
February 16, 1676. Having entered early into the order of Jesus, he became professor of rhetoric first at Caen, and afterwards at Paris. On the death of Père Dusecreau, he was elected to the Pères de Conti, though whose influence he became, in 1728, librarian of the Collège de Louis le Grand, which situation he held till his death, October 22, 1733.

The Père Sanadon was possessed of considerable erudition, and a strong taste for the beauties of music with Huet and most of the other learned men of his time. He is the author of a prose translation of Horace, 'Les Poesies d’Horace,' dispositions suivant l’Ordre chronologique, and traduites en Francais, avec des Remarques et des Dissertations critiques,' Paris, 1729, 12mo., a very elegant edition in 8 vols. 12mo., 1759. This translation is better than that of Dacier, and has smoothed the way for following translators, but it possesses few of the beauties of Horace. Sanadon is the author of 'Avunculorum,' which contains some pleasing imitations of Theocritus, Anacreon, and other Greek poets. He wrote also some Latin lyric poems, 'Carminum Libri Quatuor,' Paris, 1715, 12mo., and translated the 'Pervigilium Veneris,' Paris, 1715, 12mo. The Latin editions have been published separately, of which a detail is given in Moreau’s 'Dictionnaire Historique,' edition of 1759.

SANCERRE, [Cæs.]

SANCERRE, FRANCISCO, commonly called 'El Brocense,' an eminent classical scholar of the sixteenth century, was born at Las Brocas, in the province of Estremadura in Spain, in 1523. He commenced his studies at the university of Valladolid, where he took his degree of bachelor of arts in 1541. Subsequently he continued his studies, having been incorporated in the university, he obtained, in 1554, the chair of rhetoric, and also taught Greek and Latin with the highest reputation. Justus Lipseus, Scopiuss, and other learned scholars of his time speak in the highest terms of his learning and his abilities; and his 'Epistles' 'divine' and 'admirable,' and in one of his letters (Ad Iovem et Hispanum, p. 89) calls him 'Mercurius atque Apollonius.' In 1574 Sanchez took the doctor’s degree. He had already edited Persius, Persius, Ovantes, Virginius Buccheri, and Horace’s 'Art of Poetry.' He now devoted all his leisure to the composition of the work which gained him most reputation, namely, his 'Minerva; seu de Causis Linguae Latinae Commentarius,' which appeared for the first time at Salamanca in 1587, 8vo., and was often reprinted during the sixteenth century, and in more modern times at Amsterdam, 1574, 1581, 8vo., with remarks by Scopiuss and numerous annotations by James Vioorbroek. (Phil. Z. 1753.) Another edition was published at Utrecht, 1735, 21mo., at the expense of Erasmus. This work is a key in the rules of Latin syntax are explained by means of quotations from the classic authors. It gained its author great reputation among the learned of his time. In 1583 Sanchez resigned the chair of rhetoric in favour of his son-in-law Bartholomé de Caspeus, and resided for himself those of Latin and Greek grammar, which he filled till the time of his death. Sanchez died on the 17th January, 1601, at the age of 77, and was buried in the church of the convent of San Francisco. Besides the above-mentioned he wrote the following works:—'Verm brevissime Grammaticae Latinae Institutiones' (Salamanca, 1587, 8vo.), which he subsequently published in Spanish under the title 'Arte para saber Latín' (Sal., 1593, 8vo.); 'Grammaticae Latinae Systema' (Sal., 1592, Antw., 1595, 8vo.); 'De Arte Docendi,' Salam., 1556; 'De Interpretandis Auctoribus, sive de Exercitioribus, Antw., 1582 and 1592; 'Paradoxa,' Antw., 1582, 8vo.; 'Organum Dialiecticum et Rhetoricae,' Salam., 1582, 8vo.; 'De Nonnulis Periphrasticis,' Bologna, 1564, 8vo.; the 'Lexicon,' Salam. and 1597. He also published a very learned Commentary on the 'Emblemas' of Andrea Alivarri, Leyden, 1563; on the 'Sylva' of Angelo Politianum, Salam., 1554.; on the Poems of the English Poets (Manafi); on the works of Gregory de la Vega, Salam., 1574. All his minor works, with the exception of the 'Minerva,' were collected and published at Geneva in 1766, 4 vols. 8vo.; prefixed to the first volume is the life of the author by Gregorio Maffei.

SANCHEZ, FRANCISCO, an eminent physician, who lived at the same time as the subject of the preceding article, has often been mistaken for him. He was born of Jewish parents, but embraced the Christian religion. He died in 1632. His works, among which is a valuable Commentary on the Physics of Aristotle, were published after his death in 1636. and 1638.

SANCHEZ, THOMAS, a learned theologian, was born at Cordova in 1550, of noble parents. At the age of sixteen he entered the Society of the Jesuits, and in course of time became director of the novices at Granada. He was appointed preacher to the court of the king, and that he was consulted on difficult cases of conscience in persons from all parts of Spain and Italy. This induced him to write his 'Disputationes de Sancto Mariensi Sacramenti,' which he intended as a sort of manual for confessors. This work, in sixty-five different editions, has been the subject of much animadversion, (Baylo’s Dict., vol. ix., p. 452), owing to the free manner in which the subject is treated. It was first printed at Antwerp in 1592, and reprinted in fifteen different editions. He also wrote 'Opus Moralium in Regna Doenoegli,' Mad., 1613; and 'Concilii seu Oppositiones Moralis,' Lyon, 1634-5.

Sanchez died 19th May, 1658, at Granada, where he was interred with great pomp. He wrote many more works on different subjects, which are generally known as Rodencus Sanctus, a Spanish prelate, much admired for his writings on ecclesiastical history and art; subjects, was born at Santa Maria de Nieva, in the diocese of Segovia, in 1404. After receiving his classical education at the University of Salamanca, where he obtained the degree of doctor, he entered the church, and was made successively archdeacon of Treviño in the diocese of Burgos; dean of Leon, and dean of Seville. About 1440, John II, king of Castile, wishing to send an ambassador to Frederick II, king of Sicily, chose Sanchez for the purpose, and so well was he able to place of the object of his mission, that when Charles II became pope, he was sent by Henry IV. of Castile to gratulate his holiness on his accession. In all his embassies, Sanchez made Latin harangues to the different princes, before whom he was sent as a messenger of the Roman church; and in each of these occasions, he used such language of the bishops of Zamora, Calahorra and Palencia, which he however governed without quittting Rome. He employed all the time he could spare from official duties in composing several works, most of which have never been printed. He died at Rome, Oct. 4th, 1521, and was interred in the church of Santiago dei Spagni. He wrote the following works:—'Speculum Vitae Humanae,' &c., being a treatise on morals, divided into two books. The first book is a description of the blessings and graces of the soul; the second consists of the seven principal virtues, and their properties, and is called the 'Epistola de Expugnatione Neronis.' Without date, but probably before the author’s death, 'Compendiose Historia Hispanica' (Rome, 1470, 4to.) dedicated to Henry IV. of Castile; this was subsequently reprinted at Antwerp in 1486, folio; 'Epistola de Expugnatione Neronis,' by Andres Schott, vol. i. (Frankfort, 1603). 'Libri Origines alii Principatuum, &c., being a treatise wherein the author labours to prove the supremacy of pope over all other sovereigns, Rome, 1521. He also wrote many more works on different subjects, which are generally known in the Vatican library, and the catalogue of which may be seen in Nicolas Antonio, Bib., vol. i., p. 297.

SANCHUNIATHON, a Phoenician writer, whose name indicates the period of an ancient controversy of Semiramis (Euseb. prep. Evan., i. 31, c. 3). A Phoenician, and others say that he lived about the time of the Trojan war. (Porphyry ap. Euseb. I. c.; Suidas, s. v. Σανχονιαθων.) His birthplace, according to the general opinion, was Sardinia. He was the contemporary of Adonibibas, a king of Egypt, whom he engaged as secretary, and was at request of this king that he wrote his principal work. Suidas enumerates the titles of two works of Sanchuniathon, called του της Εξωτερικης και της Εσωτερικης τον ονομαστη ζωην. Athenaeus speaks of Sanchuniathon, 'A History of Phoenicia,' which by other ancient writers is called Σανχονιαθων λογη, or Σανχονιαθων Ιστορια. (Porphyry, Pref. to I. c. 31, c. 3.) These three titles probably refer to different portions of the same work, namely, to his 'History of Phoenicia,' in which...
described the religious as well as the profane history of his own country, and also the theology of Egypt. He is said to have desired most of his information from the books of Tottu (Hierogl. boek Voert van der Snagl), a priest of the god 'Iwaa (perhaps Jehovah); and if the latter be the same as Jerobael (Gideon) in the book of Judges, Sancheunniaton must have lived in the fourteenth century before the Christian era. His work was placed in those few and similar conjectures; and some critics have gone so far as to deny the existence of Sancheunniaton.

The original works of Sancheunniaton, which were written in the Phœnician language, are now lost, and even the same. The declarations that his acquaintance with them cannot be ascertained. The translation of the first six, the translation of Philo, and that of the nine books of Philo's translation of Sancheunniaton was discovered in the convent of Santa Maria de Merinhal, in the province of Entre Douru e Minho in Portugal, by Colonel Pereiro; or according to others, by a German surgeon. The discovery of these books was accompanied by great sensation throughout Europe, but the opinions of scholars were divided; some declared the work to be a forgery of Philo, while others, and especially Grotfend, exerted their utmost to prove that the work was the real translation of Sancheunniaton. The discovery was the more valuable because it was carried on with great zeal in Germany, and the result was, that at last almost all scholars agreed that the work is spurious. In 1836 Wagenfeld published a German translation of it, with an introductory discours of Grotfend. under the title 'Sancheunniaton's Uebersicht der Phœnizier, and in an Auezue aus der wieder aufgefundenen Handschrift of Philo's vollstünd. Uebersicht nebst Bemerkungen von Fr. Wagenfeld mit einem Vorwort von G. F. Grotefend, mit einem Fasces imitationis,' Hanover, 1836. The year following three Fr. Wagenfeld's version of the story is the first history, and is the best known of the story.

SANCTO, *Sancto,* the Latinized form of the name of an eminent Italian physician, who was called in his own language Santorio. He was born in 1561, at Capo d'Istria, studied medicine and took his degree at Padua, and then settled at Venice as a practitioner, where he had considerable success. In 1616 he was called to Padua, and appointed professor of the library of the University. He there commenced a series of observations on insensible perspiration, which have made his name known throughout Europe, even among those who do not belong to the medical profession. *Sancto's* 'L'étrange et le nouveau, or 'Philosophia medica,' was the first of his medical works, and was published in 1634. In 1667 he was made a foreign member of the Royal Society and was elected to his honour in the cloister of the Servites, where he was interred; and the College of Physicians at Venice, in return for a legacy which he bequeathed them, annually commemorate him in a laudatory oration. He wrote several works of importance, in which he treated of the various diseases of the body, and of the treatment of them, and of the preparation of the medicines used in their cure. He was the author of the following works: 1. *Methodus vitandorum Errorum omnium qui in Artic Medici contingunt Libri X.* Venet., 1602, fol., and several times reprinted. 2. *Commentarius in Artiem Medici einaeum Galeni,* Venet., 1612, fol. 3. *Fusisimum opus, opus, eto rati citerat.* 2. 'Commentarius in Artium Medici einaeum Galeni,* Venet., 1612, fol. 3. *Fusisimum opus, opus, eto rati citerat.*
says Haller, 'ut medium lectiosis viv fera.' 3. 'Ars de Stat-Med. 3. 'Sectionum Aphorismos Septem commentariis,' Venet., 1614, 12mo. This is the work by which his name is best known, of which there were numerous editions, and which was translated into several modern languages. The latest edition that the writer has seen quoted is that of 1667, by A. C. Lorry, Paris, 1727, 2to. There is a French translation by Le Breton, Paris, 1722, 8vo., and by Pierre Noguez, 1725, 12mo, 2 vols.; an Italian one by F. Choni, Venice, 1743; a German one, Bremen, 1736, 8vo.; and an English one, Lond., 1756, 12mo, and Amsterdam, 1757, 8vo. It contains the results of a long series of observations made upon the weight of his own body, and the external causes which influenced its increase or diminution. He treated especially of insensible perspiration, on the due amount of which he makes health and disease depend. There is much curious and valuable matter in the work, though the advances of modern science have thrown some doubt upon the infallibility of some of his aphorisms. He unquestionably conferred a benefit on medical students by directing the observations of medical men to the functions of the skin, but unfortunately the doctrines were extended much too far; and coinciding with the mechanical principles which were coming into vogue after the discovery of the circulation of the blood, and with the chemical notions which were not yet exploded, they contributed to complete the establishment of the humoral pathology, under the shackles of which the practice of medicine continued almost to our own times. 4. Commentarius in Prinum Sectionem Aphorismos Hippocratinum, Venet., 1639, 8vo., containing materia morborum opus,' says Haller, 'plenunque proproriorum inventorum et cognitionum apud auctorem primum natarum.' In it he describes an instrument that he had invented for measuring the force of the pulse, and several new instruments of surgery. He was also one of the first physicians who attempted to measure by the thermometer (then newly invented) the heat of the skin in different diseases, and at different periods of the same disease. 5. Commentarius in Prinum Sectionem Aphorismos Hippocratinum, Venet., 1639, 8vo., contains nothing remarkable except the account of some post mortem examinations. A letter by Sanctorius, 'De Calculo,' is inserted in Jo. van Beverwyck's 'De Calculo Renum et Vasa Leber Simplicius, cum Epistolis et Consultationibus Magnorum Virom,' Lugd. Bat., 1638, 12mo. All his works were collected and published in four volumes, 4to, Venet., 1660.

SANCTUARY, in English law, a consecrated place which gives rise to a criminal right to a criminal. The word also signifies the privilege of sanctuary, which was granted by the king for the protection of the life of an offender. Among the Saxons the privilege of sanctuary was regulated by law, and all persons were proclaimed banished by taking away or by executing the offender, who had a right to remain in sanctuary thirty days, after which he was to be delivered safe to his relations. The institution was probably beneficial in those times. It took away from parties the opportunity of avenging their wrongs upon the offender, and gave him time to collect the mulct, which was then the legal penalty for many crimes. The same custom prevailed after the Conquest; but under the dominion of the Normans there appear to have existed two kinds of sanctuary, one general, which belonged to every church, and another particular, which commenced and had its force in a grant by charter from the king. This peculiar sanctuary could not be claimed by prescription only, and it was also necessary that it should be granted by use, or by legal ceremony before the justices in eyre. These two kinds differed from each other with respect to some of their privileges. The general sanctuary afforded a refuge to those only who had been guilty of capital offenses. On reaching it, he was layed to a criminal felon, and came to save his life. If he neglected to do this, he might immediately be dragged from the place. After this declaration, he had the option, within forty days, either of surrendering himself to justice, or of staying before the coroner the particular circumstances of his offenses, and taking the oath of abjuration, by which he was forthwith to leave England, and never to return without the king's permission. The consequence of abjuration was the attaint of his blood, and the consequent forfeiture of all his goods and chattels. After taking the oath, a port was assigned to him by which to quit the kingdom, and a certain time was allowed for this purpose. It seems however that if he refused to leave the sanctuary, the lay officers had no authority to remove him; and in case the spiritual authority declined to act, there were no means of removing him except by starting him out of the country, the taking the oath of abjuration, and during his journey for the purpose of quitting the realm, he was legally proceeded against. He might plead his privilege of sanctuary to an appeal to the king's court. A peculiar sanctuary might, if such privilege was not granted, be claimed by a tenant in chief from the king, and which was granted to those who had committed high or petty treason; and a party escaping thither might, if he chose, remain undisturbed for life. He still however had the option to quit the oath of abjuration and quit the realm. Since it seems in neither case to have been a right of refuge to those who escaped from the sheriff after being delivered to him for the purpose of execution. It appears that it was not allowed in cases of sacrilege. During the reign of King Henry III., it was enacted that no sanctuary or privileges of sanctuary should thereafter be admitted or allowed in any case. [ASYLUM.]

SAND. A mass of any comminuted materials as a popular language called sand; but the most abundant and gradent in the extensive sands of the desert, semi-desert, and even in the most cultivated lands, next to the river and lake bed. Little attention has been paid by geologists to the extensive covering of the earth's surface. Most of the sand which we observe are the ruins of disintegrated rocks; white, grey, black, according to the rocks from which they are derived. On examining the sand beaches we find them composed of grains of such sand, not crystals, but worn and rounded on their surfaces like sand pebbles. The porosity of these solid rocks then have conse- quently existed more or less a sand, and we may turn in each to the point of departure. The origin of sand is as often seen in volcanic dust and ashes— in the disintegrated granite, porphyritic, and other pyrogenous rocks; the aggre- gation of them is easily understood by examining mikale from the granite, from the fomentaries, and the disintegration of sandstones is too common a phe- nomenon in English Gothic buildings. Sand soil often contains sand, though the subjacent strata wholly calcareous or finely argillaceous. This is a fac- tion, and the sand is only carried away or by a current in a current of the vegetable place of such materials. It proves that the surface had been traversed by currents of water; and there can be no doubt in the mind of an observing agriculturist, that was washing of the earth's surface, by which the meadows and fields have in many cases the cause fertility of soils. Some sands impregnated with oxide of iron (and of blackened or rendered ochraceous) and others— are nearly white, and are very white, brown, or redder hue, are often fertile. The latter always contain argillaceous ingredients often of a proper— of felspar, and probably it is in a great degree to the capacity of the land; or the clay that these is owing. [MANURE.]

SAND GROUSE. [TETRAONIDI.] SAND MARTIN. [SWALLOWS.] SANTA WOOD. [SANTALACCE; SANTALUM.] SANDAL, he had come to order for Red Sanders Wood. Commerce [Pterocarpus.] SANDARAC (incorrectly called a gum, being a gatherer destitute of that principle, and consisting of a mixture of two different kinds of resin and a little volatile— is a secretion from the Calamus quadrifidus (Tham- culata, Dufa), a tree of enormous size, native of the north part of the province of Tessa in the kingdom of Mace- and there called Arra. (Jackson, Travels in Mar.- p. 78.) It exudes spontaneously from the back, and
crested on the surface. It occurs in small, irregular, but rather elongated, seldom perfectly round tears, or in masses run together, which are rarely of any considerable size, of a light yellow colour, sometimes verging to brownish, of a dull hue externally, generally covered with a vitreous lustre. The powder is white, and forms the substance called ponse. By chewing it forms a fine powder, which does not agglutinate, and has a sweetish aromatic smell, and a rather pleasant savour for the purpose of incense or pastilles, plasters, and ointments. The powder is rubbed on parchment to render it fit to be written on. Sandarac is sometimes used to adulterate mastic; and on the other hand, a resin obtained from the Juniperus communis, and another from J. Oxyedrus, are employed as substitute for the genuine sandarac. In Sweden, lumps of resin which are found under ante's nests below the juniper bushes are called Sandaraco. The resin of the Pinus Dammara (Agathis foraminifis, Salisb.) is called French Sandarac in commerce. Sandarac must not be confused with powdered caprifortes.

SANDYBURN. [CUMBERLAND.

SANDIE, PAUL, an English artist of very great merit and deserved reputation, was born at Nottingham in the year 1732. At the age of 11, he was apprenticed to a draper, and in order to be enabled to take advantage of the introduction to the drawing-room at the Tower, where he had studied about two years, when the duke of Cumberland, wishing to have a survey of the north and west parts of the Highlands of Scotland, Sandie was employed as draughtsman under Mr. David Watson. Though his proper occupation was the drawing of plans, he devoted his leisure hours to making numerous sketches of the finer scenery of that romantic country. From these sketches he made some small etchings, which were published by Mr. J. J. Boddam. About 1758 he left the Highlands, he passed sometime at Windsor, where he made drawings of the beautiful scenery of Windsor and Eton. These drawings were much admired, and were purchased by Sir Joseph Banks, who soon afterwards invited him to accompany him on some of their long voyages. He was employed by Sir Watkin Williams Wynn to take views of the picturesque scenery of the principality. These he afterwards engraved in aqua-tinta, in imitation of drawings, with a degree of perfection to which that style of engraving was never before equalled.

On the institution of the Royal Academy in 1768, Mr. Sandie was chosen one of the original members, and in the same year received the appointment of head drawing-master to the Royal Academies before and after the war, the great quantities of yarn and linen, an office which he held with credit to himself and great advantage to the academy till his death.

His industry was as remarkable as his genius, and the number of his drawings which are contained in the cabinets of amateurs is immense. It appears that he sometimes burnt in oil, but none of his performances of that kind are known to the public.

SANDE (pronounced Sandetz), one of the circles of Austrian Galicia, is 1400 square miles in extent, and has 296,000 inhabitants. It is about 75 miles across the circle of Bohemia, on the east by that of Yaslo, on the north-west by that of Wadowice, and on the south and south-west by Hungary. The southern part is entirely covered by the Carpathian Mountains. There are many sandstone cliffs in the eastern part, and there is a great quantity of iron ore. The Dunajetz rises in the south-west corner of the circle, but is navigable till it has been joined above Old Sande by the Poprad, a more considerable stream, which comes from Hungary, travels through the forest and enters the smaller streams. The inhabitants are industrious, and cultivate the soil with great care and industry. They have also a pretty numerous breed of cattle. The abundance of wood enables them to maintain many glasshouses, and they manufacture great quantities of yarn and linen.

Now Sande, the chief town of the circle, is on the omnibus route on the bank of the rapid Dunajetz, in a wide and fertile plain bound by mountains rising like an amphitheatre behind each other. It has a gymnasium, founded in 1818, a district school, and the public offices of the circle. The number of inhabitants is nearly 5000, of whom three fourths are Serbs. Old Sande, about 6 miles to the north, consisting chiefly of wooden houses, has 3000 Christian inhabitants, a convent of nuns of the order of St. Clarissa, a female school for the higher classes, and a gymnasium. It is also the residence of a bishopric, the see of which was transferred in 1578 from the diocese of Krakau, and the diocese of Cracow to that of Poznan within the kingdom of Poland.

SANDEMANIAN, one of the minor sects, consisting of persons who profess to be followers of Robert Sandeman, a native of Perth, in the year 1718. This sect is said to have been the forerunner of the Quakerism of Scotland, a body of religious believers, followers of Mr. John Glas, a minister in the Presbyterian church, who was removed from his office, on account of certain peculiarities of religious worship, in the year 1728. Mr. Sandeman married Catherine Glas, daughter, we believe, to John Glas, and entered into all his peculiarities. In 1757 he published his Letters on the 'Theron and Aspasia' of Mr. James Hervey, in which the peculiarities of the Glasites and Sandemanians are exhibited. He began a correspondence with Mr. Samuel Pike, an Independent minister of note in London, who adopted his views, and in 1760 he removed to London, where he preached in various places, and attracted much notice. He did not however remain long in London, for in 1770 he removed to the American Colonies, where he continued till his death.

The leading doctrine of the sect is thus expressed in the epistle on Mr. Sandeman's tomb at Danbury in New England:

"Here lies, until the reformation, the body of Robert Sandeman, who, in the year 1718, united with the Quakers on the American Colonies, where he continued till his death.

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The sect is said to be more numerous in America than in England.

SANDERLING. [Scolopacidae.

SANDGATE. [KENT.

SANDOMIR. [POLAND.

SANDORICUM, [Poland.

SANDRIA,
SAN 390 SAN

base, and 1-seeded. *S. indicum*, the only species, is an ele-
gant tree of considerable size, which is found in the Mo-
lucca, and Philippine Islands, as well as in the south, alti-
leaflets entire, panicules axillary, with the flowers crowded
on the short partial peduncles. The fruit is acid, and suf-
ciently agreeable to be mixed with syrups to make cooling
drinks; its root is bitter, and used in medicine in bow-
complaints. It is sometimes called false mangosteen, from
some resemblance to its fruit, and also Indian sandal-wood.

SANOYAL/FRAY PRUDENCIO DE, an eminent
Spanish historian, was born at Valladolid, others say at
Mohacs, in the province of Barat, in 1479. His parents hav-
ing educated him for the church, he took the monastic
orders at the Benedictine convent of Santa Maria
La Real de Názaré, where he passed several years, devot-
ing all his attention to the study of the civil and ecclesiastical
antiquities of Spain. Having gained some reputation by
his writings, he was made abbot of San Isidro de Guengua
at Valladolid, and soon after appointed historiographer
Philip III. This monarch charged him with the continua-
tion of the 'Crónica General de Ambrosio de Morales' [Morales], which Sandoval published under the title of
'Historia de los Reyes de Castilla y de León.' Other his-
torical works which he published at the same time, at-
ttracted the notice of Philip, and he was rewarded by him
with several benefices, and the See of Tuy in Galicia; several
years elapsed until he was translated to that of Pamplona in 1612.
Sandoval's whole life was spent in visiting the public archives
and principal libraries in Spain, where he found many inter-
esting documents. He died at Pamplona, March 17, 1621,
at the age of 85 years. Beadle's 'Dictionary of Spanish
writers' contains several other works on the history and antiquities of his
native country, among which the following are the most
deserving of notice:—Crónica del Incierto Emperador de España Don Alonso VII., Madrid, 1616; fol.; this is a chron-
icle of the kings of Castile and Leon, surnamed 'The Emper-
or.' Historia de la Vida y Hechos del Emperador
Carlos V.', in two parts (Valladolid, 1604, fol.), Pamplona,
1614, and Antv. 1611. This work is greatly praised by
Roberto, who quotes it for his history of Charles V. It is,
the only English translations, or rather abridgments,
of it; one by James Wadsworth, under the title of
'The Civil Wars of Spain,' London, 1625, fol.; the other by
Capt. John Stevens, 'History of Charles V.,' London, 1706,
vol. Antigüedades de la Ciudad y Iglesia de Cathedral de
Tuy,' Braga, 1629, 4to. 'Catalogo de los Obispos de
Pamplona,' Pampl. 1604, fol. 'Regla e Instrucción de San
Leandro,' Valladolid, 1604, 8vo. He also edited the
chronicles of Isidoro de Acuña, Sebastián Salmunicancis,
Sancho de Vargas, Astorga, and Juan de Bracamonte,
Overseas, or Spanish American, writers of the twelfth century, the whole being published in a volume under the title of
'Las Cronicas de los Cuatro Obispos.' Pampl., 1615 and 1634, fol.
Sandoval is justly considered by Spaniards one of their best historians. He was a
acquainted, and an erudition vast, though as
most writers of his time, he is occasionally led away
by a strong spirit of nationalit.

SANDPIPER. [Scolopacide.] SAINTSTEVEN. The aggregate of sands into stone
takes
place by the entire confluence of the grains (through a sort
defusion), as in quartz rock, and in common granites
which adhere traps-dyes or great faults; by mere cohe-
sion of grains, as in many white sandstones; by interpo-
lation of grains of carbonate of lime, as, e.g., in the sandstones of coal
trails; or by a complete infiltration of sub-crystallized carbonate of lime, as
in some of the Hastings sandstones, grès-de-Fontainbleau, &c. In regard to structure, we have laminar sandstones,
the layers adherent, or in the Cambrian rocks; sandy breccia, in which, without any real lamination, the grains
are arranged un-symmetrically and indiscriminately,
so as to present in the mass equal resistances in every direc-
tion; sandstones with clebsch or cleavage; the grains
may be worked with ease in any direction. Sandstones, in
popular language, occupy a station intermediate between
sand and gritstone; but there is little consistency in the
geological application of the term.

BACHIM VON, well known as a painter
and engraver, but more celebrated for his writings on the
arts, was born at Frankfurt on the Main, in 1606. Having
received a good general education, he devoted himself
to the study of the arts, and was first instructed in engraving
by Thaddeus de Bry and Matthew Merian. When he
was only fifteen years of age, he went to Prague, where he
was instructed in engraving by Thaddeus de Bry. He
however advised him to apply to painting, which he
decided to be better suited to his genius. He accordingly went to
Utrecht, where he became a pupil of Gerard Houbraken.
Under this able teacher he made great progress, so as to be shortly able to assist his master in many of his most impor-
tant works.

Desamps affirms that when Houbraken was invited to
England by Charles 1., he engaged Sandrart to accompany
him, that he might bespeak many pictures of him, that he
might acquire the acquaintance of society, and that he
might visit the Royal collection of the King, and that he
might remain in England till 1627. In that case, he
would have been only twenty-six years of age, when he went to Venice. Pilkington's Dictionary, ed-
ed by Fuseli (1818), gives a similar account. But Beyen (1846)
says there is no allusion to very little and no
account. No picture of Sandrart's is mentioned in the
Charles's collection, and what renders the story of his having
been in England more improbable is, that he takes no no-
tice of itself in his life of Houbraken, though he men-
tions that artist's journey to England, and gives an account
of his works here.' We may add that Dr. Waagen does not men-
tion a single picture by Sandrart among the numerous Eng-
lish collections which he describes. It is certain that he
had relations with Titian and Paul Veronese, and that he
was much employed by Cardinal Barberini and Prince Guis
amann. After a long residence in Italy he returned to Frankfort, and
executed many considerable works for the emperor Ferdinand.
He died at Mainz in 1661. Sandoval died in the last years of his life at Nürnberg, where he died in 1633, aged
77 years. At Nürnberg he published several works, par-
cularly his Lives of the Painters, under the title of 'Acad-
emia Artistorum.'

SANDWICH, a municipal and parliamentary borough,
in the county of Kent, about 674 miles from the General
It was one of the earliest places of importance, and an original member of the
Crown Courts. (Cinque Ports.) It probably arose out of the decay of the
'ancient city of Sandwich' (see p. 191, col. 2.) The name Sandwic occurs as early as
665. (Boys's Hist. of Sandwich, p. 833.) The Danes were defeated here, A.D. 851 or 852, by Athelstan, son of Edwin.
They were at Sandwich in the reign of Edward the Elder, and A.D. 1066 or 1007; the Anglo Saxon fleet was at Sandwich
A.D. 1006, and the Danish fleet in A.D. 1066 and 1061. Canute landed here in A.D. 1016. It is again mentioned
as a place of rendezvous for naval armaments in the time of
Edward the Confessor. It is a city of 64,000 inhabitants. At the time of the Domesday Survey there were 334. At this time the port belonged to the
arch-bishop of Canterbury and the monks of Christchurch, Cax-
bury. Part of the rent received by the archbishop consisted of
fish, and to this he owed the right to burn the fish for the
purposes of the town. Edward I. and III. the archbishop and monks gave up
Sandwich to the crown, in exchange for lands granted elsewhere.
In the time of Henry III. the town was burnt by the French
in the French wars of Edward III. It is mentioned as a
place of rendezvous for land and sea. In the reign of Henry VII. the French took and plundered the town three times.
To prevent similar disasters, Edward IV. removed the
fortifications; and in following reigns attempts were made
on the water front to improve it; and the ad
rewind, or to improve the land front, or to improve the
freestones, in which, without any real lamination, the grains
are arranged un-symmetrically and indiscriminately,
so as to present in the mass equal resistances in every direc-
tion; sandstones with clebsch or cleavage; the grains
may be worked with ease in any direction. Sandstones, in
popular language, occupy a station intermediate between
sand and gritstone; but there is little consistency in the
geological application of the term.

SANDSTONE. [Geological.]
The parishes of Deal and Walmer, adjacent to Sandwich, and the villes of Ramsgate and Sair, in the Isle of Thanet, are in the jurisdiction of the County. Part of Sandwich in the parish of Deal the corporation of Sandwich has concurrent jurisdiction with that of Deal, but this jurisdiction is only partially exercised. A part of the town wall is standing, and one of the gates, Fishergate, on the north side of the town, has a square tower, which has been called the Central Tower, with a swing-bridge in the middle, to admit the passage of vessels.

St. Clement’s church is a massive building, consisting of a nave and two aisles, a chancel, and a tower rising above the centre of the church. This tower is of Norman architecture, not much more than 150 feet high, with massive piers, and is by far the most antient part of the edifice: it is built of Caen stone. The rest of the building, which is of later date, is built of flint boulders from the shore, sandstone, and Caen stone, probably from the ruins of the mediaeval fortifications of the town.

St. Peter’s church consisted originally of a nave, with two aisles and a chancel, but the fall of the steeple, in A.D. 1661, demolished the south aisle, which has never been rebuilt. The church appears to have been built of Caen stone, well squared and neatly jointed; some portions built in this way still remain, but the remainder is built of fragments of the older structure, mixed with sandstone, Kentish rag, and flint boulders. The upper part of the church is of brick. St. Mary’s has a north aisle and a chancel; it was rebuilt after the greater part of the church had been beaten down by the fall of the steeple, A.D. 1667, but includes some parts of the more ancient church. St. Martin’s was built at 1818, of brick, with the south porch, and is of brick, with the upper part of wood.

On the south side of the town is the hospital of St. Bartholomew, a charitable foundation of great antiquity. The chapel is a small neat building, of antient date. The Guildhall is the seat of Elizabeth; the gild, which is clean, airy, and well-arranged, was built about ten years since. The Wesleyans and Independents have each a place of worship.

There are a free grammar-school, founded in the time of Elizabeth, and some almshouses.

Sandwich was originally a market town, and now is a thriving centre of the tanning and ivory trade. There is a large cattle-market once a fortnight.

The corporation, under the Municipal Reform Act, consists of four aldermen and twelve councillors. The municipal corporation of Sandwich, and the borough, was not have a commission of the peace except on petition and grant. Sandwich returned two members to parliament from the forty-second year of Edward III. By the Boundary Act of 1832, the use of the borough for parliamentary purposes, added to it. The population of the parliamentary borough, thus enlarged, was, in 1831, 12,183; the number of the voters on the register, in 1834-6, was 934; in 1853-6, 841, besides those in Walmer, who were not included in the last return.

The living of St. Peter’s is a rectory, of the clear yearly value of £144, with a glebe-house; those of St. Clement and St. Mary are vicarages, of the clear yearly value of £104, and £112 respectively; there is a glebe-house to St. Mary. And the churchwardens are four in number; each of the parishes has a churchwarden.

There were in the three parishes, in 1833, two infant and dame schools, with 14 boys and 18 girls; one boarding-school, with 21 girls; a national school, with 90 boys and 62 girls, supported partly by endowment and subscription, partly by grant; a national school, with 54 boys and 42 girls, and 18 boys and 112 girls.

SANDWICH ISLANDS are a group of islands situated in the northern part of the Paria, between 18° 52' and 22° 20' N. lat., and between 154° 50' and 160° 40' W. long. They extend within limits in a slightly curved line from southeast to northwest. The whole group consists of eight islets of moderate size, and the other five small. The larger islands are Hawaii, Maui, Tahaurawa, Rana, Morokai, Oahu, Maui, and Nihau.

Hawaii, formerly called Owhyhee, the most south-eastern island, is the largest of the whole group, and indeed twice as large as all the rest together. It lies between latitudes 19° and 21° 30', longitude 157° 30' and 160° 30' W., and is 75 miles long from north to south, and nearly 80 miles wide in the broadest part. The surface is said to be 4000 square miles, but it probably does not fall much short of 5000. It is therefore somewhat more than twice as large as New York State, the least in area of the states of Connecticut, and above 1600 square miles larger than the island of Corsica. The interior is occupied by a table-land 8000 feet above the sea-level, and almost entirely unknown, as it has never been visited by Europeans, except by the natives, these Indians, together with the white people, from the United States, from the island of Otago, and from New Zealand, which are 180 miles to the west of the island. The cultivation of the island, mainly by the natives, is carried on by the whites, and there are some 1000 white people on the island, and 3000 natives. The chief town of the island is the capital, Honolulu, near the south-east point, and is the seat of the island of Hawaii, and above 1600 square miles larger than the island of Corsica. The interior is occupied by a table-land 8000 feet above the sea-level, and almost entirely unknown, as it has never been visited by Europeans, except by the natives, these Indians, together with the white people, from the United States, from the island of Otago, and from New Zealand, which are 180 miles to the west of the island. The cultivation of the island, mainly by the natives, is carried on by the whites, and there are some 1000 white people on the island, and 3000 natives. The chief town of the island is the capital, Honolulu, near the south-east point, and is the seat of the island of Hawaii.
The south, and adjacent to the volcano of Kirua, is a desert of rugged lava, extending 40 miles along the shores, where no cultivation occurs, and which is only inhabited by fishermen. Along the north-eastern coast, near from Byron Bay to Cape Umpol, the most northern point of the island, the coast is bold and steep, and intersected by numerous valleys and ravines, in which, as well as on the declivities, the bates of the natives are built. Though the rocks, on which the cliffs are, are volcanic masses consisting generally of a brown resinous lava, it is rather a fertile tract, with abundant heritage. The western coast of the island is of a similar description, except that it comes down to the sea with a gentler slope.

Byron Bay, on the eastern shore, is a spacious harbour, which lies south and north: it is protected from the north-east wind by a coral reef, half a mile wide, which extends from the eastern point in a north-western direction two-thirds across the bay, leaving a channel three-quarters of a mile wide, and from ten to eleven fathoms deep. It is the best harbour and the only one on the eastern shore of the island. On the western coast are the harbours of Towrahe and Karakakoa. The first is not safe in winter, and in summer fresh water can only be obtained on this side of the island, at a distance of from four to six miles. Karakakoa is not safe, on account of its great depth, so that vessels are obliged to anchor too near to a rocky shore. In this harbour Cook was killed, in 1779, by a shot from a brig, which was lying in the roadstead.

The population of Hawaii is stated to be 8,000. The abodes of the inhabitants in no part extend more than four miles from the shore.

Mau, or Moorea, is situated north-west of Hawaii, and separated by a strait 24 miles wide. It extends from east to west-north-west, 48 miles, and is, in the widest part, 29 miles across. It is composed of two masses of rock, surrounded by a narrow tract of low land, and united by a low and sandy isthmus which is nine miles in width. The surface is elevated above 800 feet, and is equal to that of Hertfordshire. The larger mountain-mass, which occupies the eastern portion of the island, is supposed to rise nearly 10,000 feet above the sea, but it contains only a small portion of fertile and cultivable land. The smaller mountain-mass or peninsula has a fine tract of level land along the south-western coast. It extends three miles along the beach, and runs three quarters of a mile inland. At the back of it there are well-wooded slopes, with broad valleys, which terminate, towards the summit of the mountains, in deep ravines. The mountains, which rise to about 5,000 feet, are also well wooded. The harbour of À Paulina, nearly in the centre of the plain, is formed by two low projecting rocks, two miles distant from each other. The basin is at the distance of five miles, and it contains an establishment for converting the natives to Christianity, and for diffusing useful knowledge among them.

Taharua lies south-west of the larger peninsula of Moorea, and is 41 miles long from east to west, and 8 miles in the broadest part. It is separated by a narrow tract of level land, which is about 800 square miles. This tract is inhabited by a people of the same language, and may cover a surface of somewhat more than 100 square miles, or about half the area of the Isle of Wight or the county of Rutland. It is likewise a mass of volcanic rocks, but it does not rise to a great elevation, nor is the surface so broken and irregular as that of the other islands. A great part of it is barren, and the remainder is only of moderate fertility, the soil being shallow, so that trees grow only in the ravines and glens. The population is estimated at about 2000.

Nuiha, or Oheneho, the most western of these islets, lies long from north to south, and seven miles wide. The surface is covered with small rocks and boulders. The most southern point rises abruptly to a considerable height; but five miles north, the rocks sink down to a moderate elevation, and after three miles, rise to a height of about 500 feet above the sea, and the sides are formed by deep ravines full of trees. Level tracts of small extent occur along the shores, and many of them are fertile.

The number of inhabitants is said not to exceed 2000.

Oahu, or Oahu, lies north-west from Morokini, and extends 46 miles in length from south-east to north-west, and is 23 miles across in the widest part. The surface is broken into groups 500 square miles, and is equal to that of the island of Skye. It is at present the most important island of the whole group, being the seat of government and the place in which the foreign commerce is concentrated. It contains also a larger proportion of cultivated land than the other islands.

A mountain-range traverses the island: it begins at the north-eastern point, called Maecupu, and runs first towards and afterwards inclines to the south-west, to the north of the island, and there joins the coast, forming a headland between the island and the coast of Pearl River to Wailaua on the northern coast, a distance of nearly 20 miles. It is called the Plain of Ewa, and is fertile and well wooded, but nor much cultivated.

The consists of a deep mould resting on lava. The coast along the southern shores, from the mouth of the Pearl River to the vicinity of Honoruru, has a very broken and hilly surface, and varies greatly in fertility, some of the country being well wooded, and rich in soil; others are nearly destitute of vegetation. But the Plain of Hanauru, which follows, and extends about ten miles along a shore, with a width varying from two to three miles, is very rich alluvial soil, and is carefully cultivated. Several small side valleys, which lie in the general mountain-range, open into this plain, and are also cultivated at a distance of six or seven miles from the shore, where they begin to be narrow, and to be enclosed by steep mountains on each side. South-east of the Plain of Honoruru, on Diamond Point, the country is hilly, and less fertile. The country which lies between the mountains and the north-eastern shore is very hilly, and much less fertile than the plains along the southern coast.

Honoruru, the capital of the Sandwich Islands, and residence of the king, contains about 8000 inhabitants, consists of about a dozen stone houses built by foreign merchants, and a number of huts of the natives not far from the shore. The roadstead is safe, and extends for 1 mile, and is broad and deep. It is formed by a coral reef, which extends along the shore at the distance of some hundreds of yards, and affords a fairly entrance to vessels of moderate size. The reefs have a considerable width, and are dry at low water. A narrow opening in them opposite to Honoruru forms an entrance to the port, which is not deep enough for large vessels, and they remain in the roadstead, which is cautious, but has a rocky and uneven bottom.

Tuamoi, or Atwood, west-north-west of Oahu, is about five miles long, and more than twenty-four miles wide, the widest part. The surface is between 600 and 1000 feet above the sea, and is covered with small rocks and boulders. The harbour is extensive and well wooded, and contains a small rice plant. It is accessible by a narrow passage, which is defended by a small fort.

The number of inhabitants is stated to be 10,000.

Niuha, or Onehoua, the most western of these islets, lies long from north to south, and seven miles wide. The surface is covered with small rocks and boulders. The most southern point rises abruptly to a considerable height; but five miles north, the rocks sink down to a moderate elevation, and after three miles, rise to a height of about 500 feet above the sea, and the sides are formed by deep ravines full of trees. Level tracts of small extent occur along the shores, and many of them are fertile.

The number of inhabitants is said not to exceed 2000.
islands. On the western side of the island there is a very good harbour.

Climate.—The climate is principally regulated by the trade-winds, which during the hot season, from March to October, are strong and regular, but in winter light, and frequently interrupted by calms and south-westerly winds. The rainy season occurs in winter. In summer the atmosphere is usually clear and bright, and in many places on the coast there is a sea breeze. It is in some places so strong that a drift of rain falls. On the eastern or windward parts however, even in this season, seldom a day or night passes without a smart shower, and occasionally heavy rains fall. There seems to be a distinct difference between the western and eastern faces of north-eastern districts of Oahu have much less rain than the south-western, and that this is the cause of their being less productive. From September to April the atmosphere is more or less hazy, obscure, and cloudy, with frequent light rains in some parts, and in other parts heavy rains of two or three days' continuance. The small islands of Nani and Tahaaume, which are rather low, and protected against the trade-winds by the high lands of Maui, frequently suffer from long droughts.

The heat all the year round is considerable in the lower tracts, but perhaps less than might be supposed from the latitude. This is partly owing to the vast expanse of water by which the islands are surrounded, but principally to the influence of the north-west trade-winds, which during the greater part of the year sweeps over and about the islands with great velocity, and having passed a great expanse of sea, is far from being hot. In the eastern districts the thermometer in summer seldom rises higher than 86° or 87°, and it is always found between 68° and 80°. In the lower tracts on the western side of the mountains are exposed to greater heat, and in those parts the thermometer frequently rises to 86° or 90°. According to observations made at Honolulu, the mean annual temperature of that place does not exceed 67°. In consequence the thermometer ranges between 70° and 83°. The greatest heat experienced was 86°, and the least 61°. The elevated table-land in the interior of Hawaii is of course much colder, and snow frequently falls there. In 1854 the higher part of the Mouna Kea was covered with snow for 2000 feet from its summit in winter.

In the lower districts on the western side of the islands the sea and land breezes are generally regular, especially during the summer. The sea-breeze sets in at ten o'clock in the morning, and continues till sunset, when it is immediately followed by the land-breeze, which lasts till sunrise. From sunrise till ten o'clock a calm prevails.

Productions.—The quadrupeds found on these islands at the time of our visit were the cow, horse, sheep, goat, and rat, which have been added to the island by man. The birds are many, and especially the hawks, owls, and buzzards, which are common in the thick forests which surround the base of the mountains and ascend their sides to a considerable height. Fish abound; but there is no great variety. The most common are sharks, bonitos, flying-fishes, and red and white mullets. Many families live on the produce of the fishery. Pearls are found in Pearl River; they are small, but fine.

It does not appear that the European grains are cultivated to any extent, with the exception of maize. The principal objects of cultivation are roots, especially the taro-root (Arum macaronch) and yams, and camotes, or sweet potatoes, are also generally grown. The fruit-trees which were cultivated before the arrival of Europeans, were the coconut, bread-fruit, mango, and ilang-illang. The bread-fruit is a medium-sized tree, and has a number of species of edible fruit, which are eaten raw, but may be transformed into wine. The Europeans have introduced oranges, lemons, citruses, grapes, pine-apples, papaw-apples, pomegranates, and figs, all of which come to perfection, except pine-apples. The sugar-cane is indigenous, and returns from both the lower and upper valleys. Muskmelons and water-melons are excellent. The most cultivated vegetables are cucumbers, pumpkins, French beans, onions, and red pepper. The wauiti, or paper-mulberry-tree (Broussonetia papyrifera), is grown for its interior bark, which is used here, as in China, for making cloth. But the finest tapas or wrappers are made from the B ohmeria abida (Hook), which grows wild in the forests, and is also cultivated on the most western mountains of Oahu. The forests contain several plants the roots or fruits of which are used as food by the natives and for other domestic purposes.

Trade is the only medium which is obtained in abundance. A large quantity is sold for fish, which is the principal article of trade, and the only one in which the natives have as yet engaged. The principal goods of the trade are fish, and the native produce of the land, the most valuable of which is the Kolo or fish-strings. The amount of these goods is not accurately known, as they are sold by the natives to the traders and not to the government. The amount of fish sold in the month of July is estimated at 10,000 fish, valued at $500.

Inhabitants.—The population consists of natives, with the exception of a small number of whites, Englishmen, and Americans, who have settled among them as merchants or as missionaries. The population was estimated, fifteen years ago, at 159,000 individuals, but it has been probably increased. The natives, who call themselves Kaukas, belong to the family of Malay nations. Their colour is neither yellow, as in the Malays, nor red, like that of the Americans, but some kind of chestnut or reddish brown. They are of middle stature, and well formed, with muscular limbs, and open countenances. The roots of their language have a great affinity to those of the other Malay nations who inhabit the islands of the Pacific. When these islands were visited by the first Englishmen, it was observed that the natives of this group had made further progress in civilization than those of the other islands and groups. This was evident from the care with which they cultivated the fields which were given to them by the white men, and the manner in which they made and consumed their manufactures of clothes, and other trees, their beautiful mats, and the art with which they united, and as it were wore together, many beautiful fashions, so as to be used as articles of dress. They also made several utensils of stone, wood, and shell, without the use of iron tools. At that time they wore only a wrapper (called tapa) about their loins, but many of them now dress in the European fashion. They have also improved in other respects, especially in ship-building and navigation. Vessels built at these islands, are capable of holding 120 tons, and are armed with four guns. They have also introduced the use of iron tools. At that time they wore only a wrapper (called tapa) about their loins, but many of them now dress in the European fashion. They have also improved in other respects, especially in ship-building and navigation. Vessels built at these islands, are capable of holding 120 tons, and are armed with four guns. They have also introduced the use of iron tools.

Commerce.—What is properly called trade is not important, the natives having only two articles of trade, salt and sandal-wood. Agriculture has not yet supplied an article for exportation, but, by selling their produce to the vessels which visit the islands, the natives procure all the foreign articles that they are in want of. In 1832 the harbour of Honolulu alone was visited by 150 vessels, mostly American and English. Many of these vessels are whalers, and others go to several parts of the western coast of North America to get fur for the Chinese market. Several of them however are bound to China and the East Indies, and have been seen at Cape San Diego, and Strait of Magalhães. As the trade-winds in the centre of the southern half of the Pacific are very irregular, the most expedient route to the East Indies is to sail at a considerable distance from the shores of South America to the Galápagos, and thence to the Sandwich Islands, where a regular and strong east trade-wind carries them to the coast of China. All these vessels get fresh provisions at the Sandwich Islands, and the demand is still greater than the supply, which is very small. The trade-winds are so strong as to prevent the vessels from proceeding too far to the north, and all provisions fetch. The number of these vessels is annually increasing.

History and Government.—These islands were discovered by Captain James Cook in 1778, and again visited by him in 1779. Captain Cook never returned from both the Islands, when he was killed by the natives. Within the first twenty years after their discovery they were only visited by Portlock and Dixon, La Perouse and Vancouver. But towards the end of the last century whaling-ships from America began to visit
these seas, and they were soon followed by fur-traders; all these vessels put into some of the ports for provisions. At that time each island had its sovereign and several other chiefs. One of the latter, Tamehamea, began to plan the conquest of the islands, and he succeeded in subduing all of them, except Taual and Nihau, whose sovereign, after the death of Tamehamea acknowledged the successor of that prince as his king. As Tamehamea had one arm he was not able to undertake the establishment of European villages, and the assistance which he derived from their visits, he favoured their settlement in the islands, and in 1817 he placed his kingdom under the protection of England. His successor, Kaneho, died, and his brother, Kamehamea, came to London, where he died in 1824. Soon after the death of his father he had succeeded in abolishing idolatry and in the conversion of the natives to Christianity (1819). Since that time many English and American missionaries have resorted to these islands, and their labours have been attended with considerable success. At present, perhaps half of the population are Christians. Several books have already been printed in the native language at Honolulu and Lahihe, and even a map of the island has been engraved at Lahihe.

There are four distinct ranks in society. The first consists of the royal family; the second, of the first class of chiefs, whose dignity is hereditary; the third class is composed of the minor chiefs, who pay a ground-rent for the use of the lands; the fourth class consists of the people, belonging the whole productive class, constitutes the lowest section of the nation. The king is considered as the proprietor of the ground, which he has divided among the chiefs, who in return are bound to military service and to priests. Each island is divided into several districts, each of which is under a chief. The taxes to the king are paid by the chief or governor of the island, who collects them from the minor chiefs, and these again from the people, with the addition of something for their trouble.


SANDWICH LAND is the name given by Cook to a number of islands in the Southern Atlantic, between 57° 10' and 59° 40' S. lat. and between 24° and 42° W. long. They extend from north to south. The most northerly group is called Candelias Islands, and the most southern is the island of Plata. Further south, all are islands of volcanic origin, and nine burning volcanos were seen on them by Morell. Some of them are very high, and covered with perpetual snow. Others are bare rocky masses, slightly elevated above the sea-level, but all of them are without water. The surrounding sea contains sea-elephants and cetacean animals.

(Cook's Second Voyage round the World: Morell's Narrative of Four Voyages to the South Sea, etc.)

SANDYS, GEORGE, an English poet, was born in 1577, at the palace of Bishopstown, his father, Dr. Edwin Sandys, being then Archbishop of York. In 1599, the year after his father's death, he was sent to Oxford, and became a fellow of St. Mary's College. Wood thinks, of Corpus Christi College. (Athen. Oxon.) We have no account how he passed his time between this period and the year 1610, when he commenced his travels in the East, returning, as Wood supposes, in 1612, or after, much improved, with much respect, being master of several languages, of a fluent and ready discourse, and of excellent comportment; having naturally a poetical fancy, and a zealous inclination to all human learning, which made his conversation acceptable to the most virtuous and learned of his time. His account of his travels was published in 1615, being dedicated to Charles, then Prince of Wales, and entitled *A Relation of a Journey begun in 1610, in Four Books, containing a Description of the Turkish Empire, the Holy Land, and of the remote parts of Italy and islands adjoining.*

After this Sandys went to America, and appears to have succeeded his brother as treasurer for the English colony of Virginia. During his residence he completed his translation of the *Metempsychosis* of Ovid, on which he had been for some time engaged. On his return to England he was appointed one of the gentlemen of the privy chamber to the king. In 1630 he published a *Paraphrase upon the Psalms,* followed two years afterwards *Paraphrases on the Book of Job, Ecclesiastes, the Lamentations of Jeremiah,* and *Songs selected out of the Old and New Testament;* in 1639 a translation of *Christ's Passion,* a tragedy by Grotius. He has also written a book on the state of Europe, and a treatise on the profligate state of the Papal Church. He died at Bletchley Abbey, in Kent, March, 1643-4.

The writings of Sandys are simple, earnest, and devout; his travels are learned without pedantry, and circumstantial; his writing is simple and direct, and his translations are translations, not simply liberty of expression. His merits in this respect have been acknowledged by Wacher, Dryden, and Warton. Specimens of his most beautiful compositions,both in poetry and prose, are given in the Memoir of his Life, by the Rev. H. J. Todd, prefixed to *Selections from Sandys's Metrical Paraphrases,* etc. London, 1839, from which biography this sketch is taken.

SANGALLO, or SAN GALLO, a family of distinguished Italian artists and architects, whose original name was Flamino. 1. GIULIANO GIANBERTI, born in 1443, was the son of Francesco Giamberti, who was himself an architect and some repute in the service of Cosimo de' Medici. At first he and his brother Antonio chiefly practised carving in wood in the churches of Santa Maria delle Carceri and of Santa Maria della Scala. He next employed in the capacity of military engineer by Lorenzo de' Medici, who rated his services very highly. He patronised, Giuliano determined on pursuing architecture as his profession; and he had soon an opportunity ofdisplaying his talent in the front of the new church at Santa Maria della Scala at Florence, where he introduced an Iconic order, whose capitals are remarkable for having an ornamental rosette, at that time an innovation, and said to have been imitated from an antique fragment found at Florence. He was afterwards engaged by Lorenzo himself to erect a large convent (destroyed during the siege in 1530) near the gate of San Gallo; whence he adopted the name of da San Gallo, at first jestingly bestowed on him by his patron himself; and the rest of the family. In 1490 he commenced the Palazzo Gondi for a wealthy merchant of that name, but, owing to the death of the latter, the building was not completed; nevertheless, what was executed is a fine specimen of Florentine architecture. He joined in the lines of the Duomo, and the course and length of the ruins (Ruisticaion) is rather a defect. Among his numerous other works was a palace erected by him at Savona, for his patron the Cardinal della Rovere (now converted into the convent of Santa Chiara): and in 1503 he built the church of San Francesco, which was elevated to the pontificate by the title of Julius II. Sangallo expected to be employed as architect of the new St. Peter's church; but being supplanted by Bramante, retired in disgust to Florence. On the election of Leo X he returned to Rome, and on the death of Bramante he was offered the appointment of architect of St. Peter's, but he declined it on account of his age and infirmities, and returning to Florence, died there two years afterwards (1517), at the age of sixty-five years.

Giuliano had a son named Francescino, who was spoken of as Vasari as a skilful sculptor then living, and who executed the mausoleum erected at Monte Cassino by Clement VII. in honour of Piero de' Medici. 2. BONIFACE GIAMBIERI. One of the succession of the preceding, was induced by him to quit the profession of sculpture for that of architecture, and was left by him to complete the palace he had begun at Savona. He afterwards visited Rome, where he ingratiated himself with Alexander VI., to whom he proposed the plan of Convent Hadrian (now the Lateran), and he altered that building into its present form, since which time it has been called the Castle of St. Angelo. This work gave so much satisfaction, both to the pope and to the people of Rome, that the latter employed him to erect the fortress of Civita Castellana, towards that of Montefiascone. He likewise erected several churches, among which that of the Madonna at Montepulciano is esteemed his best production of that class.
time before his death, in 1534, he gave up both architecture and sculpture, and amused himself with agricultural pursuits.  

3. Antonio Sangallo, the most noted of the family, was nephew to the two preceding on the mother's side, from whom he took the name of 'Lanfranceschi'. This is told by Vasari, who quitted that city, he found another instructor and protege in his advancement, and in a few years, he soon rendered himself a most useful assistant. Nor was it long before his talents obtained for him the notice of persons of rank, among the rest of Cardinal Alexander Farnese, who employed him to rebuild his mansion in the Campo de' Fiori, the first of that splendid pile, which would of itself alone have established the reputation of Sangallo. One of his earliest works was the church of la Madonna di Loreto, near Trajan's pillar, but as that edifice was begun in 1507, it is doubtful whether he did more than afterwards complete it. His other works of the same period were several private mansions or palaces, especially one for Marchionne Baldas- 
sinti; but as neither the buildings themselves are described nor the sketches furnished by Vasari, it is difficult to say with certainty the names, it is now difficult to specify or ascertain them. It is equally difficult to determine their respective dates; and as the progress of Sangallo was through chronology and art, we mention here the house that he afterwards built for himself in the Strada Giulia, now known as the Palazzo Sacchetti.  

Passing by the various works on military architecture, upon which he was employed at different times at Civita Vecchia, Antium, and other places, we shall proceed to consider Sangallo's project for completing St. Peter's. After the works had been nearly suspended for several years, Paul III. determined that they should be resumed vigorously, and on the death of Peruzzi, in 1536, Sangallo also became the sole architect of the St. Peter's. In view of preventing those changes which had been made by all the preceding architects, the pope ordered him to prepare a model, upon such a scale and in such an exact manner that there should be no change thereon that he believed either forgotten or destroyed. This model, which is said to have taken several years to execute, and to have cost upwards of 2000 crowns, is still preserved in one of the rooms of the Vatican. It is formed of wood, and is in length 35 Roman palms, or nearly 20 English feet. Little more however was done to the fabric by Sangallo than to strengthen the parts already erected; and after his death his design was abandoned altogether, not a trace of it being visible in the present structure. An elevation of Sangallo's model is given in the first volume of the la Bottega della Pittura,  

The Palazzo Farnese, begun by him for his patron Paul III., when cardinal, and afterwards greatly extended, is the most celebrated of Sangallo's works. He must however share the repute of it with Michael Angelo, who, if he did not design the magnificence and majestic cornices, which alone distinguishes this edifice from every other of the kind in Rome, and, aided by the loftiness and extent of the building, gave to it the present grandeur and ornament. The palace deserves notice, if only because it has been said that the Reform Club-House, Pall-Mall, is an imitation of it, which is true only as regards style and manner; for in regard to design there are quite as many points of dissimilarity between them as there are to the advantage of Mr. Barry's building. In both the windows of the principal floor are 4 la tabernacle, that is, have small columns and pediments; but in Sangallo's edifice the centre window is different from the others, and having no pediment, like them, produces a disagreeable effect. Sangallo begun the Porta S. Spirito at Rome, but left it unfinished, in which state it has ever since remained. He died at Terracina on the 7th May 1546, advanced in years, but at what precise age is not known. His body was brought to Rome and buried with great pomp.  

SANGUINCORIA. [Pyloriandus, vol. xix., p. 145.] SANGUINORBA. The name of a genus of plants, the type of the suborder Sanguisorboidea, in the natural order Rosaceae. Of this genus (called Burnet) there are nine known species. Most of them possess astrignent properties. The common Burnet (S. officinalis) is a native of Britain, and was at one time cultivated in chalky districts. It is a very considerable herb, the root being powdered to form an astrignent tincture, and the leaves are used as a tea for the same purpose.  

SANGUISUGA. [Lecchees.]  

SANEDRIM, or SANEDRIN (סָנֶּדֶר], the great council of the Jews, which consisted of seventy-one or seventy-two members, and desided the most important causes, both ecclesiastical and civil. The name is a corruption of the Talmudic title of the Greek συνεδρία (synedrion). The Rabbin attempt to find the origin of the Sanhedrin in the seventy elders who were appointed by Moses to assist him in his judicial duties (Num. xi. 16); but this council is not to be considered as a precedent to the council of the Jews. The present title has been given to it by the Jews themselves. The first mention of the Sanhedrin is in the time of Hyr- 

The Sanhedrin had a president (ใֵנ or יֵנַנ), who was generally the high-priest, a vice-president (יֵנַנ יֵנַנ), who sat on the right of the president, and, according to some, a second vice-president (יֵנַנ יֵנַנ), who sat on his left. The other members were:—1. Chief Priests, who are often mentioned in the New Testament and in Josephus, and who were partly ex-high-priests and partly the heads of the twenty-four classes of priests. 2. Elders, that is, the princes of tribes and heads of families. 3. Scribes, or men of learning. All chief-priests were members of the Sanhedrin, but of elders and scribes only so many were admitted into it as were required to fill up vacancies. (Matt., xxvi., 57, 59; xxvii., 3, 12, 20, 41; Mark, viii., 31; xi. 27; xiv. 43, 53, 55; Luke, xx. 1.) The Sanhedrin was a very solemn assembly which had its secretaries and apparatus. Both Pharisees and Sadducees were found in it. (Acts, v. 17, 21, 34; xxiii. 6.)  

The Sanhedrin met at Jerusalem, and, according to the Talmudists, within a chamber within the precincts of the Temple, called Gathiz, in which also their archives were kept; but, according to Josephus (Bel. Jud., v. 4, 2; vi. 6, 3), in a room on the east side of Mount Zion, not far from the Temple. In cases of emergency, as in the trial of Christ, they met in the high-priest's house. They sat in the form of a semicircle.  

The causes brought before this tribunal were either appeals from the inferior courts, or matters which were thought to be of sufficient importance to be submitted to the judgment of the council; for example, the question whether a person was a false prophet (Luke, xi. 33), and matters which affected the whole state, a whole tribe, or the high-priest. The accused was brought before the tribunal, and witnesses were required to appear to support the accusation. The entire nature of certain punishments might be inflicted by the Sanhedrin; but under the Roman government its power was so far restricted that a capital sentence required the confirmation of the Roman governor, who was also charged with its administration. The stoning of Stephen was not done in accordance with the sentence of the Sanhedrin, but in a riot; and the execution of James and others by the high-priest Ananus (a.d. 64) took place in the absence of the Roman procurator, and was permitted by the Jews themselves to have been an illegal act.  

Besides the Sanhedrin at Jerusalem, there were inferior
counts in each of Judæa, consisting of twenty-three
members, to which the same name is sometimes applied.
From these counts an appeal could be made to the San-
hofs.

(John, Archid. Bibl., th. ii., b. ii., § 146; Calmet's
Dictionary; Lightfoot's Works: Winer's Bibl. Reallex-
buch, 8 Synodem.)

SANDJAK. A noble primarily signifying a standard, is also
applied to a military division such as those into which the
whole Turkish empire is divided: in this sense, it signifies,
as much as is congregated under one standard. The e-
mander of such a division is styled Sanjak-beg, Sanjak-bey,
on Sanjak-bey of Empire; and all the Sanjaks of a province is styled the Bogd-Begbey (commander of com-
mander). The word is found under the forms Sangjak and Sanjakshak. The French and German modes of rendering the
Turkish are Sandjak.

SANKHYA. [Sanskrit Language and Literature.]
SANCHEZ'IL MICHIELE, a master equally celebrated
for his works in civil and military architecture, was born
in 1484, at Verona, where both his father Giovanni and his
uncle Bartolomeo pursued the same profession. By him
he was instructed in the elements of the art, but he sought
its spirit from studying the amphitheatres and other remains
of antiquity in his native city; and their influence, especially
that of the former, is visible in many of his designs, wherein he
sometimes made an elaborate study of the rustic columns.
About 1500 he set up for himself, and remained either there or
in other parts of the ecclesiastical states till the time of
Clement VII, and was intimate with all the more celebrated
architects of the time, such as Michelangelo, the duc
Galli, Sansovino, and others. While he was in that part of
Italy, he erected the cathedral of Montefiascone (the cupola
of which was destroyed by fire at the beginning of the
seventeenth century, and has since been rebuilt in a tasteless
manner), and the church of San Domenico at Orvieto. On
Returning to the Venetian territory, he was employed by the
Republic (1525) to construct the new fortifications of
Verona, when he first introduced the use of triangular and
pentagonal bastions, and thereby entirely changed the sys-
tem of fortification, that has since been adopted by other
engineers. Here it will be sufficiently merely to allude to his
works of that class, as they belong to construction rather than design, though some of them are
remarkable even in the latter respect; for instance, the
stately rusticated façade of the fortress or Castello di St.
Andrea on the Lido at Venice, and the three fortified gates
at Verona, Porta Nuova, Porta della Palma, and Porta Zemone.

He was next employed by the republic in fortifying many
places on the coast of Dalmatia, Cypria, and other
islands, which works he confided to the execution of his nephew
Gian-Girolamo. In consequence of their reputation, both uncle
and nephew were invited by Francis I and the em-
peror Charles V. to enter their service, which flattering offer
they both accepted. With great eagerness and
enthusiasm, they devoted themselves to the service of their
emperors, and were not wanting in any enterprise which
was in their power. The younger Sanchez was a
perfect master in the art; and it is a well-known fact, that
many of the military structures of Spain, that were
erected in the sixteenth century, were designed by
Sanchez. The elder died at Madrid in 1539, the
younger in 1527, and left a son, also named San-
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SANQUHAR, [Dumfrieshire.]

SANSOUCI. [Potsdam.]

SANSANDING, a town in Africa, in the kingdom of Bambaram, on the banks of the river Jiliba, or Quorra, near 13° N. lat. and 5° W. long. It is a place of considerable extent, containing a population of 60,000 and 10,000. It appears to be a town of great commercial importance in the interior of Africa, perhaps not less so than Timbuctoo, with which it carries on an active trade. It is the means of the navigation of the Yenni, which is navigable for large river boats all the way between the two towns. The salt which is consumed in the western countries of Sudan is brought from the Saliara, and passes through this town. The merchants of Walet in Borou bring to it the rock salt of the mines of Shinganna, and export from El Arovan the produce of the mines of Toulent. By the latter receive also coral and beads from the Mediterraneans. These articles are sent to the countries south and west of Sansanding, and exchanged for gold, ivory, slaves, wax, honey, and cloth of Soopan, which is sent by two words sent to Walet and El Arovan. Rice and cured provisions also go to the last-named place, which is surrounded by an extremely sterile country. The trade of this place is in the hands of the Moors.

(Mungo Park's Travels in the Interior Districts of Africa; Caillié's Travels through the Central Africa to Timbuctoo, &c.)

SANSCRIT LANGUAGE AND LITERATURE.

The Sanscrit is a branch of the Indo-German family of languages. Of all those languages it is that which approaches nearest to the primitive type; and by the originality, purity, and abundance of its forms, is peculiarly calculated to throw light on the obscure laws of language. Being also possessed of a rich and comprehensive literature, and the whole of its materials having been fully treated of by native grammarians, it was no sooner introduced into the learned of Europe than it gave rise to a new and important science, that of comparative grammar, and led to the conclusion that Sanscrit is a natural parent of the Greek, and the Latin, formed but one language with the German, the Letto, the Slavonian, and even the Celtic, each of these languages affording the most extraordinary illustrations of the others.

The Sanscrit was introduced into India when the Brahminical race obtained possession of the country (A. W. von Schlegel, 'On the Origin of the Hindoos,' in the Trans. Roy. Soc. Literature,' ii, 2, 463, &c.;) and having driven out the aboriginal languages of India, which are now only spoken in the Southern Deccan, as the Telings, Tamuli, and others, has spread over the extensive tract of country between the Himalayas, the Indus, and the Kistna. Within these limits it has had a history of its own, and has passed through various stages of cultivation. It was an ancient form in the Vedas, in the 13th century before Christ, and in that state is very nearly related to the Zend, the ancient language of Persia, and contains many forms and words which have become obsolete. The classical Sanscrit, on the contrary, having once become fixed, has, for about 2000 years, partly as a living language and partly as a learned one, retained the same structure, with the mere exception of difference in style, and a few archaisms, which only occur in the most ancient works.

Purav Diacrit. — Out of the Sanscrit however, even in comparatively early times, dialects arose, which gradually became still further removed from the original and from each other; and from these dialects the languages now spoken in India are derived. It is a law however which pervades the whole of them; and it is worthy of remark, that this law is precisely the same as that according to which the Romance language, the Italian, the Spanish, and the French, have grown out of the Latin. The same sound, the same pronunciation, the same exclusion of the harsher sounds, the same weakening of the forms, the same substitution of particles for cases, and the same peripheral conjugations. The general name given to these dialects is Sanscrit, and the term Sanscrit is applied to that language which is regularly and grammatically constructed.

The oldest of these dialects, and that which deviates least from the Sanscrit, is the Path, which has become...
the sacred language of the Buddhists, who, when they abrogated the institution of castes, required a language which, at last, could be more distinctly comprehended, in which the subjects of the several religious discourses and poetry might be more exclusively understood by the privileged classes. Having been carried by the Buddhists from Northern India to Ceylon, the Pali has continued to exist in that island, and possesses a copious literature. (Bonn, 1836.)

The language, which, in a peculiar sense, is called Pracrit, properly Mahādrākhiti (for its local origin is to be sought in the country of the Mahāratas), differs little from the Pali; in the former, of the languages Pāli and Sanscrit, the former originally spoken in Behar, and the latter on the banks of the Jamna, are only a little farther removed from the Sanscrit. (Lassen, "Institutiones Linguae Pracritae," Bonn, 1836.) In addition to these there are numerous minor more dialects, among which we shall only distinguish the Vrajabhaṣā (Brij Bhasha), on account of the excellence of its poetical literature, and as being the parent of the Hindustani.

The formation of the Pracrit languages out of the Sanscrit flowed naturally from the character of the parent tongue, and this tendency is manifested even in the earliest shape of the Sanscrit. This appears, to take a single instance, in the substitution of the dh and z̄ (the Italian c and g) for the original k and g, just as the Italian giro is formed from giro. In like manner, it was perfectly consistent with the character of the classical Sanscrit to adopt the verbal forms of the Pracrit, and to retain them together with the legitimate and settled forms, which is a proof that at this time two languages must have co-existed for a long period.

The Pali appears as a perfectly-formed language in the Buddhist works carried to Ceylon, which we cannot fix at a later date than the fourth century before Christ; and the Mahārāja also may be found distinctly recorded in the middle of the third century a.d., in the inscriptions of King Asoka, which have for the most part been correctly deciphered by Pinnew. (Jour. Asiatic Soc. Beng., 1837, pp. 356, 796.) The Pali language also appears on coins of the Greek kings found in Ceylon, and the Indies, most of which have been deciphered by Lassen. Many of the names also which have been transmitted to us by the Greeks are Pracrit; that of the Decan, for instance, in the Perplus of the Erythraean sea, Ἰῳκυαῖος, does not correspond to the Sanscrit dakshhina-pātha, but strictly to the Pracrit dakshhina-pātha. Hence it follows, that in the last five centuries a.c. the Pracrit must have become completely the language of the people; and indeed the discovery of a letter written by the king of the Vakatakas in the second century B.C. shows that the language was not only spoken, but was used in conversation by all subjects of the period.

The two languages being in language, and it is now used only in learned disputations in the court of Cashmere as late as the 12th century A.D., and was probably in use in the small independent courts of Rajputana even in the 14th and 15th centuries. It is consistent with all that we know, that the language should be in a different condition in the different provinces of India. The Mohammedan conquest however gave the final blow to the language, and it is now used only in learned disputations in the courts of the Brahmans.

Literature.—The Sanscrit literature begins with the Vedas, and is founded entirely upon them. (Vedas.) The religious duties and the religious poetry are the foundation of the entire legislation, and a great part of the political and social laws are contained in the religious poetry. The religious poetry is essentially national, and arises from the subject; in the latter, it depends upon the form.

Epic Poetry.—We possess the epic poetry only in its most perfect state, and consequently its origin is involved in obscurity. It is looked for among the works of the Brāhmaṇa class, which is always connected with the monastic life. The most ancient of the epics, the Rāmāyana, presents to us pretty much in the same character as that in which they appear among the later princes of India. The materials of the epic consisted primarily of the genealogies of the princely families who the rhapsodists served, and next, of certain prominent events in the family history, which were at first sung separately, but afterwards incorporated in the genealogy itself. It is possible therefore that the story of the Mahābhārata as related by Skanda and the Sawant, and of the Rāmāyana and the Mahābhārata. But even these have undergone many important alterations since they came into the hands of the authors; in fact, they have been remodeled in accordance with the interests of the prince who introduced and elaborated the story. The Rāmāyana originally no more than mortal heroes, appear as incarnations of Vishnu; those additions however have been loosely attached, that they might easily be separated with detriment to the whole. In the Mahābhārata, the hero has been kept in view of inclusion in one work, and the whole cycle of traditions; and as the epic poems were intended for the instruction and amusement of the wise, not only was everything added which could increase their value for the reader, but also there are books, of considerable length, in which they express cosmogony, philosophy, and law are explained in a poetic manner.

The Rāmāyana.—The subject of the Rāmāyana is the descent of Vishnu for the purpose of averting the destruction of the whole world by the prince of the demons, Rāvana. Rāma, the son of Dasaratha, king of Oudh, was brought up by wise Brahmans, especially Vishvamitra; yet very young he overcame the demons in several battles, and by his peerless strength and beauty he won the beautiful Shī. He was about to be appointed successor to his aged father and to be his partner on the throne, whose plan was frustrated by a court intrigue, and he was expelled to wander abroad as an exile. With Shī and her father, other her friends, in the kingdom of Ayodhya, Rāma went to the forest of Dandaka, at the sources of the river. This source of events was necessary in order to bring him up in the character of a man of both world. In the forest of Dandaka, he dwelt in the inhospitable wilds. He had been sent by his father, the king of Ayodhya, to find the abode of the gods. The apes Hānuman and Sītā were discovered, and after many strifes, he rescued the woman and the boy, and returned to Ayodhya, where he was received by his father, who reigned at Ayodhya.}

These are the contents of the first six books, and the poem terminates. But there is a seventh book, which tells the story of the descent of Vishnu under the name of the Tāmasastra, a treatise on •

The Rāmāyana has undergone many alterations, may easily be shown. It contains, as an
parts, many things which point to very antient times; but customs introduced at a later period are not even alluded to, as for instance the burning of widows, which was practised in the age of Alexander. All other parts of our sources are referred to which bring us as far down as the second century A.D., the names of comparatively recent nations being mentioned, for instance the Huns.

The time of the composition of the poem cannot therefore be ascertained, nor are portions of it written down, and all minuter investigations must be deferred until the whole poem is printed. It is more easy to determine what historical facts formed the foundation of it. This is evidently the introduction of the Brahmanical worship into the Peninsula. It is well known that the opponents of Brahmanism, are made to appear in the character of demons. The apes must represent another and a less hostile race, whom the Brahmins made use of in order to overcome the rest. This fact is indeed supported by modern research, as the guide of Râma is the hermit Agastya, to whom tradition ascribes the conversion and cultivation of the Deccan, and who even now shines, according to a famous symbol, as the radiant Canopus of the South.

The Râmâyana, since the recasting of the poem, has undergone several revisions, of which we have become acquainted with three, or at least two, by means of MSS. That which contains the oldest and the best text is confirmed by commentators; another, which we have from the lecture notes of the Asiatic Journal, and Cary and Marshman first commenced an edition (Serampore, 1806-10, 4to, 3 vols.), which contains the first two books, with an English translation. The text is founded on the very first, and is engaged upon a critical edition of the Râmâyana, founded upon a comparison of the MSS. existing in Europe, in which the text of the commentators has been restored. Two volumes of the text have been published, and the first volume of an extremely elegant Latin translation, and the development of the periods of the world, as well as unconnected historical traditions, so as to form a fabulous chronology; and thus they come down to the history of the sacred place to which they are especially dedicated; they then conclude with the mantras by which the temple rather than the temple is exhibited as well in single passages as in the whole. Whenever an occurrence occurs, long descriptions are introduced, such as pictures of natural objects, to which the old epic poetry was also inclined, but more sparingly; and only incidentally; but this is necessary to encumber the whole progress of the action. This is much more the case in the two following poems, in which the descriptions appear to the poet to be so important that he seems to have undertaken the works only for the purpose of introducing them. One of these is the Cullera, the battle of the Arjuna with the Kirtâs, by Bhârâ, and Sistu'labbadha, or the death of Sistu'labbadha, by Mâgha, both founded on episodes of the Mahâbhârata. They are classical compositions, elaborated upon the utmost ingenuity; but the art degenerates into a mere exhibition of words: there are verses which may be read forwards and backwards, and upwards and downwards; others in which only one or the same consonant is used (Sis. Artificial Poetry. Sanscrit poetry received a new character, and one essentially different from that which we have been just considering, in consequence of the revolution which took place in Sanscrit literature about the first century of our era. Before Christ. Such is the character which appears in the two great epic poems, it now assumed an artificial form, and became the poetry of courts and princes. How this effect was accomplished cannot be historically shown, for the various steps of the transition are lost, and the evidence in its favour is not conclusive, but it is however quite obvious that the two great epic poems had long been completed and were in universal repute. The new poetry is poor in invention, and drew its materials from the former. Its whole merit consists in what may be called style. Even the epic version of the Mahâbhârata is of no great importance, and lyric metres are substituted for it. This is not merely a difference in external form, but it is connected most intimately with the mode in which things are viewed by the Indians, who regard poetry not only as one of the oldest and most venerable branches of the art, but as a means of working up their poetical materials not so much into a continuous action, as into a series of single situations. Each of these situations is exhibited in a single stanza or strophe, which forms an independent whole, and is not connected continually with each other. A peculiarity as obvious in the epic as in the lyric and dramatic poetry.

The new Epic poetry begins with Cûlîdana, to whom two works of this class have been ascribed, 'Kumârasambâva' and 'Râghuvansâ. (Cûlîdana.) They are written in a style worthy of imitation, and their whole character shows that they are older than the others, from whose superfluities these early works are free. The materials belong to the mythic cycle of the Râmâyana. The whole and the deities rather than the epic is exhibited as well in single passages as in the whole. Whenever an occurrence occurs, long descriptions are introduced, such as pictures of natural objects, to which the old epic poetry was also inclined, but more sparingly; and only incidentally; but this is necessary to encumber the whole progress of the action. This is much more the case in the two following poems, in which the descriptions appear to the poet to be so important that he seems to have undertaken the works only for the purpose of introducing them. One of these is the Cullera, the battle of the Arjuna with the Kirtâs, by Bhârâ, and Sistu'labbadha, or the death of Sistu'labbadha, by Mâgha, both founded on episodes of the Mahâbhârata. They are classical compositions, elaborated upon the utmost ingenuity; but the art degenerates into a mere exhibition of words: there are verses which may be read forwards and backwards, and upwards and downwards; others in which only one or the same consonant is used (Sis.
19, 114, 'dādā duddudduddā dādā dudduddudda dudda
 dāda dudde dudduddudda da dāda dādā dudduddudda
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' which indeed is not very clear, but still has a meaning, or two con-
sonants or more are used. These poems were printed at Caleutta, 1814, 1815, with the commentary of Mathnátha. The 'Bhaktikāvya,' written in the fifth or sixth century, in Vallabhí, the chief town of Gujarat, narrates the history of Ráma, but only for the purpose of elucidating their religious concepts. It was the first major literary work to be written in a certain tense, etc. (Published at Calcutta, 1812, with two grammatical commentaries.) The 'Nādākāy,' falsely ascribed to Cāliḍā, gives the history of Nāla out of the Mahābhārata, and is notable for the skillful play of dīpa in the incessant play of words and rymes. The most universal of all these poems is the 'Rāghavāvadāya' of Kavirājya. It is written with such a puréed double meaning, that the same words give us the histories of Rāma and also of the sons of Pandu, which is only possible in consequence of most of the Sanscrit proper names having also a perfect ap-
peitative meaning, so that in the one history the proper names must be dropped, and in the other the appellative meanings. The poem has been translated by the poetess, and shall mention in the present place the 'Nāsa-sa' of Shi
harsha, king of Caismir, in the twelfth century. It treats of the marriage of Nāla, and nothing else, in twenty-two long cantos, written throughout in a very artificial manner, which discloses a certain amount of archaism among the Indians; the descriptions in this poem exceed in length and number all reasonable bounds, and there can hardly be said to be any action at all.

Lyric poetry, in the proper sense of the term, did not emerge in the湾区 of India at this period, for even here their fondness for description has taken the place of everything else; and instead of lyric poetry, we get the epigrammatic, didactic, and descriptive. Even their aman
or poetry appears to be not something the immediate emotion of feeling, as a studied and laboured display of situations. An agreeable work of this description, the 'Amarabhatam, consists of 100 single small poems, each of them being nothing more than a stanza which represents a single idea or a single action and which works as a stand-alone piece. (Published at Calcutta.) To this class belongs also the 'Sringārtikā,' which has been improperly ascribed to Cāliḍā. To these must be added the first book of the 'Centuries of Bhārtihāra, while the two other books contain didactic poetry. The work has been ascribed to the brother of King Vikramaditya, who lived in the first centu
n.c., but improperly, for it belongs to a much later period, and indeed it is not an original work, but a compila
on at Satnampāyana, in 1840 (and at Berlin, 1814, by Bohlen). Among the poems properly called descriptive, by far the best is the 'Meghadūta,' certainly a genuine work of Cāliḍā, which, in a style of the utmost elegance and simplicity, describes the journey of a bird over a part of the world, and the god of riches and the wife of a demigod who had been banished to earth (Cāliḍā); the poem is put in the mouth of the demigod himself. The value of this poem as a work of art lies chiefly in this, that every single external phenomenon receives a spiritual meaning, and all nature seems to be endowed with life. It is very different in the later poems of this class, which are properly only rhetorical cantos and collections of all the current expres
ions and comparisons of previous poets. A work of this kind on the one hand, a subject which is frequently introduced in the epic poems, the 'Ritusanāhā,' has been improperly ascribed to Cāliḍā. (Printed at Calcutta in 1792; and at Leipzig in 1837.) A similar one on aomatory 'common-places,' 'Chāna yuksā,' i.e., Bohlen's 'Bhar
trihāt,' is bombastic and pointless. This branch of literature
must have been very rich, and many of the other works have undoubtedly been lost.

The Drama.—In the opinion of the natives the Indian drama in very antient times, as appears from the fact of their attributing the invention of it to the gods. We are unable to trace it historically, for we know it only in its perfected form. Thus much is certain, that its development took place in several centuries, and passed from the dance to the drama; and accordingly the technical name for drama, nāṭakā (dance), still remains though in the extant dramas there is no dancing; and partly to the puppets, which are still used in Java in the representation of pieces taken from the Indian mythology: a trace of this latter origin is pre
served in the name of the stage-director, cātrihārā, when signifies thread holder.

Such performances are still retained in their original form at the festivals of Rāma and Krishna. The characters of the pieces come forward one after another, and sing a song accompanied with gesture. It is obvious that a consider
able time must have elapsed before so simple a beginning could grow into a regular dialogue and a complicated action, in which mythological, and domestic, and even his
orical materials are interwoven into the representation. But the Indian drama, even in its highest state, is still in a low condition. Among the Greeks and the moderns, in
ly the Greek, the principal action is formed by the moving forces of the drama; but that of India is rather a set of events and situations which are exhibited in suc
cession to the spectator. The distinction between tragedy
and comedy is unknown, and the Indian drama most blos
some resembles the modern opera. The Indian drama are not yet arrived at the discrimination of character; the heroes and heroines resemble another more or less in all their
drama; and the species rather than the individual is everywhere represented. There is also standing characters, such as the cīla, who is the grācious of the Spanish stage, and the rīsadūkha, who is the clown of the old Eng
lish. This latter personage is always the necessary attendant of the principal hero, whom he parodies, and whose cīla he resembles. Indian heroes and heroines, whose contrasts are often very strongly coloured. The strict rules of the Greek drama are unknown to that of India, and even in
many external particulars it is comparatively unfettered,
for instance in the number of acts, of which there may be many more than ten. In the Indian drama there is a rule which especially requires notice: the interchange of dialects in the dialogue, which is in general skillfully and
deliberately managed, and gives us a high idea of the scene
taken up.
written on the model of the Praćītī songs, which alone appear to have been intended for singing, and they have throughout the Praćītī metres. The word govinda itself is a Praćītī form of the word gopeṇḍra, 'the master of the shepherdesSES,' which is one of the titles of Krishna. In the sanctuary texts known in a certain theogony as the maṇḍala is the soul, which emanated from God, with whom it was originally in union, but was drawn down from him by sinful objects (the shepherdesSES); at length however, full of desire for its original purity, it returns to God. In fact, the authorites, so one of these popular religious poetry is of some such deep meaning in view: and perhaps we may here find indications of the influence of the mystic poetry of Persia. (Printed at Calcutta, 1866; and there is an excellent edition of 1836.)

Narratives.—As the old epic poems were especially designed for the warrior-caste, so the Vaiṣayins, the third class, have a literature of their own, the narrative, of which the first which requires notice is Ṛṣabha, which is indigenous to India. In the Ṛṣabha and also in Manu there are allusions to well-known fables, and others are related in the Maṇḍählīkraka. The two chief works of later times, but which are still of some antiquity, are the Panchatīrtra and Ṣīdhaṇḍa; (Bidpai.) The Kathākārakas are short narratives of the存在的 author's. There are known to have been written through three modern prose works, which contain obvious marks of having been derived from older metrical collections. They are called—Vedīpanchāvīnsāri, 'the 25 tales of the ghost of Śakma, etc. and 36 tales of the parrots,' known in Europe as the 'Tutinaśe, from a Persian translation; and the Śimhāsanaṇāvatīnāsā, the 32 tales of the statues on the throne of Vikramādiyā. The whole series has only been printed in translations into the modern languages of South India. The present work of this collection is peculiarly interesting to us, since even in the middle ages they had found their way to Europe under various forms, as 'The Book of the Seven Wise Masters, etc., and the knowledge of the original text clears up many difficult questions of literary history. Some of the oldest and best of the 'Tales of the Thousand and One Nights' have been drawn from this source, and even in the Arabic version they retain many features which belong only to India.

There are other two kinds of narrative works, which need only be noticed briefly, as no part of them has been printed, the champaśa, which are narratives in prose and verse, sometimes written in the artificial style; and the champaśa, which are short and wonderful stories from the history of some celebrated man. Of this last kind there are two which relate to the kings Vikramādiyā and Bhōja, and at first sight appear to contain some valuable information; but they are entirely without authority, and have served to introduce error into questions of literary history.

Before we proceed to the scientific literature, we must add to the narrative class the scanty remains of the Panchatīrtracca. The penultimate censn of cast which distinguishes the natives of India, and the circumstance of the whole country having never been formed into a single kingdom, but consisting of small independent governments, will sufficiently account for the almost entire want of historical writings. With the exception of the modern chronicle of Orissa (abridged by Stirling, 'Asiat. Resear.,' xiv.), there is only one historical work in existence in the Sanscrit, 'The Chronicle of Cashmere,' properly entitled Rājaṭarangī, 'The stream of the deeds of the legendary history by Kalhana, partly from antient sources, which he specially mentions. There have been three successive continuations of this Chronicle, which describe the period of the Mohomanian dominion down to 1451; written in the same style, but in the modern epic metre, and has a good deal of the form of a "Parāsā." The first part of it has been drawn almost entirely from Buddhist sources. It was first made known in Europe by Wilson's Anaflysis ('Asiat. Resear.,' 1784; afterwards edited by...
The union of atoms, which however is purely mechanical; so that, contrary to the Sāṅkhya, in its consequences it neces-
sarily leads to nothing. The third system, the Mādhava, the first teacher of which was called Jaimini, is directly opposed to the two former. It maintains religion and the revealed word of the Vedas and is a positive theological system. Accordingly it is necess-
arily a more comprehensive and rigorous science, involving a

The first part of this system is predominantly practical; it is called Pāramāndūrā, the first Mādhava; here also it is affirmed that the final deliver-
ance comes about by the conquest of the other mind, and when the mind is completely purified, all knowledge to that of the duties prescribed in the Vedas. The metaphysical part of this system is displayed in the Uttaramāndūrā, commonly called the Vedānta. Here knowledge is considered as the condition of deliverance, and not the final delivered word of the Veda, as all thought is to be regulated. The Vedānta required philosophy and dialectic, and has therefore adopted from the other systems everything not contradictory to its objects; the consequence of which is, that one-half of the philosophy is given up, and the Vedānta is intermediate between phi-

The Sāṅkhya system however must be regarded as the first and most ancient of all, for this system, on certain mytho-

The Sāṅkhya system is known to us through the representations of it by the later Sāṅkara Chārya, for the writings themselves have been

The Vedas were written in a language which soon became obsolete. The necessity of defending
them against corruption and innovation, and of preserving by their correct interpretation, naturally led to grammars;

Grammar.—The Philological Sciences arise among

antient people as soon as a sacred literature gives occasion to their growth. The Vedas were written in a language which soon became obsolete. The necessity of defending

The second system is the Nyāya, of which Góthama is the author. This system is entirely confuted to logic and dia-

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dia, and they apply the same principles to other sciences, as for instance philosophy. Everything is compressed into rules, which are brought into the most concise forms of expression possible, and the grammatical categories are expressed by a kind of figures or analogical signs. They are intended to be committed to memory, and without a commentary they are unintelligible; they are all connected one with another systematically, but indeed very arbitrarily in his arrangement, which appears to be half adopted merely from the necessity which the object of attaining the greatest possible brevity imposed upon him.

The whole of modern Sanskrit grammar is founded on Pāṇini, and is a great advance on it. As a system of grammar, it is explaining and correcting him. Two entant commentaries by Kātyāyana (who is also called Vararuci) and by Pāṇini, who in later times have themselves been copiously commented upon, are as old as Pāṇini himself. In comparatively recent times, grammarians began to take some pains to reduce the 'Sutras' to a system, and to compose grammars in accordance with European notions. Here the 'Siddhāntakauṃḍulī' must be particularly mentioned, which was written by Bhātottogīshā and about the year 1600, and has served as the foundation of a number of more modern works. ('Siddhāntakauṃḍulī,' Calcutta, 1812, 4to.; 'Laghukauṃḍulī,' ibid., 1827.) All these are entirely occupied with teaching the grammatical forms, and it is only as an appendix that a statement is given of the rules of phonetics, on the contrary, is developed in many distinct works, and is grounded on the logic of the Nyāya system, which is a proof of enlarged and correct views. So in like manner the different Prācīn dialects have been exhibited in the Vedas, and are set down in their mutual relations in the grammar of Vararuci, which belongs to the fourth century before Christ (the greater part of it published in Lassen's 'Instit. Lingui Prācīn.'; it treats of the principal dialect and of the three others which are most nearly connected with it. He is followed by a series of later grammarians, who successively include within the limits of their works more of the inferior dialects. The most important of these grammarians is Hemachandra, a Jain. The canonical texts of the Vedas, for which he afterwards wrote a commentary, that language is regarded by them with peculiar interest.

Lexicography also had its origin as far back as the Vedas, for the necessity soon have been felt of collecting and explaining the obsolete words. A work of this kind, entitled 'Nikṣaṇa,' forms an essential part of the Vedas themselves. For the purpose of perfecting grammar, it was afterwards found necessary to make alphabetical lists of the verbal roots. The nouns, chiefly for the purpose of filling up the gaps of the 'Nikṣaṇa,' are arranged etymologically, but according to the subjects to which they belonged. The chief work of this class, which has served as a foundation to all the later ones, is the 'Āmarakosā' ('Āmarasinha'), which they have limited even in their anachronisms and grammatical errors, which there are many, completely exhaust the treasures of the language.

Mete.-In like manner, the Veda-hymns, which were to be committed to memory, led to the consideration of the laws of metre, and treatises on metre have been ascribed to very early teachers of the Vedas. Here also the more early essays have been superseded by a work which exhibited the subject as a complete system. Pāṇini, who is here commonly called Pingala, is said to be the author of it; this work has been elucidated by numerous commentators.

Music.-The theory of music has also been elaborated according to various systems, but in a strange manner, for the different notes and musical scales have been purposed.

Of the metrical and musical sciences nothing has been printed, but this deficiency is supplied by Colebrooke's copious Treatise on Metre ('Asiat. Res. x.')

The philosophical sciences belong also to the Indian system of Rhetorics, or rather Poetry, in which the rules for poetic composition are deduced, not from any principles of art, but from the existing classical works, with particular reference to the drama, the theory of which is extremely complete. The art of Poetry belongs to a late period. There have been printed the 'Kāvyakārakā,' by Manusabhadra of Cashmere (Calcutta, 1829), and 'Śilātyādarpāna,' by Kaviādja (Calcutta, 1828), both of which belong either to the twelfth or thirteenth century.

Commutaries.—In later times the Indian grammarians have occupied themselves in writing commentaries on the older works, particularly the classical ones. The most important of these, with whom we are yet acquainted, are Mallinda, on the more modern epic poems, and Siddhāntam, on the 'Bhagavadgīthā.' The commentators have done good service in fixing and maintaining a pure text, as well as in the great epic poems. A philological school was established in Bengal in the fifteenth century, and the authors of these works, when they came to be written down, were written in Bangla, and many of them have been re-edited in Calcutta, among others, by Mānanda, on the 'Rāmāyana,' and as well as the 'Sukhottāla,' and other dramas. Vopadava, a grammarian of this school, in a similar manner invented a new grammatical system, according to which he altered the technical expressions of Pāṇini, without which possesses them only in their perfected form. Assisted by the system of notation which they discovered, the natives of India have been particularly happy in their methods of treating arithmetic and algebra, which have had such immense influence in the West. There has been a great deal of geometrical questions analytically, just as the Greeks, on the contrary, solved arithmetical questions by geometry. ('Līlāvatī,' by Bhāskara, Calcutta, 1828; Colebrooke, 'Algebra of the Hindus,' Calcutta, 1817, 4to.)

In the earliest Indian astronomy now exist, several different systems are apparent, and these systems have been treated of in five works, entitled 'Siddhānta, which apparently contain the same theories which were afterwards developed into the Brahmasiddhānta. This work is the first to free himself completely from all mythological notions; he was acquainted with the motion of the earth about its axis, and estimated more accurately than Ptolemy the ingenuity of the equinoxes. His two works, 'Arishottamā,' an exhibition of his system in 860 strophes, and his abridgement of it, 'Dasagtika,' are only known to us by quotations. The age in which he lived is not accurately fixed. According to Colebrooke's reckoning, he seems very early in the last century of the Christian era. This can be fixed is 478 a.d., and he may have lived two or three centuries earlier; but Whish ('Trans. Asiatic Soc., ii. 2, 509), fixes the year of his birth about 502 A.D. To fix the date with certainty would be of great importance towards the settlement of the question which has of late been investigated with so lively an interest, whether the Indian astronomy was entirely native, or whether it was constructed with the aid of that of the Greeks, with which the Indians were certainly acquainted. At all events, the Brahmanas made greater progress in algebra than the Greeks. Astronomy has not been improved in India since his time; on the contrary, those who have come after him have not relinquished the old views of the world stated by religion, but have endeavoured to defend them against them. This was chiefly done by Brahmagupta, the author of the 'Brahmasiddhānta,' in the seventh century a.d., who is the classical astronomer of the moderns, and whose track was followed by Bhāskara in the fifteenth century, and by his pupil, Vasudeva. The want of the present age has occasioned the printing of a small number.
of these works, chiefly on the law of inheritance and adoption, and on other topics, have been translated into English. Besides Mann, which was translated by Sir William Jones, Colebrooke's 'Two Treatises of Inheritance' (Calcutta, 1810, 4to), and his Digest of Hindu Law on Contracts and Successions, 1797, which is translated from a modern compilation of the laws of one of the native provinces of India, is often referred to. In English it may be called bow-string hemp, and that it grows very commonly under bushes in the jungles in almost every soil in the southern parts of India; it flowers from January to March. In a good soil, and where the plants are deep watered, the leaves become three or four feet long, and contain a number of fine remarkably strong white fibres, which run their whole length. The natives make their bow-strings of these fibres, which are separated by the leaves before the plant has been printed. The plants are pressed down with the foot, and the rest scraped with a piece of hard wood held in both hands. Forty pounds of leaves thus scraped yield about one pound of clean dry fibre.

The fibres may be applied to a great variety of uses. Dr. Roxburgh was inclined to think that the fine line called China grass is made of these fibres. As the plant grows readily from the slips which issue in great abundance from the roots, and as they require little or no care, Dr. Roxburgh recommended their cultivation in sandy soils. It has lately been proposed in Calcutta to try the fibre on a large scale for rope-making.

2. *Langoumos* is a third species, found on the sands of Madras. *S. guineensis* is a species found along a great extent of the west coast of Africa, and which, from affording fibres which, like those of the Indian species, are fine and strong, has been called African bow-string hemp. This has been known to grow wild in some parts of the South of India. It became generally accessible, an advantage which the other oriental languages have not enjoyed. In India this speaker has been connected with the names of Wilkins, Jones, Colebrooke, Wilson, and Pringle. But Europe no longer remains behind: and the composition of manuscripts the possession of the East India Company in London, and that of the library of Paris, have been abundant sources, and perhaps more than sufficient to compensate for the peculiar advantages which these languages have possessed under the greatest disadvantages. In that country, the knowledge of Sanscrit has been chiefly diffused by A. W. von Schlegel and Bopp, both of whom learnt it about the same time in Paris. The latter however has only had a view in comparative grammar, a science which has been called into existence by the study of Sanscrit. But A. W. von Schlegel and Lassen have found in Bonn a Sanscrit school, the object of which is a well-grounded and complete knowledge of the language as well as the literature and antiquities of India. With what success this attempt has attended, appears from a series of works which have already issued from this school, and which embrace the most varied branches of Indian philology.

SANSIEVRE, a genus of *Liliaceae* plants, found on the coasts of Western Africa, of Ceylon, and other Eastern islands, as well as of India, remarkable for the strength and fineness of the fibres of their leaves. The genius is characterized by the robust scale-like flattened petals, which have a long rather straight tube, a serrated limb, of which the divisions are either spreading or revolute. Stamens six, inserted into the throat; filaments filiform; ovary three-lobed; style three-lobed; stigma three-lobed; ovary three-lobed. Berry 2-celled, or, from becoming abortive, 1-celled and single-seeded. The plants have a thick creeping root-stock, with radical equitant leaves, which are closely and narrowly ovate, obtuse, and acuminate, and have flowers in spikes, which are easily cultivated and propagated in sandy loam in bark stoves.

*Sansevieria* yemenia, a species found in Ceylon, has smooth oblong, acute, flat, and linear-lanceolate, channelled, serrulate leaves, which are shorter than the bracts. As long as the stamens, the bracts equalizing the peduncle in length. This, like some of the other species, is remarkable for the tenacity and fineness of the fibres of its leaves.
ness, of which, after lingering nearly two years, he died at Paris, July 7 or, according to the account in La France Littéraire, July 16, 1667.

The maps of Sanson are very numerous, amounting, it is said, to about three hundred; of which a great number were devoted to an accurate delineation of France. Though the services he rendered to geography were very important, he has been blamed for working too hastily, and not taking sufficient advantage of astronomical observations for the improvement of his cartographic art. But Sanson, with his associates, Carcassonne who accompanied his maps, and others on geographical subjects,

In a dissertation entitled ‘Britannia, ou Recherches sur l'Antiquité d'Abbeville,’ 1636, 8vo., he attempts to prove that Abbeville is the Britain mentioned by Strabo (iv. p. 408), Pliny (iv. 181), Diodorus (vii. 85), and Polyb. (v. 30), which he endeavoured to establish in Great Britain, and gave her name to the country. On turning to Sanson's dissertation (p. 4), it appears that he misunderstood the original, which simply says that the oldest names of Mansa (Marseilles) are those of Narbo and Corbilo, with whom Scipio conversed, could give him any information about Britannia. But he learned and curious dissertation, as it is styled in the 'Biographie Universelle,' compels us to make a very low estimate of Sanson's critical sagacity, though these (Narbon and Corbilo) were the chief cities in this part of Gaul. His 'Tables méthodiques' of the divisions of the dominions of Christian princes, engraved on about a hundred folio plates, were first published in 1644, and passed through several editions. Sanson's maps were interrupted by a Jesuit, Father P. Labbe, who nevertheless copied largely from it without acknowledgment. This led to a reply, in which the mistakes and plagiarisms of Labbe were reviewed and corrected, for which Sanson, with the remainder being destroyed by Sanson in consequence of the mediation of the chancellor Seguier. His maps were collected into an atlas by his son, and published in two folio volumes, in 1639. In the Bibliothèque du Roi is preserved a manuscript map, of which he affected to prove that Boulogne was the Portus Iutus of Caesar. [BOULOGNE, vol. v., p. 271.] There is a portrait of Sanson, engraved by Edelinck.

Sanson had three sons, all of whom followed in his steps. Nicolas, who was killed August 27, 1648, in defending the chancellor Seguier from the fury of the populace, at the age of twenty-two. Adrien, the next son, succeeded his father as geographer to the king, and died in 1718. Guillaume, the youngest, in concert with his brother, continued the publication of maps and geographical works, and died in 1703. Adrien was succeeded in the business of publication by his nephew, P. M. Sanson. (Chiefly from the Biographie Universelle.)

SACCOPO, TATTI. This eminent artist, equally distinguished as sculptor and architect, was born at Florence in 1479. He was the son of Antonio Tatti, whose surname he afterwards exchanged for that by which he is now universally known, and which he assumed out of a sense of inferiority, of his father, Antonio, and of Sansovino. Contucci had just returned from Portugal, where he had acquired great reputation as a sculptor, when Jacopo, who was then twenty-one years of age, became his pupil, and afterwards greatly surpassed him. His superior talent however was so far from exciting any jealousy, that it served only to increase his instructor's attachment to him. At this time Jacopo profited greatly by his intimacy with Andrea del Sarto. They almost pursued their studies in common, and Sanzio copied Michael Angelo's celebrated cartoon representing an episode of the war with Pisa. Becoming acquainted with Giuliano Sangallo, then architect to Julius II., he was taken by him to Rome, where his talents procured for him the notice of Bramante and other principal artists of the town. He was probably indebted to Sangallo for his first instruction in architecture—an art which he did not begin to practise till some years afterwards, but in which he ultimately attained the highest distinction. A great deal of his genius was spent in his capacity of a chef-d'œuvre in modern sculpture, but now known only from drawings and copies, it having been destroyed by a fire that broke out (1762) in the gallery at Florence, where it had been placed as a leading-place in the Oratory. He had an opportunity of displaying his talents as an architect, in designing several triumphal arches, and decorating the front of the Duomo with a temporary façade adorned with Corinthian columns, niches, reliefs, &c., in honour of the public entry of Leo X. (1516), who complimented him by saying that the design deserved to be perpetuated in marble.

He returned to Rome a second time, but quitted it for ever on the city being taken and sacked by the Imperial troops in 1527, and retired to Venice. He was not however entirely a stranger in that city, having visited it shortly before, when he was introduced to the doge, Andrea Gritti, in consequence of one of his good services. The light in which the first works he was employed upon was the repairing the domes of St. Mark's; after which he executed a great number of structures, both for the public and private individuals, among which are S. Giorgio de' Greci, La Scuola di S. Giovanni, the Palazzo Delfino, the Palazzo Allende (one of his best works), S. Francesco delle Vigne, La Zecca or Mint, the Public Library, the Loggia del Campanile, S. Geminiano (now taken down), Palazzo Delfino, Fabbriche Nuove di Rialto, &c. Among these the Zecca is considered one of his finest works, yet it certainly is deficient in character, and the windows are too large and too numerous. Inconsistencies of a different kind occur in the Loggia del Campanile, a highly ornamented piece of architecture, for while the sculptures on the exterior represent heathen deities, the Virgin Mary occupies the niche within. Still this incongruity is excusable in comparison with that exhibited by him in a magnificent bronze door in the sacristy of St. Mark's, the two principal compartments of which represent the Saviour's passion and resurrection. The principal wing of the Public Library completed, it fell down, in consequence of which he was imprisoned and fined, though shortly after liberated and restored to his former office. Notwithstanding his numerous engagements as an architect, he did not give up sculpture entirely, but executed the two colossal figures of Mars and Neptune, which adorn what is from them called the Giants' Staircase in the ducal palace, where upwards of 75 years of age. He died at the age of 91, November 27th, 1578. According to Vasari, he enjoyed unimpaired health and strength to the last. As a sculptor he formed many excellent scholars, and among others Danese Cataneo and Alessandro Vittoria. Jacopo had a son, supposed to have been illegitimate, viz.:—

SANSOVINO, FRANCESCO. Giacomo was born at Rome in 1521, was educated to the law, took his degree at Padua, and began to practise at the bar in Venice, but with so little success that he resolved to try his fortune some other way at the court of Rome, Cardinal di Monte, his godfather, who had been elected pope. (Julius III.) Though, however, he was kindly received by the pontiff and made one of his chamberlains, he was so disappointed in the chimerical expectations he had formed, that he returned to Venice, where he thenceforth applied himself entirely to literature, but without much success. He translated some of the principal translations from the classics, histories, and historical collections, abridgments, &c., attest his industry; but the works by which he is now chiefly remembered are his De Descriptione di Venezia, and 'The Canova Novelle scelte de' pit' nobili Scrittori della Lingua Volgare,' which last has been frequently reprinted, but though the later editions have been augmented by a hundred additional tales, they are less esteemed than those of 1565 and 1566. Francesco died at Venice, 25th September, 1593.

SANTA CRUZ. [MEXICAN STATES.] SANTA CRUZ RIVER. [PATAGONIA.]

SANTA FE. [MEXICAN STATES; PLATA, LA.] SANTA FE DE BOCÓN. SANTA MARÍA DE BETANCURIA, the capital of the island of Fuerteventura, is situated near 25° 30' N. lat. and 14° 10' W. long., towards the southern extremity of the valley of Oliva, which is about 15 miles long and generally two to three miles wide. The produce of the island is brought to this town, and hence sent across the island to Cabras, which is the only harbour in the island, and is connected with the town by the only paved road. The anchorage at Cabras is indifferent and exposed in a swell. The soil is characterized by several crops of corn, good, and goat-skins. The population of Santa Maria de Betancuria may be between 5000 and 4000. (Arlett. * Survey of the Canary Islands and part of the
The calyx superior 4- or 5-cleft. Stamens 4 or 5, opposite the segments of the calyx. Ovary 1-ovuled, with few or 4 ovules. Fruit 1-seeded, hard, dry, and drupaceous. Bumby fleshy. This order is closely allied to Eriaceae and Thymelaeaceae. One of its most remarkable characters is that its unicellular ovary contains always more than one, which are pendulous and attached to the spinal central receptacle. In the form of wood the gings Santalaceae are found in Europe and North America. New Holland, the East Indies, and the South Seas; they exist as large shrubs or small trees.

The Oxyrys belongs to this order, although after having digressions flowers and a trilobed calyx. This is the ever a different plant from the Oxyrys of Pini, which was less in former times a reputation for curing eyestrain. The modern genus possesses no sensible properties as medicine, and is principally employed for the manufacture of besoms, for which its long slender branches serve well. The Ogechee lime, which is used on the Mississippi, is the fruit of Nyssa cedariae. The maple form trees of great beauty, and with wood is white, compact, and light. The most valuable genus in this family is its type, the Santalum, of which the species S. album forms the true sandal-wood of commerce.

Santalum album, 1. Broach with leaves, flowers, and fruits 2. Branch with its leaves, showing the perforated laminae and their appendages. 3. Simple stamens, and slender stigma. 4. Transverse section of a fruit, 5. Cross-section of a fruit, showing the yellowish flesh and nutlets. SANTALIN, the colouring matter of the Perum santalinum, or red sandal-wood. It was examined by S. in 1818, and is readily obtained by digesting the raw wood in alcohol, and then diluting the clear solution of water, by which the solution is precipitated of a bright red colour; it is tasteless, nearly insoluble in water, and dissolved by alcohol, ether, alkaline solutions, and by the oils of lavender and rosemary. The alcoholic solution of santalin gives different colors precipitates with metallic solutions; thus with silver it forms a beautiful purple, with lead a violet, iron a deep brown.

Santalum is decomposed by the stronger acids, with the usual phenomena and products.

According to Pelletier, santalin is composed of.

<table>
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<th>Equivalent</th>
<th>48</th>
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<tr>
<td>Sixteen equivalents of carbon</td>
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<td>Three equivalents of oxygen</td>
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Santalin, or either the sandal woods which contains little used in this country as a dye stuff, but in India is employed both in dyeing silk and cotton; it was used...
pharmacy to give a colour to certain tinctures, but the colour is not generally regarded as a permanent one.

Santalum, a genus of plants which gives its name to the natural order Santalaceae, to which it belongs. Sandalwood is cultivated in both the warm and cold climates, and is known both in commerce and the arts as a fragrant-smelling wood, whence it is used as incense, and employed in the manufacture of necklaces, fans, elegant boxes, and cabinets. Being a product of the Malabar coast of India, as well as of the sandal woods of the works of the Arabs, who describe it under the three heads of sandal abius (white), sandal uspur (yellow), and sandal soorkh (red). Actuarius is the earliest Greek author who mentions Santalum. The above kinds are referred to the Polar European works on Materia Medica by the names of Santalum album, S. citrinum, and S. rubrum. The last is the red sandal or sander wood of commerce, which is used only as a dyewood and as a slight astringent in medicine. This has already been described under the name of S. abius. The name of the common yellow sandal wood, whose yellow and white sandal are both yielded by species of Santalum, though there is some difference of opinion on the subject. The names are no doubt of Eastern origin, as the Arabic and Persian sandal are evidently derived from the name of the wood, which in Sanscrit is chandana, and in Tamil Chandram.

The genus Santalum has hemiphradrom flowers, the perianth united at the base with the ovary, the limb superior, tube glandular, four stamens, four filaments, and four, each four, inserted into the throat, alternation with the lobes of the limb. Lumnfpus four, inserted into the throat opposite to the lobes of the limb; filaments wavy-shaped, loaded with a powder of hairs; anthers two-celled. Ovaries two, deeply 5-lobed, fleshy, and pubescent. Capsule from the apex of a free central placenta. Style simple, simple. Stamina obscurely 2-3 lobed. Drupe berries, one seeded; margined at the apex. Seed inverse. Embryo straight at the apex of a fleshy albumen. Rudicle above.

Santalum album, or the white sandal-wood, is a native of the mountainous parts of the coast of Malabar, and also of Timor and the islands of the Indian Archipelago, as it is probable that the same species extends to great distances beyond. Alphonse de Harven, who visited the Moluccas, states that the sandal-tree is most generally branched, and in general appearance has been often compared to the myrtle, and in inflorescence to the privet. The leaves are opposite, with short petioles, oblong, entire, smooth, glaucous beneath; length from one and a half to three inches, and breadth from half an inch to an inch and a half. Flowers numerous, small, straw-coloured when they first expand, but change to a deep ferruginous purple: they are inodorous, as are all the exterior parts of the growing plant even when bruised. The tree when felled is about nine inches or a foot in diameter; it is then barked, cut into billets, and said to be burned in a dry place for about a couple of months. The deeper the colour and the nearer the root, the more fragrant it is. As seen in commerce it is in compact pieces of a white or greenish-yellow, or whitish, colour, but with little taste. It is usually described as being the young and outer wood, and that the inner parts, as they become older, become coloured towards the centre, and that this is the source of the yellow, while the white sandal-wood consists of the outer and younger wood of the same tree.

This is the general opinion respecting the origin of yellow sandal-wood, but Garcías thought it in his time to be produced of a different tree. M. Gauchard is of the same opinion, and infers from their waters same for the botanical part of the Voyage de l'Urasie. This he saw in the Sandwich Islands, and has named it S. Freycinetianum; stating it to produce the sandal-wood which is so much valued by the Chinese, who only obtain it from this species. The author has also observed the manufacture various articles with the yellow sandal-wood, which is the most fragrant. They also burn it both in their temples and private houses as an incense, and especially in the form of long slender candles, which are formed by covering the ends of sticks with the sawdust of sandal-wood mixed with rice paste.

S. myristifolium is another species, or a strongly marked variety of S. album, found by Dr. Roxburgh in the mountains of the Rajan, in the east of Great Ora, and which was figured by him in plate 2 of his 'Coromandel Plants;' it is distinguished by its opposite lanceolate leaves. The wood is of little value, according to Dr. Roxburgh, but Dr. Wallisch says it is 'eerte odoratissimum.' About 240 tons of sandal wood are imported into Calcutta from the Malabar coast, and about twice as much into Canton from the islands of the Indian Archipelago.

Santander, a small province of Spain, on the southern coast of the Bay of Santander, erstwhile annexed to the province of Burgos. The capital, Santander, is situated in 43° 28' N. lat. and 3° 40' W. long. It is the centre of considerable trade, especially since the breaking out of the last civil war, which caused most of the wealthy merchants of Bilbao and S. Sebastian to settle in it. Santander is well built, and has a safe and commodious harbour capable of holding men-of-war. The coast has some other excellent harbours. Its commerce with the north of Europe, to which it still exports much wool, is very considerable. It sends likewise flour to the islands of Cuba and Puerto Rico, being one of the puertos habilitados, or seaport towns which are allowed to trade with the colonies. The environs of Santander consist of steep mountains and deep valleys, in the lower parts of which the Guadalavin, a river, has been given to the particular district in which the capital is situated. The hills are covered with wood, and abound with iron of the best quality, owing to which the government has cannon-founderies and manufactories of cast steel. The inhabitants are mostly of the Castilian race, and the authorities of the town are under the supervision of the Governor, the latter at Liérganes. The population of Santander, which has considerably increased in late years, may now be computed at 30,000.

Santarem, a district of Portugal, in the province of Estremadura, extending for nearly thirty miles on both sides of the Tagus, which intercepts it from north-east to south-west. The capital, Santarem, is situated on the right bank of that river. The town is well built, and the streets are very narrow. In former times it was surrounded by thick walls and strong towers, built by the Arabs during their occupation of the Peninsula; but no trace remains at present of the ancient fortifications, except the five gates, which serve as entrances to the town, and a ruinous old castle, named农贸市场, the residence of the Mohammedan governors. The Roman name of the town is believed to have been Teclobis, and Præsidium Julium, which the Arabs changed into Shantareyn, whence the Castilian name of Santarem, the ancient capital of the kingdom of Toledo, was the first to west Santarem from the hands of the Moslems in 1093. 'It fell again into the hands of the Almoravides, and was retaken by Alphonse Henriques, king of Portugal, in 1147. Yusuf Abd Yakûb, the second of the Almohades, besieged it in 1184 with a large army. The town was wounded in a sally made by the garrison, and compelled to raise the siege and cross over to Africa, where he died of his wounds, in August, 1184. [Moors; Portugal]." Near this town the French under Massena remained for some time, being unable to penetrate to Lisbon. There is in Santarem an academy of history, instituted in the year 1747. The population is estimated at 16,000.

SANTÉ, RIVER. [CAROLINA, SOUTH.] SANTERRE, L. SANTÉGGIO, a province of Spain, and one of the seven into which the ancient kingdom of Galicia is now divided. It is also the name of the capital, 'Compostella' (Campus Stellae), which, from its celebrated temple dedicated to the Apostle St. James, or Santiago, as the Spanish calls him, is more generally known as Santiago de Compostella. This city is situated in a beautiful plain surrounded on all sides by fertile hills, and close to the rivers Sar and Sarela, which flow out of the Tambre and the Ulla, irrigate the neighbouring districts, which are exceedingly fertile and productive. San tiago is badly built and worse paved; the streets are narrow and crooked, and with the exception of the cathedral, which is in itself a curiosity, there is nothing remarkable in it. The cathedral was built about the end of the ninth century, by Alonso el Magnifico, king of Asturias and Leon; but it has since been so altered and added to, that scarcely any part of the original building
remains. It contains some very fine wood-carvings, and
richly-painted windows. In a subterraneous chapel under-
neath the principal altar, pious Catholics adore what are be-
thought to be the remains of St. James and two of his dis-
ciples, Athanasius and Theodosius, which, according to tra-
tition, were discovered at the time when the cathedral was
built. This circumstance made Compostella the resort of in-
umerable pilgrims from all the Christian nations and three
quarters of Europe.
In 1431 three men who left the shores of England
amounted to 916; and in 1433 it was increased to 2480.
It was the practice for the crown to grant licences to masters
of ships for carrying out a limited number of pilgrims, who
generally paid their own large expenses, and for the money they
spent on their travelling expenses, and to present offerings to the
church. Pilgrims from France, Italy, and all parts of Ger-
many went thither by land across the Pyrenees, and tra-
versed Biacay and Asturias. In order to encourage those
visitors of the convent of San Ely, a church outside of
Compostella, built several hospitals on the route for the
accommodation of the pilgrims, and formed themselves into
a brotherhood to protect them against the attacks of the Moslems. This was the origin of the celebrated order of
Santiago (Mariana, Hist. Gen. de Esp. lib. xi, cap. xiii.),
Instituted by Ferdinand II. of Leon, in 1158. It was long
believed that from the offerings made by the pilgrims the canons attached to the church had been enabled to
repair it, but this has been shown to be greatly exagger-
ated; for, in 1809, when Marshal Ney took possession of
the city, and compelled the chapter to exhibit their treasure,
and give him half of it for the pay of his troops, it was found
that there were about 80,000 double annas. James turned out
to be of gilt brass, and his diamond eyes imitation
stones. The convent of San Martin, founded by
Susemano, bishop of Compostella, at the beginning of the
sixteenth century, is another building remarkable for its great
antiquity and excellent preservation. There is likewise a
hospital for the use of the pilgrims, erected by the command
and at the expense of Ferdinand and Isabella, about the
close of the fifteenth century.
San Justo and San Luis are two of the first towns wrested from
the Arabs by the successors of Pelayo. [Monas] They main-
tained themselves in it until A.D. 997, when the celebrated
Al-Mamur took the city, destroyed the temple, and carried
away its bells to Cordova, there to be suspended from the
ceiling of the mosque, where they remained in the place of
chandeliers, until, on the taking of Cordova, Fernando III.
caused them to be taken back to Santiago on the shoulders
of his Moslem captives. (Al-Maklafi, Moham. Dynast. in
Santander, vol. 1, p. 411.)
Santiago is the see of an archbishop, and the seat of a
university, founded in 1533, but which is seldom frequented
by any students except those who are natives of Galicia. The
trade of the place is of little importance, consisting only of a
few manufactures, and is consequently of little advantage to the
country people. In former times there was a consider-
able trade in images, chasubles, &c. for the pilgrims, but
this has long ago ceased to be a source of profit. The popu-
lation is something above 15,000. It is 98 miles from Astorga;
in 42° 52′ N. lat., 8° 30′ W. long.
SANTIAGO, the capital of the republic of Chile, in
South America, is situated in 33° 50′ S. lat. and 70° 40′ W.
long, in a large plain which extends eighty miles north
and south, and about fifty miles east and west. This plain
borders, on the east, on the high range of the Andes, which
are covered with snow during the greater part of the year,
and on the west on a range of hills called the Cuesta de
Prado, which divides it from the shores of the Pacific. This
plain is about 1850 feet above the level of the sea, and unfit
for agricultural purposes, except where it is irrigated along
the banks of some small rivers, and a canal which brings
water from the river Mapocho to the vicinity of the town, and
fertilises a tract more than twenty miles in length and
several miles in width.
Santiago is one of the finest cities in America in respect
to buildings, convenience, and healthiness. It stands on a
high plain towards the west, and it is usually laid out
being divided, like other Spanish towns, into four quarters,
and equal squares, called quadras. The principal streets,
which are about forty-five feet wide, eight in number, run
south-east and north-west, and are crossed by twelve other
streets at right angles. The streets are paved with large
rounded stones taken from the bed of the river Mapocho,
and have a gutter in the middle, through which a current
of water, flowing from the river, is suffered to run during
two hours in the day, by which means the streets are kept
clean. Many of the streets are decorated with large reliefs
of porphyry quarried from the neighbouring hill of San
Criostoval; the width of this pavement is nine feet.
The houses are usually only one story high, on account of the
earthquakes, but they are very large, and contain many rooms.
In the streets three quadrangular aunts are placed for
the accommodation of the pilgrims. The entrance of the house
is through a wide and lofty archway, which leads to the front patio, which is paved, and
separated from the second by a large sala and dormitory.
The second patio is laid out for a kitchen, and there are
such conveniences. The windows of the rooms looking into the front patio, and especially the large win-
dows of the sala, are protected by handsome hand-wrought grilles, which are sometimes gilt, but the rooms
are always dark, and have no windows. The houses along the street are occupied by small rooms, which
have no communication with the interior of the house, and
serve as shops for mechanics and retailers. The walls of
the houses are four feet thick, and built of large bricks made
of baked mud, but these are whitewashed or painted,
which gives them an agreeable appearance. They are roofed
with red tiles.
The Plaza, or great square, stands nearly in the middle of the town; it is the second largest in the city. It has
a handsome bronze fountain in the centre, surrounded by a
basin of hewn stone, from which the inhabitants are sup-
plied with water by water-carriers. The buildings on the
north-west side are, the government palace, the prison, and
the chambers of the south-west side stand the cathedral and the palace of the bishop; on the south-east side are a number of little shops, and on the north-east there are private residences. The palace is an extensive building in the Moorish style, of white marble. The cathedral is
merely the stone building in Santiago, though somewhat heavy, it is ornamented, but not finished.
The other public buildings of the town are in a good style,
but they are not large, except the Casa de Moneda, or Mint.
In the southern part of the town occupies a wood which is
very fine, it is two stories high, has three court-yards, and
a great number of apartments for those who were formerly
officers of the establishment. But no money has been
coined there for some years, and the machinery has been
removed to Coquimbo. There are several handsome churches
and convents in Santiago, especially those of San Domingo,
San Francisco, and San Augustin.
At the western extremity of the city is a small rock, on which the church of La Cisterna is built, which is
much visited by foreigners on account of the beautiful
view which it affords of the Andes. Adjacent to the hill
in the north is the Tajamar, or breakwater. The river Mapo-
cho skirts the northern side of the town, and though in the dry
season there is a quantity of sea spray, and the occasional
melting of the snow in the mountains to such a form-
dable size that it would inundate the town if it were not
kept off by the Tajamar. This breakwater is of substantial
brick and mortar masonry, about six feet across at the top
widening towards the ground, with a parapet of a similar
brick in thickness, and three feet high: it is nearly paved
over the whole of its extent, which is two miles, with small black
pebbles. It was formerly used as a public walk. At this
western extremity of the Tajamar is a handsome bridge
over the Mapocho, of eight arches, which leads to the
suburb of Chamba. Along the south-west side of the
city is the Canada, which is a large open place, planted
with four magnificent rowan trees, which are watered by
small canals constantly full of clear running water. This
is at present the public walk. The Canada separates the
city from the little suburb called La Cañada. At the
western extremity of the city is the small suburb of
Buena Vista, and there are several schools,
as its education is almost on
tirely neglected in the other countries of South America. It has also a college.

Coarse ponchos and saddlery are made to some extent, and sent to the other parts of Chile. Santiago exports the produce of its mines, and jerked beef, hides, and fruits to Valparaíso, from which it receives the manufactures of Europe, China, and the East Indies, with sugar, cacao, and some other colonial productions from Peru and Central America. A good road leads from Santiago to Valparaíso, a distance of ninety miles; it is the best ar
ticial road in South America, and practical for carriages, though it crosses three ranges of steep hills. Santiago has
some commercial intercourse with Mendoza on the eastern side of the Andes. Two roads connect these towns. The northern one follows the Bío-Bío river to the coast of the Pacific, and crosses the mountain-pass of Uspallata, which, at its highest point, is 14,454 feet above the sea-level, and may be passed on mules from the beginning of November to the end of May. The southern road leads over the mountain-pass of Portillo, south of Mount Tepungato, which attains an elevation of 14,365 feet above the sea-level, and is seldom open longer than from the beginning of January to the end of April. By these roads Santiago receives mules, hides, soap
, tallow, dried fruits, and wine from Mendoza.

SANTIAGO DEL ESTERO. [PLATA, LA.]

SANTONIN. [TERRA.]

SANZ. AUGUSTIN, a Spanish architect, was born at Saragossa, December 29, 1724. He studied the practical part of his profession under Raynaldo Cortés, surveyor-
general of the public buildings in that city, and the theore
tical one in the school of design established there by the sculptor Ramírez at his own expense. But for the progress he afterwards made, and the taste he displayed, he was chiefly indebted to the instruction and advice of Ventura Rodríguez [Rodriguez], when the latter was engaged at Saragossa on the chapel del Poliar. In 1775 he was elected a member of the Academy of St. Ferdinand, and when the school instituted by Goicoechea was made an academy by the University of Buenos Aires, he directed it, having previously given instruction in architecture there without any emolument. In his capacity of public teacher he did much towards elucidating the pre
decides and corrupt taste that beset the receding period, when the art was a very degraded state in Spain; and towards introducing a better style. Nor was his influence inconsiderable, as the government appointed him to inspect all designs for public buildings proposed to be erected in Argentina. The eminent services rendered by himself the principal are, the church of Santa Cruz, Saragossa (of the Corinthian order, and forming a Greek cross in its plan), and those at Urrea and Bienes, both of them built at the expense of the Duke de Urría. He also designed some other public edifices in Saragossa, besides a number of private houses. He died July 23, 1801, and left a son, Matías Sanz, who was also an architect, and who completed the façade of the church at Epila, which building had been begun by his father.

SAÔNE, River. [FRANCE.]

SAÔNE ET LOIRE, a department of France, bounded on the north by the department of Côte d'Or, on the east by that of Jura, on the north-east by the south by that of Rhône, on the south-west by that of Loire, on the west by that of Allier, and on the north-west by that of Nièvre. Its form is tolerably compact, but irregular; the length from north to south is 147 miles, and that from the neighbour
hood of Lucenay l'Évêque to the neighbourhood of Châteauneuf 68 miles; the greatest breadth from east to west is from between Lons-le-Saulnier (Jura) and Loubans to the banks of the Loire near Crona or Grannat, 83 miles. The area is estimated at 313,000 square miles, being rather smaller than the aggregate area of the English counties of Chester, Stafford, and Derby. The population in 1831 was 523,970; in 1856 it was 558,507; showing an increase in five years of 14,537, or 2.6 per cent., and giving 162 inha
biliants to a square mile. In amount of population it is very far above the average of the French departments, but very far below the English counties with which we have compared it. In density of population it is just below the average of the larger departments, and far below the townships. The eastern and western sides of the heights the surface of the department is tolerably level. The principal summits are Mont St. Vincent, in the centre of the department, estimated at about 1915 feet; the Suin, Curosan, Don, and Le Marie
iers in the south; the latter, which is near Mâcon, has an elevation of 3177 feet.

The Charolais heights consist of granitic or of the lower strati
fied rocks, and these formations overread the more lev
er country on the south; The slopes of these heights, and the plain at their base nearly to the Saône, are occupied by the formations which intervene between the oolite group and the new red-sandstone group. A considerable extent of country around Charolles, on the west side of these heights, extends towards Chalon, almost to the Arroux, is occupied by the same formations. The immediate banks of the Loire (above the junction of the Arroux and of the Saône, and that portion of the depart
ment which lies east of the Saône, are occupied by the supra
creatic formations.

In minerals this is one of the richest departments in France. In productiveness of coal it is exceeded only by the departments of Loire and Nord. It contains two distinct coal-fields, which had, in 1834, ten mines at work and seven not at work, giving employment to 1390 men in the pits and 409 others, and producing 150,456 tons of coal. In 1835 the larger coal-field, Le Bassin du Creusot and de Bianay, had eight mines at work of thirteen: the smaller coal-field, Le Creusot, had three mines at work: the total produce was 142,149 tons. At Creusot, where the pits are deepest, the workings are 650 feet below the surface. The produce of these coal-fields is adapted for nearly all manufacturing pur
poses, and is distributed by means of a railroad seventeen miles long, which conveys the coal to the Canal du Centre. There were, in 1834, in the department, eleven iron-works, in which were eleven furnaces, seven employing charcoal and four coke, for the manufacture of ordinary and special forms of wrought iron. The richest manganese-mine in France is at Romanèche, near the Saône, in the southern part of the department; it yielded, in 1835, 900 tons of manganese, being more than the whole output of France. The other mineral wealth consists in the lithographic stones, and abundance of freestone are quarried.

The department is partly in the basin of the Loire, partly in that of the Saône, or, more properly, of the Rhône, to

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which the Saône is tributary. The line of separation between the two basins is formed by the Charolais heights, the country on the east of them being drained by the Doubs and the country on the west by the Seille. The Saône itself enters the department on the north-east side, between Sierre (Côte d’Or) and Verdun-sur-Saône: it pursues a winding course south-west past Verdun and Châtillon-sur-Saône, from which town its course is more directly south, to the junction of the Ryes-sousco, near Pont-de-Vaux (Ain), where it reaches the boundary of the department, and has its course along it to the neighbourhood of Thoissey (Ain), where its course to the department altogether. Its length within or upon the boundaries of the department is 171 miles, of which about 17 is within or upon the boundary of the department, and the Seille (of whose course about 41 miles, 27 of them, viz. from Louhans, navigable, belong to this department), the Doubs, the left bank, and the Dheune (38 miles long), the Gave (40 miles long), and the Grône (50 miles long), on the right or east bank. The Doubs receives the Gouette on its left bank, and the Seille receives the Soliman and the Sane on its right bank.

The Loire enters the department on the south-west side, crosses the south-west corner, and for the remainder of its course, until it quits the department altogether, forms the western boundary, about 55 miles of its course, all navigable, belong to this department, but the navigation is so inconvenient, that a lateral canal through part of its course is in execution. It receives the Arconce, or Renonce (40 miles long); the Arroux (65 miles long), which has 17 miles of its course receives the Croiseaux (25 miles long), the Bourbince (42 miles long), and other streams from the Somme and the Tanay, all on its right or east bank. There are a number of small lakes, some of them, as those of Montchanais and Longe-Pendu, amid the Charolais heights, on the limit of the two river-basins.

The canals are as follows:—the Canal du Centre (formerly called Canal du Charolais) unites the Loire and the Saône: it was commenced a.d. 1763, and finished a.d. 1792. It commences in the Loire at Digoin, and follows the valley of the Arroux for a short distance, then that of the Bourbince, at the head of which valley is its summit level, about two miles long, where the canal crosses a depression in the Charolais heights; it then descends by the valley of the Dheune to the neighbourhood of Chagny, where it turns off, and joins the Saône at Châtillon. Its length may be estimated at 75 miles, all in this department. The lateral canal to the Loire consists of two parts, one extending from Roanne, in the department of Loire, to Digoin, in this department, and the other from Digoin to Briare, in the department of Loiret. We are not informed what progress has been made in the formation of these canals; the last mentioned part, the earliest in point of time, was commenced by a law passed in 1822.

The official statement of the navigation of the department is as follows:—

**Rivers.**

<table>
<thead>
<tr>
<th>River</th>
<th>Miles</th>
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<tbody>
<tr>
<td>Saône</td>
<td>73</td>
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<td>Doubs</td>
<td>9</td>
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<td>Seille</td>
<td>25</td>
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<td>Loire</td>
<td>57</td>
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<td>Arroux</td>
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<thead>
<tr>
<th>Canal du Centre</th>
<th>Miles</th>
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<tr>
<td>Canal latéral à la Loire, from Roanne to Digoin</td>
<td>11</td>
</tr>
<tr>
<td>Canal latéral à la Loire, from Digoin to Briare</td>
<td>37</td>
</tr>
</tbody>
</table>

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The number of Routes Royales, or government roads, is seven, having an aggregate length (Jan. 1, 1837) of 343 miles, which, from town to town, are in good repair, in 28 miles out of 343, and 39 miles unfinished. The principal road is from Paris to Lyon by Sens and Auxerre, which enters the department on the north-west side, and runs to Lucenay L’Evêque and Autun, from whence it proceeds south-east across the Charolais heights, to Châtillon-sur-Saône: here it turns south, and follows the valley of the Saône, by Grand Senecex, Tonnerre, and Mâcon, into the adjacent department of Rhône. This road formerly followed another line from Saulieu (department of Côte d’Or) to Châtillon, avoiding Autun, entering the department at Chagny on the northern boundary, and passing thence to Châtillon: but this line, though the shorter of the two, has been abandoned. A second road from Paris to Lyon by Diéjon enters the department at Chagny, and runs to Châtillon. A number of roads unite at Autun; one from Nevers and Château-Chalon, a department of Nièvre; another from Mâcon, in the department of Saône-et-Loire; one from Dijon, in the department of Côte d’Or; and a fourth from Mâcon, Roads run, one from Châtillon across to the Saône at Lons-le-Saulnier, in the department of Jura; another from Tonnerre across the Saône and the Seine, and the Seille, in the department of Côte d’Or; and two others from Mâcon, one by Charolles, Paray, Digoin, Bourbon, Lanzy, and Creusot, to Nevers; and the second across the Saône to Bourg. The Routes departementales, or departmental roads, have the same date, an aggregate length of 692 miles, viz. 241 in repair, 68 out of repair, and 39 unfinished. The by-roads had an aggregate length of nearly 8000 miles. There are few departments so well provided with the means of communication both by land and by water.

The climate is changeable in the Charolais, where intermittent fevers are common: it is too cold a part to allow the culture of the vine. In the rich plains extending from these heights to the Saône, the climate is delightful; in the heights near the river, where the round numbers at 2,146,000 acres, of which 1,186,940 are more or less than half, are under the plough. The produce a corn and potatoes, taken together, is about equal to the consumption of the people, with the exception of meal, which is brought in from a distance.

The sheep are small; that of horned cattle, especially oxen, are bred. Oats are very generally employed in the labour of agriculture, and a considerable number are sent from the neighbourhood of Charolles for the supply of the marquis of Paris. The vineyards occupy about 9,500 acres; the wool is in high repute; the cheeses of Charolles, those of Mecon, and those of Cones are among the red wines of the first class; and those of Fleurey, La Chapelle-Guinchay, and La Romandie, of the second class: the white wines of Pouilly and Fures are first-class wines; and those of Chevret, Bourg, and Davayé are of the second order. These are mostly given to the neighbourhood of Mâcon. The great bulk of the value of the above ranks however only as common table-wine; but the Mâconnais, or the district of Mâcon, which is sent to France, is the best of its class. That of Charolles, or the district of Charolles, which is chiefly sent to Lyon, is on the whole hand; among the worst, and has nothing to recommend it but its low price.

The woodlands occupy nearly 400,000 acres: the timber is chiefly oak, beech, ash, pine, fir, and elm. The red and the wild boar are found in those woods which cover the Charolais heights.

The department is divided into five arrondissements as follows:

**Name and Situation.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Area in  Car. Com.</th>
<th>Population</th>
<th>Miles</th>
<th>Towns and numbers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mâcon</td>
<td>S.E. 477 9 133</td>
<td>114,861</td>
<td>114</td>
<td>148</td>
</tr>
<tr>
<td>Autun</td>
<td>N.W. 727 8 85</td>
<td>83,446</td>
<td>83</td>
<td>28</td>
</tr>
<tr>
<td>Charolles</td>
<td>S.W. 943 13 151</td>
<td>125,621</td>
<td>125</td>
<td>24</td>
</tr>
<tr>
<td>Châtillon-sur-Saône</td>
<td>N.E. 668 10 145</td>
<td>120,411</td>
<td>124</td>
<td>11</td>
</tr>
<tr>
<td>Louhans</td>
<td>E. 481 8 81</td>
<td>83,441</td>
<td>83</td>
<td>28</td>
</tr>
</tbody>
</table>

3316 48 692 523,370 136,516
The arrondissement of Mâcon contains the following towns:—Mâcon, pop. in 1831, 10,996; in 1836, 11,944 [Macon]; and Tournus, pop. 4316 town, 5311 whole commune, on the Saône; Lugny, on a small feeder flowing from the Charolais heights into the Saône; Mutot and Cluny, pop. 3366 town, 4180 whole commune [Cluny]; on or near the Giber, St. Genouix, the lower Saône, on the Saône and Romaney, east of the Saône, between the Seille and the Sane Vive, one of the affluents of the Sane. Tournus is pleasantly situated at the foot of a little hill on the bank of the Saône, over which there is a good wooden bridge; there are pleasant walks, and a quay along the river. The townsman manufactures hats, blankets, cotton counterpanes, beet-root sugar, and potash; they send a great quantity of good building-stone to Lyon by the river, and carry on trade in corn and wine. There are twelve yearly fairs. There is a tribunal of commerce.

Grenze, the painter, was born at Tournus. Mutot is pleasantly situated in a grazing country; it has twelve yearly fairs. St. Gengou, or St. Gengoux, is a district producing some of the best wine in this part of France, in which the townsman carry on a considerable trade; they manufacture hats and leather, and have six cattle fairs in the year.

In the arrondissement of Autun are—Autun, population in 1831, 5487 whole commune; in 1836, 6433 commune [Autun]; on the Arro; Lucenay-l'Epêque, on the Creuseaux, a feeder of the Arro; Issy-l'Epêque, on the Saône; and Montceau, and Couches, between the Arro and the Saône; between the Seille and the Sane Vive, in the district, and at the foot of the hill, near the town, is the village of Creurat or Creusot, population 3117, celebrated for its glassworks, which are among the most important in France for making and cutting flint glass, and for its foundry of cannon for the manufacturing of heavy iron goods. From 1500 to 5000 workmen are employed in the coal and iron mines, iron-works, glass-works, &c., of these places and the surrounding villages.

In the arrondissement of Châlons are—Châlons, population 1831, 15220 whole commune; in 1836, 16432 commune [Châlons]; on the Arro and Saint-Marie, on a small feeder of the Seville; Paray-le-Monial, population 2722 town, 3400 whole commune, on the Bourbince; Percey, on the Oudrache a feeder of the Bourbince; Toulong and Gaumont, on the Seille; and near the Sornin. Châlons has one or two fiscal offices, a subordinate court of justice, a tribunal of commerce, an agricultural society, and a high school. The townsman are engaged in iron-works, which supply wrought iron to the national government, and coal mining in the vicinity. They carry on trade in the wine, wood, and fat cattle of the surrounding country, which are sent to Paris. Paray-le-Monial is a tolerably well built town, in a fertile valley; it has an hospital and a high-school. The town men trade in corn and have nine yearly fairs. Percey and Guignes have iron-works. Digoin, at the junction of the Canal du Centre with the Loire, carries on a considerable trade, especially in salt. There is a manufactory of earthenware. Six fairs for cattle are held here. The inhabitants manufacture the manufacture leather and table linen, and carry on trade in corn and wine; they have five fairs in the year. Semur is distinguished as Semur-en-Brionnais, from another and more important town, Semur-en-Auxois, in the adjacent department of Burgundy, and by several large fairs for cattle and coal. Cotton goods and leather are manufactured at Clayette. At Chauffailles, near Chevignes, is a considerable linen manufactory.

In the arrondissement of Châtillon are—Châtillon-sur-Saône, population 15,294; in 1836, 12,409 [Châtillon-sur-Saône]; and Verdun-sur-Saône, population 1796, on the Saône; Chagny, population 2699, on the Dhuene; Givry, population 2882, and Bourg-en-Bresse, between the Gave and the Dhuene; Mont St. Vincent, between the Bresse and Arro; and the villages of Bussy, Noyers, and Gilly-en-Bresse, between the Gave and the Saône; and Grand Senecy, or Senecy-le-Grand, population 2406, between the Saône and Grône. Verdun-sur-Saône is immediately below the junction of the Doubs with the Saône, on the left or east bank of the latter. It was a fortified town in the middle ages, and was often taken and retaken. The townsmen manufacture pottery and earthenware, and carry on trade in corn, wine, and fruit. They have three yearly fairs. Chagny is situated near the orders of the region, with the Saône, which are not the best quality. The townsman carry on considerable trade, and have five yearly fairs. Bourg-en-Bresse consists principally of one wide street, which occupies one side is in the commune of Bourg-en-Bresse, the other in that of Touches. It is a pretty town of 1200 inhabitants. The country round Givry produces excellent wines. Mont St. Vincent is sometimes called Belvédère (Belvédère), from the fine prospect which, from its situation on the top of the hill, affords a view of the Saône, the Seine, and the Mont St. Vincent, a chief trade is in wool. There are six yearly fairs. Senecy-le-Grand is a handsome well-built town, though small. The townsman carry on trade in corn and wine. They have six yearly fairs.

In the arrondissement of Louhans are—Louhans, population in 1831, 3411; in 1836, 3674; and Cuiseaux, population 1732, on the Seille; Sainte Croix, on the Solman; Cuiseaux or Cuiseaux, population 1735, on a branch of the Solman; Montpont, on the Saône Vive, one of the streams which unite to form the Sane; Bellevesvre, on a feeder of the Seille; and Mervans, on the Guiotte. Louhans is an old town, with the upper stories of the houses projecting over the causeway. It has an hospital, an agricultural society, and a high school, besides some judicature and fiscal offices. It stands on the left bank of the river Seille, the navigation of which commences here. The town is a mart for the manufactures of Lyon and Switzerland, and there are some iron-works. There are manufactures of cloth and of wool in the village of Cuiseaux or Cuiseau (sometimes written Cuizay), in the country of the historian Paradis, carry on trade in corn, wine, and poultry. There are nine yearly fairs.

The population of the towns given above, is, where not otherwise mentioned, that of the whole commune, and from the census of 1831.

The department constitutes the diocese of Autun, in the ecclesiastical province of Lyon and Vienne. It is in the jurisdiction of the Cour Royale of Dijon, and of the Archevêque of Sens. It is divided into four military divisions, the head quarters of which are at Dijon. It sends seven members to the Chamber of Deputies.

In respect of education this department is behind the average of the French departments. Of the young men enrolled in the military census of 1829-30, only 900 could read and write, the average of the departments being a little under 40 in the 100.

In the earliest historic period this part of France was one of the territories possessed by the Sequani, two Celtic nations, separated from each other by the Arar or Saône, the Sequani being on the east and the Aedui on the west of that river. The ancient parishes, known in the middle ages as the district of Brionnais, and that of Beaune, were inhabited by the Sequani or Bronnovi, a people dependent on the Aedui, mentioned in the present copies of Caesar as two nations, but whom D'Anville is inclined to consider as only one. The Aedui were, under the Romans, comprehended in the province of Lugdunensis Prima, the Sequani in Maxima Sequanorum, a subdivision of the province of Belgica.

Several Gallic or Roman towns were within the limits of this department. Viborac, which Caesar describes as the principal town of the Aedui [De Bell. Gall. i. 22; vii. 55], and to which the Romans gave the name of Augustodunum (Augustodunon or Augustodunum, Ptol.), may be identified with the modern Autun, a place remarkable for its antiquities. [Autun] Cabillonum, mentioned by Caesar [De Bell. Gall., vii. 54], and by several subsequent writers, was probably the Sequani or Sequanorum. It is mentioned by Caesar [De Bell. Gall., vii. 90], are the modern Châlons and Mâcon. The modern names of these three towns are obviously derived by corruption from the antient ones. The Buxum and Toulonum, or, by a popular tradition, the Doubs and the Toulon, are probably mentioned in the designation of the Doubs and the Toulon. The Pons Dubis of the Peutinger Table was probably on the Doubs just within the limits of this department. Tinutium, mentioned in the Antonine Itinerary and the Peutinger Table, is identified by D'Anville with Touviers. The place duodacimum apud lapidem [i.e. the twelfth milestone from Augustodunum], where the Aeduan rebellion under
Sacrecoeur was put down by Silius (Tact., Annalum, lib. iii., cap. 45, 465), must have been near Cochues, between Autun and Châtillon. The subsequent change of this part of France and Burgundy is unknown.

SAÔNE, HAUTE, a department in the eastern part of France, bounded on the north by the department of Vosges, on the east by that of Haut-Rhin, on the south by that of Doubs, on the south-west by that of Jura, on the west by the Rhône, on the north-west by the Marne, and on the south-west by the Haut-Marne. Its form is tolerably compact, approximating to an oval. The greatest length is from east-north-east to west-south-west, from the junction of the three departments of Vosges, Haute-Saône, and Haut-Rhin, to the border near Cointry; the greatest breadth, at right angles to the length, is from the neighbourhood of Jonvelle, on the Saône, to the bank of the Oignin near Rougemont in the department of Doubs. 38 miles. The area of the department is 1,397 square miles. The population in 1831 was 338,910; in 1836, 343,295; showing an increase in five years of 4,385, or rather more than 1 per cent, and giving 167 inhabitants to a square mile. In area and amount of population it is below the average of the French departments; but in density of population is just about the average. In area it may be compared with the English county of Norfolk; but falls short of it both in amount and density of population. Vesoul, the chief town, is on the Dronjé, a feeder of the Saône, 193 miles in a direct line south-east of Paris, 121 miles by the road through Provins, Troyes, Chaumont, and Langres.

The eastern side of the department is occupied by the branches of the Vosges, the main ridge of which is just under the thirtieth degree of latitude. The principal elevations are those of Ballon de Servance, 3967 feet; and Le Ballon de Lucre, 3718 feet. A range of heights branching from the Vosges skirts the right bank of the Oignin, as far as the road between Veoul and Besançon, and indeed farther; and some of the branches of this range correspond to the western portion of the department, near the banks of the Saône and the Meuse.

The eastern extremity of the department is occupied by the level plain, which forms the delta of the Saône. The country on the west and south of this primary district is occupied by the sandstone of the Vosges and other of the lower secondary formations, but the greater part of the department is occupied by the secondary formations which intervene between the cretaceous group and the sandstone of the Vosges. The minerals are granite (red and grey), porphyry (purple and green), freestone, stone for lithography, and excellent granites, gneiss, and a white sand valuable for the manufacture of bricks. There were in 1844 four coal pits at work, giving employment to between 400 and 500 miners and others, and yielding that year 36,303 tons of coal. In 1835 the produce was only 16,128 tons. Peat is also procured. Iron ore is abundant; there were, in 1834, 45 establishments for the manufacture of pig-iron and wrought iron, comprehending 37 furnaces for the making of pig-iron, 53 forges for the production of wrought-iron, and 3 forges for steel. Coal-cellar was the fuel almost exclusively employed.

There are several mineral-springs, of which those of Lure, a town at the foot of the Vosges, on the river Breuchin, are the most frequented.

The department belongs to the basin of the Saône, a subdivision of the more extensive basin of the Rhône. The Saône, from which form the north side, only 25 or 30 miles from its source, between Châlignon-sur-Saône and Jonvelle: it flows southward, though with some considerable bends, to the junction of the Dronjé; after which it flows to the south-west, and flows in a very winding channel past Servoy and Gray, into the department of Côte d'Or. That part of its course which belongs to this department may be estimated at about 86 miles; the navigation, which, according to Brue's Map of France, commences at Voulé, and passes through Gray, nearly 30 miles; but the official statements give the navigation at only 15 miles. The principal tributaries which it receives are the Coney, the Superbe, the Latonnet or Lanterne, the Dronjé, the Roman, the Morte, and the Oignon, on the left, and the Artho, the Haute-Marne, and the Sulaun on the right bank.

Of those the Oignon is the most important: it rises near the eastern extremity of the department amid the Vosges, and flows south-west, partly within, partly upon the border, 90 miles into the Saône. There are no canals.

There are five government roads, having an aggregate length (on 1st Jan., 1837) of 186 miles; viz. 143 miles in good repair, 22 out of repair, and 21 unsurfaced. The principal road is that from Paris to Vesoul, Bézére, and Bâle. The Basel in Switzerland, which enters the department beyond Faye-le-Billot (Haute-Marne), and runs through Port-sur-Vesoul to Vesoul; and from thence by Lure to Bézére. Roads branches off at Vesoul, to Grenoble. The other between Faye-le-Billot and Port-sur-Vesoul, runs from Vesoul to Besançon, and to Espénon at the department of Dijon and Doubs. The roads from Vesoul to Besançon, and to Espénon at the departments of Dijon and Doubs.

The climate of the department is milder than that of the neighbouring departments; the cold of winter is less intense, and the autumn is usually fine; but the spring is variable owing to the changes of temperature produced by the melting of the snows in the surrounding mountains. The soil is on the whole fertile. The area may be estimated at 2,900,000 acres in round numbers, of which about 640,000 acres, or almost one half, are under the plough. The quantity of wheat raised is about the average produce of the departments, in rye and maize (which are much used), in maize, barley, and oats considerably below the average, especially in oats. From the extent however to which the potato is cultivated, the inhabitants are enabled to spare their corn, of which a considerable quantity is sent to the departments of the south. Millot, beet-root, peas, and seed barley are also grown. The area of nearly 150,000 acres: they are chiefly along the banks of the Saône and Oignon, and afford abundance of good pasture. The heaths and open pastures occupy nearly 35,000 acres. The number of horned cattle, sheep, and hogs is very large, and still more of sheep, is below the average. The droghed horses are in good repute. Pigs, goats, and asses are rare, but the mule is rare. The vineyards occupy nearly 30,000 acres, and produce largely above the average of the departments, but the wine is not considered of the best quality. The woods occupy nearly 400,000 acres, and contain abundance of oak, beech, and hornbeam; on the slopes of the Vosges there is abundance of fir timber: the elm, the ash, the maple, and the aspen are not common. The wolf, the fox, the squirrel, and the otter are common. Cattle are tolerably plentiful, especially the hare, the rabbit, the partridge, the rail, the woodcock, the snipe, the wild duck, the thrush, and the ortolan. The rivers abound with fish, especially the trout, eel, and pike. The area is divided into three arrondissements as follows:

The number of cantons or districts, each under a justice of the peace, has, since the above Return, been increased to twenty-eight.

In the arrondissement of Vesoul are—Vesoul, population in 1831, 5428 towns, or 5553 whole commune; in 1836, 5576 for the commune, on the Dronjé; Jonvelle, Port-sur-Saône, population 1665 town, or 2067 whole commune, and Serzy on the Saône; Jussery, population 2704, on the Amance; Amance, on the Upper Meuse; Montbouzon, on the Oignon; and Noroy-l'Archambaud, on the heights which skirt the valley of the Oignon.

Vesoul is not mentioned in history before the tenth century; in the middle of the twelfth, under the power of the German king, it was assailed by a German army, which, returning from an expedition into Bresse, determined to pillage it; a sudden inundation however alarmed the assailants and saved the place. The town was afterwards held by those who violated the terms of capitulation, and gave it up to pillage. Upon the union of the La Franche Comté to France, the prosperity of the town increased, and several public buildings were constructed. It is well built, and is adorned with handsome public walks. There are a church, with a
handsome high altar in marble, a town-hall, a court-house, a covered market, and handsome cavalry barracks, all erected about the middle of the last century; there are also a theatre, an hospital, and public baths. The townsman manufacture calico and other cottons, bread, hats, nail, and other ironware, and woollen goods. There are dye-houses, tan-yards, and bleach-houses for wax. Trade is carried on in corn, hay, wine, cattle, iron, and hides: there are twelve yearly fairs. There is a high school with a cabinet of natural philosophy and natural history, and a publishing establishment of 1000 000 books a year. There is a society, by which interesting papers on agriculture are periodically published, a society of the sciences and commerce, and a departmental nursery-ground.

The town has four fairs in the year for cattle, horses, coarse woollens, and straw hats. At two fairs a considerable quantity is made in the neighbourhood and sold at these fairs. Port-sur-Saône occupies the site of Portus Abunini, a place mentioned in the 'Notitia Provinciae Galliae,' numerous fragments of Roman tiles, the remains of an aqueduct, tessellated pavements, and medals have been dug up. The place suffered much in the wars of the fifteenth and sixteenth centuries; it has the ruins of a strong castle in an island of the Saône. The townsman manufacture large quantities of timber for ship-building or other purposes, which are sent down the river to the ports of the Mediterranean; and trade in corn, cattle, and iron. There are seven yearly fairs. There is a handsome bridge over the Saône. Secey, distinguished by the manufacture of innumerable fabrics, of timbre and paper, and a considerable corn-trade; there is a bridge of fourteen arches over the Saône. Secey has six fairs in the year. At Jusey fine clock and watch works are made; and there are several churches. Before the Revolution there were as many as eight convents. Some woollen cloth and other articles are manufactured; but the chief business of the town arises from its situation on the Saône, on which river goods are here embarked from different parts of Lorraine, Champagne, and other lands. Bougeon, a town of 6000 inhabitants, is a market town, on the south of France; and goods from the south are landed. There are immense mills on the Saône, comprehending, in one establishment, a saw-mill, an oil-mill, a fulling-mill (used also in the preparation of leather), and a flour-mill. The flour is sent down the river chiefly to Lyon and Marseilles. The chief articles of trade are corn, hay, timber, deals, wine, iron, and colonial produce. Gray has some government offices, an agricultural society, a college, and a public library. There are four yearly fairs for cattle, horses, woolen goods, and straw hats. At Champlâtreux, linen, druggets, and hats are manufactured; and trade in corn and wine carried on: there is a bleeding-house for wax; and there are five yearly fairs. At Gy, druggets, cotton goods, and other manufactures are carried on; and trade in wine: there are six considerable fairs in the year. Pesmes has some iron-works and the ruins of a castle: the town is pleasantly situated on a hill sloping down to the Ognon: there are four yearly fairs. Iron-works are numerous in this arrondissement.

The population, when not mentioned to be otherwise, is that of the commune, and from the census of 1831. This department, with that of Doubs, constitutes the archiepiscopal diocese of Besançon; it is included in the jurisdiction of the Cour Royale and the Académie Universitaire of that city. There is a Lutheran consistory at Héricourt. The department returns four members to the Chamber of Deputies. It is included in the sixth military division, the head-quarters of which are at Besançon.

In respect of education, this department is considerably in advance of the average of the French departments. In 1826-29, of every 100 young men enrolled in the military system, 59 could read and write, and 59 could write and cipher. The number of pupils attending school is about 5000. The inhabitants are generally large and swarthy, remarkable for strength rather than agility, and for courage and perseverance rather than refinement.

In the earliest historical period this part of France was comprehended in the dominions of the Franks, and the portion of the western side of the department, which was included in the territory of the Lingones. These were both, as it appears, Celtic nations, but their country was included in Gallia Belgica on the division of Caesar. At Augustus Caesar, the Lingones were however afterwards taken from Belgica and added to Gallia Lugudunensis; upon the subdivision of which they were included in Lugudunensis.
Prima. The Sequani, in the subdivision of Belgica, were included in the province of Maxima Sequanorum. The following Roman towns appear to have been included in the limits of this province—Portus Jovis, Othocum, and Longa, or Lixovium, already noticed; Didimium, supposed to be in the neighbourhood of Jussay, at a place where the remains of vast buildings and roads, statues, reliefs, and medallia have been found; Segobriga, now Sareux, at the commence-ment of the Sequana; and Sutodurum or Velatodurum, probably on the Oignon, not far from Montbozon; and Amphoebrioga or Amdamebrioga (the spot where Arriovistus the German defeated the Aduri just before Caesar's conquest of Gaul), near the junction of the Oignon and the Saône, just on, or perhaps beyond, the boundary of the department. These were all in the territory of the Sequani. The only town of the Lingones, which is supposed to have been in this department, was Varis, which appears to have been about 8 or 9 miles north-west of Sareux, on a site not ascer-tained. In the middle ages this department formed part of La Comté de Bourgogne, or the province of La Franche Comté. [FRANCHE COMTÉ.] SAP, in vegetable physiology, is the fluid which plants imbibe from the soil in which they are placed, and is the great source from which they are nourished, and their various peculiar secretions produced. One of the most important of the growths of those plants is, therefore, to be placed in circumstances to absorb from the soil those constituents of which their sap is composed. The constituents of sap may be divided into those which are essential, or necessary for the growth of all plants, and those which are accessory, in particular for the growth of certain species or families of plants. The elementary bodies which form the essential constituents of sap are carbon, oxygen, hydrogen, and nitrogen. These bodies are capable of uniting with each other and forming a number of secondary combinations, and are seldom, if ever, absorbed in a pure state by plants. The forms in which they enter the plant and constitute its essential ingredients are those of carbonic acid, water, and ammonia. The sources from whence plants may obtain the carbonic acid and water, the soil in general, and in the atmosphere. It is not precisely known from which of these two sources plants derive the greater proportion of the constituents of their sap. The atmosphere appears to be the great source from whence the carbonic acid and ammonia is supplied, and the soil would appear to supply the greatest quantity of water. But whatever may be the amount of these ingredients absorbed by plants from the atmosphere through the agency of their bark and leaves, all of them appear to enter the stems of plants through absorption by their roots. The constituents of the sap which are not necessary for the growth of all plants are principally the metallic oxides, which it is well known enter very largely into the composi-tion of plants. The metallic oxides of potassium, sodium, calcium, and magnesium. These oxides occur in combination with various acids, but the acid is not found to exercise so much influence on the plant as the base. Although any of these oxides when presented in solution, would be absorbed by plants, it would be only those adapted to the peculiar habit of the plant that would be appropriated. Thus plants which grow naturally on the sea-shore, and require soda for their growth, would reject the potassa when presented to them in combination with soda, but they would reject the potassa by excre- tion and retain the soda. [Roor.] The sap therefore which is found in plants varies in composition both from the nature of the soil and the nature of the plant. From the soil the sap is conveyed by the roots into the plant, and is not long before it undergoes certain changes in its composition, but the nature of these changes, and the period at which they take place, are not well known. It is supposed that the nearer a tree is tapped the more fluid is the sap which exudes. The channels through which the sap passes in its upward course are also a subject of difficulty. Various observers have contended for each of the different tissues being the sole conveyer of this fluid, but it is evident that the transport of sap is performed by vessels, which seem appropriated to the conveyance of air, all the tissues of a plant are engaged in conveying sap. There are some parts which seem to convey more than others, and the younger tissues are always more filled with fluid than the older. Thus, when the trunk of a tree is cut through in spring, sap will be seen to exude from all parts of the cut surface, but in greatest quantities from the abruminum or sapwood, the most recently formed portion of the timber. But whatever channels the sap pursues, its upward course, we find that it undergoes great changes between the period of its absorption from the soil and its ultimate dispersion in the secretions of the plant. The most important of these changes is that which it undergoes when it first comes into contact with the air. By some it has been ascertained that a common sunflower, three feet in height, will lose one pound four ounces of water every day; and a common cabbage one pound three ounces. Hales contrived to measure the force with which plants excreted during the summer, and found that in their case plants it was five times as great as that which impels the blood in the crustal artery of a horse. The part of the plant in which this process goes on most rapidly is the leaf, which, in its extensive surface and the structure adapted for the performance of the function. For this purpose however the leaf is endowed with special organs called stomata. The stomata are small openings in the cuticle of the leaf, the number of which varies exceedingly in different plants. The stomata are placed by several species of plants in a direct proportion to their number. Exhalation goes on principally during the day, under the influence of the light of the sun, and almost completely ceases when the sun's rays are withdrawn. It is on this account that plants lose so rapidly their freshness when placed in water, and particularly when they have been plucked, or otherwise deprived of the means of obtaining a fresh supply of water. Fruit in tropical climates is thus kept constantly cool whilst the atmosphere is in a state of great exhalation by the constant supply of fresh juices from the cool earth. This fact may be taken advantage of in horticulture, in transplanting, which should be avoided in hot weather, and when the plant is full of leaves, as under these circumstances it would be the greatest possible loss of sap and furthest possible to the leaf to allow the air to enter the leaf. Subsequently to the process of exhalation, the sap in the leaves was at one time supposed to undergo a process similar to that of respiration in animals, during which the carbon of the sap united with the oxygen of the air, and carbamic acid was given off. The exhalation is supposed to take place in the upper surface of the leaves; and it was concluded that the upper layer of cells in the leaf were devoted to respiration, and the lower to digestion. The conclusion that plants are respired as animals they would be supplied with a great amount of carbonic acid gas, especially at night. Liebig states that the carbonic acid which animals absorb, or being entirely decomposed, and again returned into the atmosphere. At the same time the process of digestion takes place which has been called digestion: it consists principally in the decomposition of carbonic acid, the giving out of its oxygen into the air, and the combination of the carbon with other elements to form the various secretions of the plant, such as gum, sugar, starch, lignine, &c. [SACCHARUM VEGETABLE.] The mode in which the carbonic acid is introduced into the leaf was at one time supposed to come from the union of the carbon of the sap with the oxygen of the atmosphere; but from the statements of Liebig, and the fact that plants constantly give out a small portion of carbonic acid gas, especially at night. Liebig states that the carbonic acid which the plants absorb, or being entirely decomposed, and again returned into the atmosphere.
The necessity of light for the carrying on of the processes of exhalation, the absorption and decomposition of carbonic acid, and the fixation of carbon, is seen in the result of placing plants in the dark. In the first place their stems become weak from the possession of no sap; in the second, the absence of solid secretions; and in the second place they lose their colour, or the young shoots are entirely destitute of it. A knowledge of this fact is made use of in horticulture for the purpose of rendering those plants available as articles of diet, which would otherwise be nothing but a load to the table.

This is the case with celery, asparagus, &c., the parts which are eaten of these plants having been excluded from the influence of light under the soil in which they grew. To these ends stems of certain plants may be made to partake more or less of this quality by a total or partial withdrawal of the light. The loss of colour arises from an insufficient fixation of carbon, of which the green colouring matter of the leaves is composed. This colouring matter exists in the form of globules in the cells of cellular tissue, and is there called chrocmale. It is probable that the varied and beautiful colours of the flowers of plants are dependent on some modifications of the same substance.

From the period that the sap is absorbed by the roots to the maturation of the plants are elaborated, it is a state of constant motion. This motion is called the circulation of the sap, but it is not intended to convey by the term circulation the idea that the movement in question, the movement of the water, has its seat in the blood of animals, which is constantly sent out from and returned to a central point. The motions of the fluid in plants are of two kinds, general and special. The general motions of the sap are those of ascent and descent, both of which ascending and descending fluids circulate in the trunk of a tree, when not only the cut surface below will present an exudation of juice in its ascending course, but the cut surface above will present fluid that is descending. The existence and amount of these fluids thus circulating in the plant, has been demonstrated by an ingenious apparatus invented by M. Biot. By means of a groove in the lower surface of a hole in the stem of a tree, and a little trough applied to the upper surface, he measured the amount of ascending and descending juices, and also the influence of external circumstances upon the flow of the fluid. It was observed by M. Biot that the descending current is more dense and acecarinize than the ascending, although this is subject to slight alternations during rain. Light is the principal agent in modifying the flow. Mild weather facilitates the ascent of the sap; and a sudden cold, by contracting the tree, appears to promote its descent. If the cold continues, the ground hardens, and the sap again ascends. If a thaw succeeds a frost, the sap rises more rapidly, a rise was established. The ascent of the sap, which is so strong in spring, ceases when the leaves are fully expanded. After the middle of summer, the sun’s rays have less power, the leaves also are obstructed by the deposition of secretions, and the sap then descends. The motion may frequently be restored after it has stopped, especially in cold weather, by immersing it in warm water. According to Schulz this motion is also visible in the Alga, Fungi, Lichens, Mosses, Naiadaceae, Polysteineae, Zosteraceae, and Ceratophyllum. It is not observed in the higher forms of plants, but in these its place appears to be taken by the second kind of special motions, of which we shall now speak, called Cyclosis.

Cyclosis is a motion of the fluids of plants which was first described by Professor Schulz of Berlin. Although his views on this subject have long been before botanists, it was not till 1839 that his essay 'Sur la Circulation et sur les Vaisseaux Laticifères dans les Plantes' was published. It was to this essay that the gold medal of the Royal Academy of Sciences of Paris was awarded in 1833.

According to Schulz, this motion of the sap takes place in a peculiar kind of tissue called cenchyma, or intercellular tissue. [Tissues, Vegetable.] This tissue is composed of vessels which are observed in three different states. —1. broad and expanded; 2. narrow and contracted; 3. articulated. These forms are capable of passing one into the other, and are met with in the same plant as those described by Malpighi and Moldenhawer under the name of sora propria. These vessels as described by Schulz are found in nearly all the exogenous and endogenous plants, and always in those which possess spiral vessels. In those families or species, which do not possess spiral vessels, the intercellular rotation is found taking the place of cyclosis. The parts of the plant in which the laticiferous tissue is most easily observed are the root, stem, petiole, peduncle, and flower. It is easily produced by immersing the back of the stipule, or the base of the leaf, in the juice of Chelidonium, the bark of Acer platanoides, and the interior of the sepals of Calystegia sepium. It is most easily seen in young plants.

Through this tissue the fluid passes, sometimes clear, but more frequently milky, to which the name of latex is given. The latex appears to be a portion of the fluids of the plant more slightly organised, and separated from the rest. It is viscid, insoluble in water, coloured mostly white but sometimes yellow, red, and brown, and is often transparent. It
abounds with minute globules which give it its colour, and according to Schults constitute the living part of the latex. These globules oscillate in the latex, and when the latter is separated from the plant, they coagulate, and leave a fluid lymph or serum. This property is not found in other vegetable fluids, and, in this respect presents a remarkable similarity to the blood of animals. In fact the latex seems to bear the same relation to the system of the plant that the blood does to the system of the animal, and to be the immediate source of the various secretions of plants.

There is no doubt that a certain portion of the blood in the capillaries of animals, is involved in much obscurity. That they should continue, several conditions are necessary, such as heat, light, and all those circumstances essential to the life of the animal. It is certainly curious, but none of these can be assigned as a true cause. Under such circumstances perhaps it is better not to speculate on the cause, but rather to observe the facts.

SAP is a mode of executing the trenches at the siege of a fortress, when the besiegers arrive within such a distance from the covered-way that the fire from thence becomes too dangerous to allow the men to work on the ground without being protected by some covering objects, as gabions, placed before and behind the trench and the embankment.

The process of sapping varies with the distance from the works of the fortress and the degree of activity with which the fire of the defenders is kept up. It is therefore divided into what is called the flying sap and the complete or full sap. The first begins at the site of the covered-way, in forming the second parallel trench, which may be about 300 yards from the covered-way; and it is executed in the following manner.

If the distance from the depth of siege-materials to the place of the intended trench is not too great, every man carries two gabions, one on each side of him, or both slung at his back; he carries also a pickaxe and a spade, and in the first case these are fixed in the gabions, but in the latter he carries them in his hands. If the distance is great, the working party has to march is considerable, this burlen would be too fatiguing, and then each man carries on his shoulder one gabion together with a pickaxe or a spade.

The work is begun at a night, and when the sappers have arrived at the ground where the digging-line for the intended trench has been laid down, they set up their gabions a few inches in front of that tracing-line, the officers observing that the row of gabions in its whole length is correctly placed. The portion of trench to be executed by each sapper, or workman, is equal in length to the space covered by two gabions (about 4 feet); the men sit down or otherwise keep themselves covered till the order is given to commence digging, and when the number of men who constitute the work is doubled or tripled than can do the same work, every two gabions, those who have not room to work retire to a little distance till they are required to relieve the others. A man may fill his two gabions with earth in about a quarter of an hour, and then they will be proof against a musket bullet, except at the place where they touch each other; after this the earth obtained in executing the trench is thrown beyond the gabions towards the fortress. During the progress of the work the gabions are pushed a little way outwards at the top, in order that they may effectively resist the pressure of the earth which they are to retain, and they are sometimes crowned by two or three rows of fascines which are laid upon them in a direction parallel to the trench.

If the work proceeds by day and night, the parties are relieved every eight hours; and a trench executed by flying sap may, in soil of medium tenacity, be completed by three reliefs of men.

When the approaches of the besiegers have advanced so near the covered-way that the fire of the defenders will no longer permit the men to bring the gabions openly to the ground, the full sap is practised. For this purpose the sapers are divided into brigades of eight men each; and of these a demi-brigade of four men are employed in the excavation of a single line of trench. The party is provided with a mantelet (a plate of iron thick enough to be musket-proof), and capable of being moved forward by being mounted on a small wheel, which the men carry on their shoulders, with the addition of a flag or signal, so that one man can see another. For the purpose a great gabion called a sap-roller. This is a cylinder of basket-work, 6 feet long, and about 4 feet diameter, and having within it a gabion of equal length, but about 2 feet 6 inches diameter; the axes of the two gabions are coincident, and the space between the exterior of one and the interior of the other is stuffed with fascines, by which means it is rendered musket-proof. The sap-roller turns on its convex surface is found to be more manageable than the man; and when it is intended, to form a trench in any proposed direction, by breaking out from one which has been already executed, it is raised over the parapet of the latter trench, and gradually lowered on the exterior side, being guided by means of a book, so that it may have the exact direction. The leading sap-roller of the demi-brigade then cuts through the parapet, and pushing the sap-roller forward about 2 feet, he hastily places an empty gabion in rear of that extremity of the trench, and advances the front of the trench in the order that he may be covered on his flank: then, moving behind the gabion, he excavates a portion of a trench, 10 inches wide, and as many in depth, leaving a breast about 12 inches broad between the gabion and the nearest edge of the excavation, and throwing the earth into the trench. When this portion is dug, the sap-roller is advanced about 2 feet farther, and another gabion is set up in its rear, adjacent to the former, and in the line of the intended trench: a short fascine, or two sand-bags (bags full of earth), are thrown over this, and one another in the gabions, in order that a musket-ball may not be to penetrate through the screen in that part. The sap-roller then excavates as before, and having filled the second gabion, a sap-roller forward, and the process is repeated, until the trench continues to advance. The second sapper of the squad follows the first, keeping a little way in his rear, and increases the width only of the trench by 20 inches on the side which is farthest from the line of the gabions, and he also throws the earth left between the trench and the gabions in rear of the trench towards the gabions, and the fourth sapper excavates a portion 3 feet wide, 2 feet deep, increasing the breadth of the trench towards the men by 10 inches. By this arrangement, the tasks of the different men are rendered nearly equal, and complete cover is obtained when the work of the third man is executed. The four men thus form a trench 4 feet wide and 3 feet deep, and a step is left on the side nearest to the gabions for the men to get in and out, in order to continue the passages set up the latter in line; then two or three men are placed at certain intervals from each other, dig pits behind the gabions in order to get cover, and afterwards work towards each other, making a small trench, and filling the gabions with earth. The trench may subsequently be made of the required width.

When the distance to be passed over is short, the line of trench is carried on directly towards the place, sometimes by a simple trench, with traverses at intervals, and some of the earth is removed by the sappers as they advance. This is called the continuous method, executed by two squad or demi-brigades, who work parallel to each other, each being covered in front by its own sap-roller, and there is a third roller in rear of the small interval between the others. A row of gabions is placed on the right of the trench executed by one squad, and on the left of that which is executed by the other: the distances between the rows of gabions is about twelve feet, and traverses are formed as the trench at intervals as the work advances. These traverses are formed of earth from opposite sides, so as to leave a serpentine passage along the trench.

SAP-GREEN, a pigment, prepared by evaporating the juice of the berries of the Rhamnus catharticus, or hawthorn, to dryness, mixed with lime. It is soluble in water to a small extent, and insoluble in alcohol and ether. Acid reddens it, but the alkaline and alkaline earths restore the green colour.

SAP-JAJOUS, the name generally given to a grey of
South American monkeys, including in its larger sense the
Ordinary Sapojos \[Aratinga \text{ Larzowski] and the other
Sapojos (Cebus, Geoff.). These last, which are termed
Sajoys, have the head round, the thumbs distinct, but
scarcely opposable on the fore hands, and the tail entirely
covered with hair, although still prehensile.

The species are very numerous, and Cuvier truly says,
that they are nearly as difficult to characterise as those of
the American Howlers. \[MYCRTS.]

The whole of the Sajoys are very active, climb admi-
rably, and are altogether well formed for an arboreal life.
The fore hands suffer by comparison with those of the Old
World monkeys, and exhibit a less perfect organisation.
The thumb is longer, but is more on a line with the other
fingers. The palms both of the fore and hinder extremities
are endowed with great sensibility. Small in size and play-
ful in disposition, the Sajoys lead a gregarious merry life,
feeding chiefly on fruits and insects. The facial angle is
about 90°.

One of the most common species is the Weeper (Cebus
Apelis), but why should it have obtained this dolorous title is
not very clear, for when confined it is good tempered, play-
ful, and very kind. The fur is rather rich, inclining to olive,
with a golden tinge on the lighter parts; and the face is
bordered with a paler circle, varying considerably in shad-
ing and blending in some individuals. This species has been
known to breed in confinement.

Humboldt describes another species, Cebus allifrons, the
Onzoproy des cataractes, about the same size as the last,
with a greyish-blue face, excepting the pure white orbits and
forehead. The rest of the body is greyish-white; but the
hue is lightest on the back and belly.

Locality, Habits, &c.—The distinguished zoologist above
named found this pretty species living in troops in the
forests near the cataracts of the Oroono. Mild and active,
they are often kept by the Indians as playthings, and are
very entertaining. Thus Humboldt saw one domestica-
cated worthy at Maypures that caught a pig every morn-
ing, and rode about while he was feeding in the savanna
the whole day. Another in the house of a missionary bestrode
a cat which had been brought up with it and patiently sub-
mitted to the rider.

We proceed to illustrate this group by two species.
1. Cebus fatuellus.
2. Cebus monachus.

Fifteen or sixteen species are recorded of this the most
numerous group of the American monkeys. They may be
considered as representing in that continent the Guenons
of the Old World, which are also very numerous.

SAPAN WOOD, a dye wood which is yielded by a spe-
cies of Cemalpina, as Brazil-wood is by C. brasiliensis,
found in the West Indies, and by C. echinata, a native of
Brazil, and which is imported from various parts of the
West Indies and South America. Sapan-wood, which is
similar in properties, is a produce of Asia, and yielded by
C. Sapan, a thorny tree which has been fully described and
figured both by Rheed and Rumphius. It is a native of
the southern parts of India, of Sum and Pegu, as well as of
the various islands of the Indian Archipelago, Philippines,
&c. The wood has been used as a dye-wood from very
early times in India, and is described as a medicine in
Persian works, under the name bookum, derived from its
common Indian name, while it is also known by that of
putting, derived from the Sanscrit puttanga. Sapan is its
name among the Malays, according to Rumphius.

According to Dr. Baneroff it found its way into Europe
some time before the discovery of America, and it still
continues to be imported. Its colouring-matter differs
little from that of Brazil-wood, but the best sapan-wood
does not yield more than half the quantity that may be
obtained from an equal weight of Brazil-wood, and the
colour is not so bright. (Baneroff.) Brazil-wood therefore
brings more than double the price, the latter selling for 50£
and upwards a ton, and the Sapan-wood for 12£ to 13£.
The import of Sapan-wood into Calcutta amounted, in
1837-38, to 16,172£ bazar mounds from Pegu, Singapore,
Bombay, and China. Of this 4,504£ mounds were re-
exported to Great Britain.

SAPINDACEAE, a natural order of plants belonging to
the calycoser group of polytelatal Exogens. It consists of
trees or shrubs, rarely herbaceous plants, with erect or clini-
ing stems, with alternate often compound leaves, rarely simple,
with or without stipules, and often marked with lines or
pellucid dots. Their inflorescence is racemose or panicu-

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late, with small white or rose-coloured rarely yellow flowers, which are seldom barren or hermaphrodite. The calyx consists of 4-5 sepals, slightly cohering at the base. The petals are the same in number as the sepals, one being occasionally abortive. They are in general furnished with a petal-like scale, but are sometimes naked. They have a fleshy glan-
dular disk occasionally occupying the base of the calyx. The stamens are definite, about twice the number of the sepals. The filaments are free or slightly connate, the anthers 2-celled. The ovary 3-celled, rarely 2-4 celled, the cells containing 1-2-3 ovules. Style undivided, or more or less deeply 2- or 3-cleft. The seeds have usually an aril, are without albumen, and have a curved or spirally twisted em-
bryo. They are inhabitants of most parts of the tropics, more especially of South America and India. They are not found in Europe or the United States of America. One genus is found in New Holland, Dodonea.

This order is closely allied to Aecacerae, from which they only differ in their alternate leaves and petals. The number of their stamens eight, with five unequal sepals, point out a relation with Polygalaceae. Their climbing habit and ten-
dency to produce tendrils give them a remote relation to Vitaceae. In this order, although the leaves, branches, and other organs act in a deleterious manner, yet their fruit and seeds are edible and wholesome. The Lychee and Longan, favourite fruits in China, are produced by the genus Euphoria. These fruits are sweet, with a sub-
acid flavour and, when dried are sometimes brought to this country. They are considered a great luxury in China, and are sent at a great expense from the provinces of Fo-
kien and Quan-tong, where they grow, to Pekin, for the consumption of the emperor. Several other genera bear fruits which are very delicious, and are eaten in Japan and Brazil. The Sapindus is remarkable for bearing a pulpy fruit, the outer part of which has been used, on account of its detergent properties, as a soap. [Sapindus] Some of the species of this genus also produce edible fruits. Pau-
linia is another genus which has poisonous properties re-
sulting in the leaves and other parts of the plant, whilst the fruits are edible. The whole of the order partakes more or less of these properties.

SAPINDUS, contracted from Sapo Indicus, or Indian soap, and applied to a genus of plants of the natural order of Sapindaceae, which has been so called in consequence of the berries of many of the species being employed for the same purposes as soap. The genus is tropical, containing between twenty and thirty species, which are found in the tropical parts both of the Old and New World. It is charac-
terised by having the calyx 4- to 5-partite; petals as many as the sepals, a little longer, naked or hairy, or with a scale above the claw. Torus or disk occupying the bottom of the calyx. Stamens 8 to 10, inserted between the marg-
in of the disk and ovary. Ovary 3- rarely 2-celled; style with a 3- rarely 2-cleft stigma. Fruit fleshy, 1-2 rarely 3-celled, each cell 1- to 2- rarely 3-seeded, with the seeds furnished with an aril. The species consists of trees having leaves without stipules, with the inflorescence in racemes or terminal pan-
icles. Flowers small, white, or greenish white. Berries of red and saponaceous, on which account they have been em-
ployed for washing woollens and clothes of various kinds in different countries. For instance, in the West Indies and the continent of America, S. saponaria yields the so-called soap-berries, and in Java, S. rancid; so in India several species, as S. acuminate, laurifolius, emarginatus, and dertgenus, yield berries which are called japaas, and an ever-
dried state may be bought in every bazaar, as they are everywhere employed as substitute for soap. The fleshy part of these berries is viscid, and in drying assumes a shining semi-transparent appearance; when rubbed with water, they form a lather like soap. This is owing to the presence of a principle called by chemists Sapogenin, which is often united with an acid principle, whence these berries are said to injure cloth which has been much washed with them. The bark and root have similar properties, and have been employed for the same purposes, as well as medicinally, in the countries where they are indigenous. The berries, which are about the size of cherries, enclose black shrun-
muts, which used formerly to be much imported and em-
ployed as buttons for waistcoats, after having been tanned with gold, silver, or other metal. The kernel of these nuts contains an edible oil, which is sometimes employed for burning. The fruits of S. senegalis and of S. castanea are eaten, and the wood of some species, as of S. rubiginosus, is close-grained and hard, and forms valuable timber.

SAPODILLA. [Sapota.] SAPOTACEAE, or SAPOTÆ, a natural order of plants belonging to the polycarpos group of monopetalous Euc-
genae. It consists of trees and shrubs, which abound with a
milky juice; the branches are round; the leaves alternate,
simple, entire, coriaceous, destitute of stipules; their under
sides being covered by a silky or downy pubescence. The
flowers are axillary, regular, and united; the calyx is 4- to
5-cleft, imbricate in evagination; the corolla is hypogynous,
regular, and cleft; the lobes are equal in number to the se-
palas and alternate with them; the stamens are definite and
distinct, some are barren and some fertile, the former being
alternate with the sepals, the latter opposite; the ovary is
superior, with several cells, in each of which is one ovule;
style short; stigma undivided; seeds small, sometimes cohering into a several-celled putamen; embryo
large, erect, and enclosed in fleshy albumen. This family
of plants is most nearly allied to that of Ebenaceae, with

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which it agrees in habit, its monopetalous regular hypogynous corolla, the absence of hypogynous corollas, its unseptate ovary, and definite ovules and stamens. It differs however in the possession of milky juice, soft wood, hermaphrodite flowers, undivided stigmas, and 1-seeded ovary with erect ovules. The plants of this family are chiefly native of India; South America, Africa, and Australia. They produce fruits which are much prized as articles of diet. Amongst these is the sapodilla plum, or naseberry, which is the produce of Achara sapota. The star-apple, marmalade, the medlar of Surinam, and other edible fruits are derived from its belonging to this order. Most of the species yield large quantities of a milky juice, which, unlike the secretions of most lacticose families of plants, may be used for alimentary purposes. The fruit and seeds also appear to have a pleasant flavour. [Bassia.] The bark of some species of Achara is astringent and tonic, and has been recommended as a substitute for quinine.

SAPPERS AND MINERS, ROYAL, the non-commissioned officers and privates of the corps of Royal Engineers. They are employed in building and repairing permanent fortifications, in raising field-redoubts and batteries, in making galleries and excavations, in digging trenches [Sap], and in effecting many other objects, and also in forming bridges of rafts, boats, and pontoons.

The troops belonging to the department of the engineers were first embodied at the termination of the war between Great Britain and France, which she represented, and they received the designation of the Royal Military Artificers. The duke of Richmond, who was at that time master-general of the ordnance, formed them into independent companies, and caused them to be stationed chiefly at Portsmouth, Plymouth, the south of England, and Gibraltar. In the year 1804 the Military Artificers constituted a corps of 32 companies, each consisting of 126 men; and a sub-lieutenant was attached to each company, which was placed under any senior captain or sub-lieutenant, or light company. None of the companies was stationed. But what was a proper organization, and of officers permanently attached to the troops, gradually brought on a relaxation of discipline and a neglect of the particular duties for which the men were intended; it is even said that when detachments were to be drawn from the companies for any intended expedition, the engineer officers who selected the men sent only those who were the least efficient, and that consequently, during the first years of the war against the French in Spain, the service was much from the inefficiency of the troops of this class.

After the failure of the attack on Badajoz in 1811, it was proposed to select some companies from the corps of Royal Military Artificers, and to form them into a corps, especially for the service in those districts of the Peninsular War where the enemy had established their headquarters in Spain. The following year this proposal was carried into effect. Lieutenant-General Mann, who was made inspector-general of fortifications, obtained permission to have the name of the whole corps altered to that of Royal Sappers and Miners; and Lord Mulgrave then formed at Chatham the institution at which the man have ever since been regularly instructed in all the duties connected with military engineering. The junior officers of engineers were at the same time appointed to act as the regimental officers of the companies. This institution has been from the first (April, 1812) under the direction of Colonel Pasley, a meritorious officer, who as an engineer had previously distinguished himself in the service of the Baltic country.

A company, consisting of 300 men, was sent, in 1813, to perform the duty of sappers and miners at the siege of St. Sebastian, where they rendered essential service. In 1814 a brigade of engineers was attached to every division of the army, and consisted of a company of sappers and miners, with horses and carriages sufficient to convey the tools necessary for the work of 500 men; and five companies of sappers and miners served with the pontoon train, which consisted of 80 pontoons, with the forges, wagons, &c. A company of sappers was under the orders of a brigade major of engineers.

From 1812 to the peace in 1814, the corps of sappers and miners amounted to 2681 men; and during the hostilities in 1815 it consisted of 4887 men: it consisted of 25 companies, each of 68 men; and, besides the regular course of instruction in sapping, mining, making gabions, fascines, &c., the men are taught the most elementary principles of fortifying, and the manner of drawing plans and sections of buildings, and, to a certain extent, they are engaged in land-surveying. Several of the companies are employed in the Colonies in the exercise of their professional duties; and of those which remain in this country, some are engaged under the office of engineering and the other operations connected with the survey of Great Britain and Ireland which is being carried on by the Board of Ordnance; parties of the corps also regularly attend the Royal Military College at Sandhurst and the East India Company's seminary, where they are engaged in the instruction of the gentlemen-cadets, the several works connected with the practice of field fortification. It ought to be mentioned that the troops of the corps have in many parts of the world they have been employed, conducted themselves as intelligent men and steady soldiers.

SAPPHIRE. [Corundum.]

SAPPHO was a native of the island of Lesbos, though the exact place is uncertain, for according to some she was born in Erebus, and according to others in Mitylene. The time of her birth is also unknown, and there are few events of her life which can be exactly ascertained. Her own fragments, as well as those of Alcaeus, show that these two greatest poets of the Greek school of lyric verse are contemporary, though Sappho must have been younger than Alcaeus, for she was still alive in 569 B.C., as may be inferred from the ode that she addressed to her brother Charaxus. The circumstance that she is accused of having for having committed a love-sick with a young girl, the courtesan, from her master, and having been induced by his love for her to emancipate her. (Herod., ii. 133; Athen., xii. p. 596.) Charaxus bought Rhodopis at Naurates in Egypt, and in all probability not before the reign of Amasis, 541 B.C., as it is accepted that Charaxus was born in 569 B.C. Before this time, and when she was still in full possession of her beauty, she is said to have left her country for Sicily, but the cause of this flight is unknown. (Marm. Pat., Ep. 36; Isthm. Poet., i. 51.) It seems to be a common belief that Sappho destroyed herself by leaping into the sea from the Leucadian rock, in despair at her love being unrequited by a youth named Phaon. It is true that in her odes she frequently mentioned a youth whom she loved, who did not return her love, but there is no trace of the name of Phaon in any of her poems; and if the name did occur, it was probably the name of Adonis, the favourite of Venus, who was in some legends called Phaon or Phæton. It is therefore not unlikely that the manner in which she described her addressings may have been inspired by her own passionate love for Phaon. The story of her "leap from the Leucadian rock" is likewise, as O. Müller and others have shown, a mere fiction which arose from a figurative poetical expression, for the purpose of emphasizing to the reader the use of some poet to express a violent love, from which relief is sought by a leap from the Leucadian rock into the sea. It is not expressly stated by any of the antients who tell the story, whether Sappho terminated her life by the leap or whether she survived it.

The genuine sources of information as to Sappho are the fragments of her own poems and some of Alcaeus, and from reading them it should not be forgotten that Sappho belonged to the Spartan race, which at the time when society in Attica had assumed its totally different aspect from that of the Heroic age, still retained much of the simplicity of antient Greek manners. At Athens women lived in the strictest seclusion, and the free intercourse of women with men, such as she must have had the privilege to lead to the opinion among Athenians that she led an immoral life. It is now superfluous to vindicate the personal character of Sappho, for this has been satisfactorily performed by F. G. Welcker, in a little work called "Sappho," in einem herrschenden Vorurtheil befreit," Göttingen, 1816.

With the exception of one complete ode and a considerable number of short fragments, the poems of Sappho have perished; but what we possess is sufficient to fix the admittance of her genius. In warmth and purity of feeling, in grace and sweetness, and in delicacy and beauty of diction, she has perhaps never been excelled by any lyric poet either of antient or modern times. The loss of her poems is perhaps as much to be lamented as that of an antient author whose writings have perished, for besides the pleasure that might have been derived from them as works...
of art, they would undoubtedly have thrown much light on the condition and social relations of women in some parts of Greece, a subject now involved in great obscurity. The ancients divided their poems into nine books, which consisted of erotic odes, epithalamia, hymns to the gods, and other poems. The mythological construction of her odes was essentially the same as that of Alcaeus, though with many variations, and in harmony with the softer character of her poetry. There is a verse called the Sapphiic verse, which derives its name from the Greek poetess, and which she is said to have invented. The verse is as follows:

The Sapphiic strophe consists of three Sapphiic verses followed by a versus Adonicus. It has been very frequently imitated by poets of every nation as well as modern times. The fragments of the poems of Sappho are generally printed together with the poems ascribed to Anacreon. The best separate editions are: Sappho Lesbia, Carmina et Fragmenta, rec. comment. illustr. schemata musicas adj., &c., H. F. M. Volger, Lipsam, 1810, svo.; Sappho, Fragmenta Specimen Oeuvres in omnibus artis Graecorun Lyricon reliquis, &c., propounded C. F. Neu, Berlin, 1827, 4to. The best German translation is by K. L. Kanngiesser, Berlin, 1827. (Müller, Hist. of Greek Lit. i., p. 172-180; Bode, Geschichte der Helmsichen Dichter, vol. ii., pt. 2, p. 411, &c.)

SAPY'GIDÆ, a family of Hymenopterous insects of the section fossor, the species of which are chiefly distinguished by their developed capa, front of both sexes, or at all spine; the antennae are at least as long as the head and thorax together, and generally increase in thickness towards the extremity. In the genus Gaspaga the eyes are deeply emarginate; the antennæ are subulate, slightly curved outward and in the apex in the males, straight in the females, and inserted in a cavity at the base of the eye. The wings have one marginal cell, which passes beyond the third submarginal, and is acuminate; and four submarginals; the second and third recurrent nerves, the third receiving the second, and the fourth apical.

The species of this genus are of usual moderate size. The females are said to form holes in the mortar of walls, or in putrescent wood, in which they deposit their eggs with food to supply the larva. Latreille supposes them to be parasitical upon some of the wild bees; and Mr. Shuckard observes that he has caught the Gaspaga punctata in species forming a nest under the end of the end of the honeycomb. The species just mentioned is from 45 to 52 lines in length, and of a black color, excepting the abdomen, which is red, and has a transverse white spot on each side of the fourth, fifth, and sixth segments such is the colouring of the females. The males have the body of the male of the same species, one side of the second, third, fourth, and fifth segments.

A second species of this genus, the S. cisturna, is also found in England. Both sexes are black, and have interrupted yellow bands on the abdomen.

The genus Thrissus, according to Latreille, also belongs to the present family, and the species are readily distinguished by the antennae being filiform, and the eyes entire, i.e. not emarginate, as in Gaspaga.
SARAGOSSA was formerly called Salduba or Saldyva. (Plin., lib. iii.) It was in a flourishing state under the Romans, and the Abdus or Abunos has been identified with the veterans of the fourth, sixth, and tenth legions, it was called Casaragustana, which word was by the Arabs corrupted into Saracosta, whence its present name ‘Saragossa,’ or, as written by antient authors, Caragopha. In the time of the Saracen age it was made a free town by the ‘Conventus’ of Hispania Citerior (Casaragustanurus). The Goths under their king Euric took it about 470. On the invasion of the Peninsula by the Arabs, they shared the fate of other large cities, and were taken and plundered by them. Alcohachis of house and name, succeeded to the throne of Abdus, and dynasty of the Beni Umeiyah of Cordova was overthrown by Ali ibn Hamdud, of the posterity of Idris, the governor of Saragossa, like those of Toledo, Seville, Granada, and other walled cities of Mohammedan Spain, refused to acknowledge the authority of the usurper, and declared himself independent. Saragossa and the whole of Aragon, with a portion of old Castile and Catalonia, were then erected into a kingdom by Al-mundhir Ibn Yahya Al-tejub, who not only maintained himself in it, but transmitted it to his posterity. At his death in 1039, he was succeeded by his son Yahya, who was shortly after dethroned by Suleymán Ibn Húd Al-jochán, surnamed Abú Aybúh, who held the empire until he died in the year of the Hijra 438 (a.d. 1046-7). His son Alcohachis, also called Alcohachis, surnamed Al-muktadhir-bilbila, who died in 474 (a.d. 1081-2). The other Mohammedan kings of Aragon were: Abú Amir Jusuf, Al-mustam-bilbilla, who died in 478 (a.d. 1085-6); Alcohachis, Al-mustam-bilbila, surnamed Ben Alaca, killed near Tudela, in battle with the king of Aragon, in 503 (a.d. 1109-10); Abdúl-málik Abú Merwán, surnamed Ombasa-d-bilbila (the column of the state), under whose reign (a.d. 1108) Alfonso I. of Aragon made himself master of the whole of Alcohachis, and Alcohachis was killed in battle, with his son Justino, whom he named Alcohachis, surnamed Seyfu-d-bilbila (the sword of the state), who, after the loss of the capital, maintained his authority in a part of his family dominions until he was killed in battle with the Christians near the town of Albocete, in 1134 (a.d. 1140). The kingdom was divided between the two Christian kings, until, by the succession of Charles V. to the throne of Spain as the representative of the rights of Ferdinand and Isabella, it became a province of the Spanish monarchy. [ARAGON.] It preserved nevertheless its own laws and most of its ancient privileges and exemptions, as well as a part of its liberal institutions, until Philip II., having taken offence at the interference of the Aragonese in the case of his secretary Antonio Perez, marched his army into the province, where he carried the arms against the principal inhabitants, and suppressed the liberties of Aragon. [PEREZ.]

Saragossa has gained celebrity by the two sieges which it sustained during the Peninsula war. When Spain was overthrown in 1808, it was the last fortress of Saragossa, whose inhabitants resolved to perish rather than submit. A French army having invested it in May, 1808, the people of Saragossa appointed Palafox their commander, and prepared for the defence. Saragossa being an open city, the French had no difficulty in encountering the approach. They carried the post of Torrero, and some other exterior works, though not without great loss, pushed forward their attacks against the gates of El Portillo and El Carmen, bombarded the city, and forcing their way into it by the gate of Santa Egracia, at length made themselves masters of nearly half of Saragossa. The French general summoned Palafox to surrender in the following lucrative sentence: ‘Head-quarters, Santa Egracia: Captivity and death threaten you. Take the head-quarters, Saragossa: War to the knife.’ A council of war was now summoned by the Spanish commander, in which it was resolved to defend the remaining quarters of the city inch by inch, and to retire, in case of defeat, to the Ebro for destroying the bridge. The business being unanimously adopted by the inhabitants, the French were that very night attacked with irresistible fury. The struggle continued for eleven days, almost without intermission, until the French general, to whose great renown he could no longer hold his position within the city, raised the siege, with the loss of several thousand men. To obtain possession of Saragossa was, on many accounts, an object of great importance to the French. Accordingly, in November, 1808, a large army under Marshals Moncey and Mortier marched to re-commence the siege. Palafox, having imprudently sallied out, was defeated at Tudela, and again for the walls of Saragossa, and the place was invested. The French have repeatedly carried themselves on the breaches, and thence penetrated into the city, where they met with the most obstinate resistance—old men, women, and children all took part in endeavouring to stop the progress of the enemy. Not only street by street, but house by house as they advanced, was defended to the last, like the outworks of a fortress, and often taken and retaken. At last an epidemic fever broke out among the besieged, who, after losing nearly a fifth of their numbers, surrendered upon honourable terms. During the second siege of Saragossa, a young woman of the name of Clara, who dressed herself by her bravery; and her name will descend to posterity as the ‘Maid of Saragossa.’ Another remarkable instance of the obstinate value of the people of Saragossa occurred some time ago:—On March 13th, 1808, Caballito, one of Don Carlos’s generals, succeeded in penetrating at night into the city, and taking possession of the principal posts. The people however were not disheartened. Without chiefs, and badly armed, they fell upon the assailants, and had in a few minutes driven them out of their walls. A detailed history of the two sieges of Saragossa by the French was published by Ibiaca, under the title ‘Historia de los dos Sitios de Saragossa,’ Burgos, 1830-1, 3 vols. 8vo.

Saragossa is now the capital of the province of that name. It is also the see of an archbishop. The population is estimated at 50,000. It is 175 miles east-north-east of Madrid, in 38° 14’ N. lat. and 1° 42’ W. long.

SARAIK. [RASAN.] SARATOGA SPRINGS, an incorporated village in the state of New York and county of Saratoga, North America, is situated on the west bank of the Hudson, in 43° 4’ N. lat. and 73° 40’ W. long., 163 miles north from New York. 30 miles north from Albany, and 16 miles south of Saratoga Falls, all direct distances. This village derives its celebrity from its mineral springs; it is indeed the great watering-place of the United States, as many as 1500 persons having been known to arrive in a week. It consists of one handsome broad street bordered with trees, in which there are many hotels, four or five of them, especially the Congress Hall hotel, being of the largest and most splendid description, and occupied in the summer and autumn by some of the richest and most distinguished persons in the country. The settled population in 1830 was 2461. Saratoga Springs is connected with Albany by two railroads, the Mohawk and Hudson railroad, which extends from Albany to Schenectady, 16 miles, and the Saratoga and Schenectady railroad 214 miles. Ballston Spa, seven miles south-west from Saratoga Springs, is another village frequented for its mineral waters. The environs of both places consist of nothing but plains and hills of sand, producing a scantly crop between dark pine-trees. There are fourteen springs at Saratoga Springs, and four at Ballston Spa. The temperature is nearly uniform, varying from 48° to 52° Fahrenheit, and the quantity of water is not perceptibly altered by the difference of seasons. The waters are purgative and stimulant, and are chiefly useful in dyspepsia, chronic rheumatism, and diseases of the skin. The Congress Spring is the one most resorted to, a gallon of the water of which contains, according to the analysis of Dr. Steel, the following ingredients:

<table>
<thead>
<tr>
<th>Component</th>
<th>Grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murate of soda</td>
<td>471.5</td>
</tr>
<tr>
<td>Carbonate of soda</td>
<td>16.5</td>
</tr>
<tr>
<td>Carbonate of lime</td>
<td>179.476</td>
</tr>
<tr>
<td>Carbonate of magnesia</td>
<td>336.169</td>
</tr>
<tr>
<td>Carbonate of iron</td>
<td>6.168</td>
</tr>
</tbody>
</table>

*This is common salt, which was formerly supposed to be a compound of carbonic acid and soda, but is now called carbonate of soda; but has since been found to be a compound of chlorite and the metallic sodium; its proper chemical name is therefore chlorite of sodium.*

343 cubic inches of carbonic acid gas, an exceedingly large quantity, perhaps greater than is contained in any other spring yet discovered. (Encyclopaedia Americana; Stuart’s Three Years in
North America; Arwedson's United States and Canada in 1839-3-4; and as to the convention of Saratoga, Bu-

ergo's."

SARATOW, a government of Asiatic Russia, lies, be-

tween 45° and 53° N. lat., and 42° 20' and 56° 20' E. long. It is

bound on the north by Pensa, Simbirsk, and Oren-

burg, on the east and south by Astrakhan, and on the west

by Tamburg, Voronesh, and the country of the Don Cosacks.

The northern frontier is 375 miles in extent, but the southern

only 75 miles. The area, according to Schubert, is 90,000

square miles; but Koppen, who is probably correct, makes it

the whole population is 1,700,000. The soil is remarkably

good; the government is very unequal: to the east of the Volga,

which traverses it from north to south, and divides it into two nearly

equal portions, it forms an immense steppe, destitute of wood or

fodder, and over which are exposed to the north-east winds; on the west of the Volga the surface is undulating and

varied with hills, very fruitful in the northern part, but poor

and stony towards the south. The steppe is flat, ex-

cept towards the north, where the last branches of the

Obitschei Syrt, a range of sand-hills, extend to the Volga.

In the western portion there are hills of slate and

limestone, which are pretty elevated in the south, and

company the right bank of the Volga as far as Zarizyn.

These hills separate the Volga from the Don, which ap-

parently forms an insignificant obstacle to the junction of those two rivers, which was con-

structured by Peter the Great. The Volga traverses

the government in its whole length from north to south, as far as Zarizyn, which forms an elbow; the river, running to

the east, divides this government from that of

Astrakhan. It receives some small streams, both on the

east and west. To the west of the Volga there are some

tributaries of the Don, which run from south to north. In

the eastern part, pure water may be found in many lakes,

the most remark-

able of which is the salt-lake of Elton, on the south-east,

towards the frontier of Astrakhan. 'The appearance of

this lake,' says Erdmann, 'is very singular: in the hottest

summer of last year, when you have a sea with

ice and snow; so great is the illusion produced by

the crystallized salt along the banks and over the whole surface.'

On the north side the banks rise rapidly; on the south access to it is easy. The lake is of an oval form, the longest
diameter being about 11 miles and the shortest nearly 9

miles. The superficial extent is 45,500 English acres. It yields annually 10 million poobs (360 million pounds), producing, when refined, at least 100,000 tons of pure salt, in collect-

ing which 10,000 workmen are employed. There are some other salt-lakes, but the greatest and most important is termed

the air dry and healthy. The mean summer heat is 64°, and the

mean winter cold 23°; the greatest cold is

−17° and the greatest heat +27° of Fahrenheit's ther-

mometer, which will be sufficient. The part beyond the

Volga serves only for pastureage, and it is only

along the banks that we meet with a little cultivation.

To the west of the Volga, on the contrary, agriculture is the chief occupation of the inhabitants; and in the north-west part the soil is so rich as to need no manure. A harvest

which does not yield five-fold is considered to be a bad one.
The kind of grain most cultivated is rye; then wheat and

oats, as well as millet and peas, flax and hemp. The foreign

colonists have introduced the cultivation of tobacco, hops, and

madder. The inhabitants cultivate melons (especially

water-melons), fruit-trees, and even vines about Sarepta,

and mulberry-trees at Saratow. The forests, which are

chiefly to the north-west, consist of osika, pines, maples, and

poplars. There is a pretty extensive lumber industry, but

they do not supply the general consumption. The breeding of cattle is, next to agriculture, the chief occupation of the inhabitants; the breed of sheep, which yield coarse wool, has been improved by

the importation of merinos. The Tartars keep a great

quantity of bees. Gastric is not abundant in the proceed-

ing parts. The fisheries on the Volga not only supply the home

consumption, but furnish a large surplus for exportation.

The miners are salt, multilatite, and a little iron.

It is said that this government is composed of Rus-

sians, Tartars, Cosacka, and other tribes, besides a

great number of foreign colonists. At the accession of Catherine II., the population was extremely scanty, and that sovereign,

wishing to introduce agriculture and civilization, turned her thoughts to the government of Saratow, which still

remained a wilderness. The Russian province was sufficiently peopled to spare any part of

its inhabitants, the emperor invited foreign colonists to

settle in lands on the banks of the Volga, which were

therein given to them with very great privileges. Many Sweds and Ger-

mans came to Saratow, where they were joined by some

French and Swedish families; the whole number was

10,000. They were received at first in 16 large barracks,

near the town, and afterwards houses were built for them

on the land assigned to them; the emperor presented them

with the utensils, flocks, draught-cattle, and seed-

our, and provisions for their subsistence for a considerable time;

she also exempted them for ten years from all taxes. The

year they were prospered, and gradually formed a village.

This the emperor ordered to be called by the name of the

V, or by the name of the river, or at the mouth of its tributaries.

Most of them how-

ever are on the right bank between Volgak and Kamy-

schin, and on the banks of the Medvedow and of the

Schnathausen, Zuich, Glaria, Lucerne, Unterwalden, &c.,

which are given to these villages, indicate the original coun-

try of the founders. Seventy-three of these colonies possess Protestant churches; in most of the others the people profess the Roman Catholic religion. The little town of

Sarepta was founded by the Moravians, who are

still its only inhabitants.

In the year 1836 the population of these colonies amounted to

105,795, and it appears to have rapidly increased, for a

definite statement is given in the year 1843, showing a

population of 214,154. Yet still the government is very thinly peopled, there being only 314 inhabitants to a square mile. The emperor has therefore resolved, by a decree issued in March this year, to cause 500,000 more colonists to be settled on this

government. Many thousand peasants to those of Saratow,

Orenburg, and Ekaterinossf, of whom we shall doubtless

regret leaving their homes, but will be indemnified by the

superior advantages they will find in their new country.

The chief town of the government is Saratow, situated at the

fork of the Volga, in 51° 31' N. lat. and 46° E. long., in an

ard and barren valley, between the river and a range of pretty high calcareous mountains. The town, which is neither hand-

some nor regular, is divided into the upper town, below which it was built on its present site, and has been fre-

cently ravaged by fire. In the year 1811, 1700 houses

were reduced to ashes. The greater part of the city is built of wood, there being at present only 360 houses of stone or brick, and 2874 of wood. Some of the former are very handsome, and there are 7 stone and several wooden churches, 2 convents, and a very large market place or bazaar. There is likewise a gymnasium and a botanical garden. Saratow is the seat of a consistory for the Pt.

of the Moravians at Saratow was founded by the governments of Saratow, Astrakhan, Voronesh, Tamburg, Riissan, Pens, Simbirsk, Kasan, Orenburg, and Pensa, amounting to above 600,000 souls, most of whom are farmers and peasants. The town has 14,000, of whom 12,000 are males and 20,724 females. The increasing population of the colonies has had an influence on that of the chief town, which is the centre of a very extensive and advantageous trade. Volgak, with 8500 inhabitants, is a pretty town, on the

foot of a high mountain on the right bank of the Volga; near 50 miles above Saratow: it is inhabited by wealthy

merchants, who carry on a considerable trade. The

town of Sarepta was founded in 1765. All the streets

which are planted with plazars, terminate in a very large market-place, with numerous shops, in which every house with water. The Moravians intended at first to

follow agriculture, but in the midst of an arid steppe they

could not execute this project; they now have manufactu-

res, which are now at work; and they also carry on

considerable trade with the Calkmus. Among the

public buildings there are three deserving of notice: 1, the

Asylum of the Bisters, in which all the unmarried

women reside; 2, the Asylum of the Brethren, for all the

married young people, with men and women of 18 or

3, the Asylum of single young people, which is at

first two there are schools. The gardens round the town

are cultivated with extreme care.
nature. In modern phyleology the term is restricted to certain chronic enlargements and inductions of the body of the testis, of a partially benignant character, but inconvenient on account of their size and weight. These swellings may continue for years without undergoing any visible change, or a sudden increase in their bulk may arise, and the testicle be converted into a painful, ulcerated, and incuraible mass of disease. Sarcoceles may be distinguished from hydroceles, the disease which nearly resembles it by its hardness, weight, and want of transparency; but occasionally the two diseases are met with together, and this compound affection is called hydrosarcocele. With respect to the treatment of these diseases and rather opposite remedies have at times proved successful. When the enlargement is accompanied by pain or any degree of inflammation, abscesses, hot fomentations, and poultices applied externally, and the administration of an emetic and, the adoption of a general antisyphilitic regimen, would seem to be indicated. When the disease is altogether chronic, stimulating lotions, liniments, or ointments may be applied to the swelling. In either case, the use of a suspensory bandage and rest of the part should not be neglected. If these means fail in arresting the progress of the disease, extirpation of the gland must be had recourse to.

SARCOIDEA, a group of Polypiaria, of which the type is the Ascidioid Linnamius genus Acrolymnium.

On a closer view of the structures of invertebral animals, we perceive in regard to their dermal system variations of much importance, coincident with the habits of life to which the individuals are destined. Among the acesculous species, this is a subject of great difficulty. It is necessary to examine into the use of the Shelby valves which open and shut for respiration and motion in the Cardioidea, which open for respiration only in the oyster, and which are not required to open at all in the same sense in the Phaladaria. Comparing the Tunicata, we pass gradually down to the Ascidioid Polypiaria, and thus become familiarised with the ciliary movements and aquiferous tubes of the different groups of polypi.

The relation of the hard parts associated with the retractile substance of polypi to the way of life of these animals, is probably in reality quite as close and important as among the molluscs, but it is not so obvious. In the stony radiated plate of Fungia, the stony internal ramose axis of Corallium, the branching of our brain, the axis of the Musch, the wholly horny axis of Antipathes, and the fibrillean skeletons of Acyonymia and Spongia, we see in general terms the use of these parts as supports ('fulurae') to the more active and animated parts, affording the requisite attachments, and permitting the expansion and general shapes. They are developed in some degree from the soft animal parts, they are perhaps not to be viewed as merely inorganic or even extra-vascular parts, any more than the wood of a dicotyledonous tree, which no longer serves to convey in a healthy condition the fluids which are circulated through it.

These considerations give more importance to the classifications of Polypiaria from the stony, horny, fleshly, or gelatinous character of their mass, than might at first sight appear. In the Sarcoide (or sarcoideal, or carcose) Polypiaria we may imagine the distinct collected axis of Corallium or Penitella to be ramified and reticulated, and so involved (entwined) in the more active gelatinous mass, as to lose its distinctive character; we have then the acyonium. One might let this expanded reticulation of fibres acquire somewhat more of rigidity, and the gelatinous mass, still united with it, become eonypiform (as a plant may be supposed to become flowerless), and we have the sponge, perhaps the last, and yet not really doubtful in the descending series of radiate, vertebral life.

Lamouroux employs the title Polipiaria Sarcoides for one of his three great divisions of Polypiaria (1821). The arrangement stands thus:—

1. Div. 1. Supports flexible or not entirely stony.
2. Div. 2. Entirely stony, and not flexible.
3. Div. 3. "fleshy, more or less irritable, and without central axis.

This division includes three orders, viz.:

1. Alcyonaria, in which are eight genera, viz. Alcyonum, Lobulata, Ammohela, A. crystallina, A. alcyonides, A. onella, Hallieharrow.
2. Polyclimia (belonging to Junicata).
3. Actinaria, in which are seven genera, viz. Chenendo-
pora, Hypalaimus, Lymnorica, Pelagia, Montlivaltia, Iaera. (These are fossil groups.)

This system is mainly based on the previous labours of Lamarck (1816), who placed Alcyonum in his group of Polypiers empties, but gave, after Savigny (to whom we owe most of our knowledge of these animals), in his group of Polypiers tubifibres, the genera Antithela, Xenia, Ammohela, Lobulata, etc.

Blainville (1834) includes in his Sarcinoides, the fourth family of Zoophyta, the Alcyonoid types of organization, and notices eleven genera, viz. Briareum, Lobularia, Ammohela, Xenia, Nepthya, Antithela, Alcyonum, Cydonium, Pulmonellum, the Massareum, Ciona; but remarks that several of them are of small importance.

In Dr. Johnston's very commendable arrangement (Brit. Zool. Zephytes, p. 75, 76, 1838) the Alcyonides form a family of Asteroid Polypiaria.

From Blainville we take the following characters of the family and the genera:—

Family, Sarcoidea or Sarcinoides.

Animals polyplioform, with (mostly) eight pinnated tentacles, more or less immersed, and scattered on the surface of a common polyhedral, reticulate, flat, adherent mass; the mass is composed of one (subform) substance, and supported by (calkereous) acicula. (The animals much resemble those of Pennatula.)

N.B. All the genera have eight pinnated tentacles, except when the contrary is mentioned.

Genus Briareum, Blainville. Animals thick, issuing from prominences irregularly scattered on the polyplioform, which is widely attached, suberose, externally composed of a fleshy thick distinct envelope, internally composed of an assemblage of closely fascicolated acicula.

Example.—Briareum gorgonoeideum. (Gorgonia Bria-
ereus, Linn., Gmel.) Sol. and Ellis, tab. 14, figs. 1 and 2.

Genus Lobularia. Animals entirely retractile into subcellular, which are scattered on the mass, but are especially more numerous on the divides extrinsec and thereon: mass more or less pedicolate and widely attachable.

Example.—Lobularia digitata. (Alcyonomus manus dia-
boli.) Common on the English coasts. Dr. Johnston re-
tains for this group the name Alcyonum.

Genus Ammohela, Savigny. Animals rather short, not retractile, scattered, and nu-
erous on the whole surface of the short crowded divisions of a common plant-like attached mass. (The nonretractility of the Polypi is the main character.)

Example.—Ammohela viridans. Red Sea.

Genus Xenia, Savigny. Pinneles of the tentacle in several rows; tentacle not retractile at the base: animals collected at the extremities of short-lobed ramifications from a membranaceous base.

Example.—Xenia umbellata, Savigny. Red Sea.

Genus Nepthya, Savigny. Animals not retractile, prominent on the surface of many book-formed spineuliferous lobes, supported on pedicles from a common enlarged base of attachment.

Example.—Nepthya Savignini. (Blainville's 'Actinologia,' pl. 88, fig. 5.) Egypt.

Genus Antheila. Animals half-retractile and prominent on (herissant) the surface of a crustiform attached mass.

Example.—Antheila glauca, Savigny. Red Sea.

Genus Alcyonium, Fleming. (Adopted by Blainville.)

Circle of tentacle complete: fleshy bases arborescent, incising and adnate, and regularly covered with polyplio-
form papilla.

According to Lamouroux and Fleming, Alcyonum gelatinosum (Alcyonium, Lam.) has 12, A. hirsutum 18 to 20, and A. echinatum 12 simple tentacles. The therefore even belong to this family. The old genus Alcyonum is in fact lost in the modern divisions, or applied to forms and structures materially different.

Genus Cydonium, Jameson. Animals with an orifice at the base of each of the tentacles, and retractile into stelliform cells scattered in the surface of the mass, which is externally coruscous, inter-
sally flabby, and contains numerous stiff spicule perpendicular to the surface.

Example.—Cydonium Mulleri; Alepygion cydonium. (Müller, Zoöl. Ditt., tab. 81, figs. 4, 5.) North Sea.

Genus Pulsonellum, Blainville.

Animals foxiform, with six simple tentacula immersed in six deicate cells, on the surface of a spheroidal lobed adherent mass, which is composed of a flabby substance and spicule.

Example.—Pulsonellum fleus. Ellis, ‘Corall.’, tab. 17, f. n. c. d. (Ehrenberg properly doubts the propriety of this being retained in the family at all.)

Genus Massarium, Blainville (part of Symposium, Ehrenberg).

Animals contained in five-valved cells, on the surface of an amorphous spongoid mass. (According to Ehrenberg the polypii are really octocentaculate.)

Example.—Massarium massa. (Müller’s Zoölogia Danica, pl. 81, figs. 1, 2.) North Sea.

Genus Cliona, Grant.

Animals cylindric, slender, transparent, with eight simple tentacula, contained in papillose-tubular cells; mass flabby, spiculiferous, anaëтомosed.

Example.—Cliona celata. Grant. English Channel and North Sea.

On reviewing this series of genera it is very apparent that the group is not by any means completely defined or satisfactorily divided. If the tentacula may be pinnated, or simple, and from 6 to 20 in number, and the substance transparent, gelatinous, gelatinous, or fibrous, the family is not properly characterized.

Most of the fossil species from the chalk and ololites, often referred to Alcyonoidae, are more probably of the spongoid type—the Amorphosaedia of Blainville.

SARCO'PHA'GUS is a medusoid tumour whose tissue is flabby and moderately firm. Several species of sarcoma were described by Mr. Abernethy in his ‘Classification of Tumours,’ such as the common vascular sarcoma, the adipose or fatty kind, the pancreatic, the mammary, &c. Some of these still retain the same names, but in general the term sarcoma has no other meaning in surgical works than the indefinite one already given, and includes all flabby tumours that are not cancerous, or medullary, or melanotic. (Town.)

SARCO'PHA'GUS (from a Greek word, σαρκόφαγος, which literally signifies flesh-eater), the name given to the Egyptian stone coffins. It is not known when this strange form was first applied to them, nor why. These coffins consist of parts of cases formed of one piece, and open at the top, in which the mummy was to be deposited, and a lid to cover the opening. As these sarcophagi are generally of hard stone, and often exceedingly hard, the working of them must have been very expensive, and they could only have been made for kings and very rich persons. There are several fine specimens in the British Museum; one, which was brought from Alexandria after the capture of that city from the French, is probably unequalled by any other yet discovered. It was found by the French in the court of a mosque of St. Athanasius at Alexandria, under a small building, where it was a sort of object of adoration to the Mussulmans, who however had drilled two large holes in the bottom of it in order to use it as a reservoir of water or as a receptacle for rubbish. The material is a sort of breccia, similar to the Italian breccia verde, and is composed of rounded fragments of granite and porphyry set in a basis of deep green rock. The porphyry is of the most brilliant and variegated. Though the stone is excessively hard and difficult to work, more than a hundred square feet of its surface have been sculptured with hieroglyphics of the most delicate workmanship, and so small that sometimes ten or twelve are included in a square inch. The number of hieroglyphic characters is said to exceed 21,700. The sarcophagus is wound round the head and flat at the feet, the rest of it being like a large box. It is about 10 feet 3 inches long, 4 feet 2 inches wide at the feet, 5 feet 4 inches wide at the head, and 3 feet 9 inches in depth. The thickness, measured across the flat rim on the top, varies from about 9 to 10 inches. It is sculptured both within and without with various figures of men and animals, many of the animal forms being of the most easy and correct outline. Dr. Clarke wrote a dissertation to prove that this sarcophagus was the one in which the embalmed body of Alexander the Great was placed;—from a consideration of the chief facts of his funeral or other circumstances, it is almost demonstrative that the sarcophagus was not made for him, and it is indeed probable that his body was ever placed in it.

Another very large sarcophagus in the Museum appears to be made of a species of black basalt, or perhaps a breccia. It has further information upon it, which has been calculated, but to which in reality they have little resemblance. The intaglio upon it are less numerous than on the former; but many of them are of a larger size.

There is one, also in the Museum, which is a very fine specimen of Egyptian workmanship. It is made of a very compact black stone. Though it differs very little from one of the other sarcophagi, it is so made as in fact a mummy-case of stone instead of wood, sculptured inside so as to give room for the round parts of the body and the projecting part that indicates the feet. It is probably intended to be placed erect like the other cases.

A beautiful sarcophagus of arragonite was discovered by Belzoni in the great tomb which he opened at Thebes. It has the appearance of white slabaster, and is translucent when a candle is placed in it. It is sculptured within with figures not more than two inches high. It has 9 feet 5 inches long, 3 feet 7 inches wide, and 2 inches thick. This unique specimen was bought by Sir John Soane from Mr. Salt.

The two sarcophagi found in the two great pyramids of Juthe are of white granite. There are no hieroglyphics sculptured on either of them.

SARCOP'HILUS, the name by which M. F. Cuvier designates a genus of Murusovula, founded on Denys'anus, Aequ. Didelphusדרד, Harris, upon the characters which, in the opinion of M. F. Cuvier, enable it to distinguish, and for which he acknowledges the name is indebted to Professor Owen, who communicated it as a skull of the animal. M. F. Cuvier states that Sarcophillus approaches nearer to the Thylacini than to the Dasyuri, but that it is not different from either. These differences are well out in the last part of his ‘Histoire Naturelle des Mammiferes,’ where a very good idea of the animal is given.

That by Harris, in ‘Linn. Trans.,’ from which we are illustrating the history of the animal, in the article Mammalia [vol. iv., p. 458], is taken, does not convey a complete idea of the form which we have seen above in country, and which is well represented in the small figures, of which the subjacent cuts are copies.

SAR'CORAMPHUS. (Condor; Vetrumen.)

Sarcophilus murusovula. (F. Cuv.)

Hand of Sarcophilus murusovula. (F. Cuv.)

Sarcorampus murusovula. (F. Cuv.)
SARDANAPALUS is the name by which the Greek and Roman writers designate the last king of Assyria. He was a wealthy and powerful king, and is said to have built two temples, one at Nineveh, the other at Arbela in the Taurus, in one day. (Steph. Byz., v. άγγελος; Suidas, c. άγγελος). He was a man of voluptuous habits, and spent his life in his palace at Nino or Ninive, surrounded by women. The only event of his life in which he is said to have been active is that of the battle of the Kambyses, and he is distinctly represented as not taking a very active part in the event. The story is, that when his kingdom fell into the hands of the Medes, it is given by Diodorus Siculus (ii. 24-27) and Justin (i. 3). Arbes, when he met the Medes, was a young man, one day with great difficulty obtained a pair of golden cups, and his mother was accustomed to keep him back from his usual wanderings and occupations around his palace, made him a present of one of these cups, and he was allowed to go out. The young man found himself in his usual unmanly occupations among his concubines. Filled with indignation, Arbes, on his return declared to his friends that he could no longer obey such a king. A conspiracy was formed, and Arbes, with his Medes, joined by Belshaza, a Babylonian priest (probably a Chaldean), marched against Ninive (comp. Herod., i. 59). Sardanapalus at first endeavoured to conceal himself; according to others, he marched out to meet the rebels, and was successful in three battles; and then, thinking himself safe, he gave himself up to his usual pleasures, and prepared a grand feast for his army. Arbes however in the mean time surprised the king's camp, routed the enemy, and drove the king with a few followers back to his capital. Here Sardanapalus, finding his extensive power deserted by all the provinces, and when at last he saw that further resistance was useless, he caused a pyre to be raised on which he burnt himself with all his treasures and his wealth within the palace. Thus ended the life of a king who united it with Media. The time of this event is uncertain; some suppose that it took place about 880, some again place it in the year 717, and others in 666 B.C. The name of King Sardanapalus, both in ancient and in modern times, has been used as a metaphor to express the highest degree of voluptuousness and effeminacy.

SARDENGA, SARDINIA, a large island in the Mediterranean Sea, situated between 38° 32′ and 41° 17′ N. lat. from Cape Spartivento, the most southern point, to Cape Longosardo on the north, and between 8° 4′ and 9° 48′ W. long. from Cape Caccia near Alghero, the most western point, to Cape Comino on the eastern coast. Its form is a parallelogram 140 nautical miles in length, with an average breadth of 60 miles, leaving out the projections. The area is a trifle larger than that of Sicily, according to the adm. measurement of Captain Smyth, and so it was considered by Scylax, who places Sardinia before Sicily in point of size. (Cluverius, Sardinia Antiqua.) The eastern shore of Sardinia faces the coast of Africa. The western coast is of great massiveness, the interior is a low, flat, and level island, near Terranova, being about 150 miles west by south of the mouths of the Tiber, and Cape Carbonaro, at the south-eastern extremity, being about 300 miles west of the coast of Algeria. Cape Spartivento, the most southern point of Sardinia, is about 90 nautical miles north of Cape Serrat, on the coast of Tunisia, and Cape Carbonaro, the south-east point, is 170 miles from Trapani on the north-west coast of Sicily. Towards the north, the narrowest part of the Bira of Bonifacio, which divides Sardinia, is about nine miles across, as to the westward, Port Mahon in the island of Minorca is about 200 miles distant from Cape Mannu near Oristano on the west coast of Sardinia; and the islands of Hyeres on the coast of Provence are about 130 miles from this point. The western coast of Sardinia consists of steep cliffs, rugged, stony, and indurated pellucida, with large hills of porphyritic tufo towards Bonorva, passing over calcareous rocks. The volcanic beds extend farther north, through Codrongianos and Osilo in the hilly region east of Sassetari, where remains of craters occur, to Castel Sardo, on the northern coast, where they form abrupt cliffs 300 feet above the sea. The town-walls of the houses of Cassel Sardegna, built on the edge of the plain, are the true boundary between the primitive formations of the eastern country, and the trap and volcanic products to the westward. At Nurra, in the southern part of the island, on the borders of the western highlands, on the slopes of the plain of Cagliari, are two hills called 'pizzi' o 'gheghe,' which are perhaps the greatest height of the little and great eye, which appear to have been igneous mouths. A volcanic stream has run from them over a calcareous tract, which forms an elevated plain or table which is nearly 3000 feet
above the sea, called Sa giara a Serri, from the neighbouring village of Serri. This plain is covered with oak, ilex, and cork trees, while its northern declivity contains rich pastures for the grazing of horses, as it is called the field of Gestori, of similar formation, which has proceeded from a criner near the town of Ales: it is stretched with masses of obsidian and trachytic and cellular lava, so as to resemble a city in ruins. At Monastir, in the plain north of the Salina, there is a distant but nearer not so fine a prospect, on a clear day, and a new bridge has been of late years constructed there of fine red trap, which, with the bold outline of the neighbouring hills, renders the entrance to the village by the new road very picturesque. (Captain Smyth's Sketch of the present Situation of Sardinia.)

The principal rivers of Sardinia are,—1. the Tiria, the Thyrus of Poliemy, which drains the central part of the island: it rises near Biduoso on the west side of the Gallura, and after meandering, enters the plain of Olgiato, passing north of that town, and then turning abruptly to the south enters the sea after a tortuous course of between 70 and 80 miles. In very dry summers it is fordable near its mouth, but in winter it carries a vast mass of water, and inundates considerable tracts. The Cognina, which, issuing from the island, rises in the volcanic region of Bonurra, flows northwards through the plains of Giavacc and Osieri, receives several streams from the hills of Gallura and of Gallura, passes between Mount Sassu and the Limbara ridge, and after meandering through the valley of the Doria, flowing through a romantic ravine below the cliffs of Castel Doria, enters a fine plain adjoining the sea: it forms a small lake near its mouth, a few miles east of Castel Sardo. The course of the Cognina is between 50 and 60 miles, and it is fordable near its mouth, except in rainy seasons.

The Flumenduso, the Sempus of Poliemy, the principal stream of the eastern part of the island, rises in the mountains of Corno di Bue and runs southwards along a high valley, or the ridge of the Gallura, the Ogliastra mountains to the east, passing through many solitary glens: it then turns eastward between the mountains of Sarraibus on one side and the hills of Parte Oilla, which divide it from the Campidano or plain of Cagliari, and after wards winding through the fertile grounds of Villa Pzscu, San Vito, and Muraversa enters the sea between two low rocky points on which stand the towers of Xalmas and Corallo, after a course of between 50 and 60 miles, it descends between two plains, and the Flumenduso is very narrow; in the winter it is swelled with the drainage of the surrounding mountain-region, and it then assumes a very imposing appearance.

4. The Tavolara rises in the fountain of the Fig in the table-land of Sarrabus, west of the plain of Cagliari, and after a course of between 50 and 60 miles, it descends between two plains, and is succeeded by the Flumenduso which flows through the valley of the Tavolara, and, flowing southwards through the plain of the Campidano is joined by the Calaria from the mountains of Gergei on the east and the Sixirris which comes near Olgiato from the west: the united stream enters the lake of Cagliari, which lies west of that city and is six or seven miles long by three or four broad, and communicates with the sea by seven cuts through a narrow strip of sand. This lake is navigated by flat-bottomed boats, and contains abundant fish, and is frequented by flamingoes and pelicans, which migrate thither in the winter, probably from the lakes of Bistina and Tursia on the opposite coast of Barbary. Besides these four rivers there are many smaller streams, as the Turrissano, which flows through the plain of Sassari, and is crossed near its mouth by a substantial Roman bridge in excellent preservation; the Termo, or river of Bossa, on the western coast; the Cedrino, or river of Orso, which is navigable by boats; the Nervi, which is crossed on the roadside near its mouth; it is an abundant and impetuous stream from its source which is on the eastern slope of the Barbagia mountains.

The climate of Sardinia varies greatly according to the season. In the summer the country is subject to long droughts, but the heavy dew of the night partly compensates for the want of rain. Earthquakes are very rare and slight. The plains and some of the lower valleys of Sardini a have been notoriously unhealthy ever since the time of the Romans. Cicero, Surabo, Martial, and in later times Dante, all speak in strong terms of the insalubrity of Sardini a. The malaria of Sardinia is called by the natives ' rea negra' or black sickness; the colour brownish or blackish; it does not always produce swelled limbs and sallow skins, but it acts more rapidly than the Italian malarial, especially upon strangers, and instances are not a rare not very common, of persons carried off by it in a short time during day as well as night, awake or asleep, whilst the malaria is considered most fatal at night and during sleep. Exposure to the midday heat and to the dew of the evening are equally fatal. The natives avoid as much as possible going out of doors under an open sky, and they hasten home before sunset, carefully closing every door and window, and if they are obliged to go out, they hold a handkerchief before their mouth. It is generally agreed that fire is an excellent preservative against the intemperance, and the former lords of Oristano used to light large fires round the town every night. Most people remove from the plains to the higher grounds on St. John's day, the 24th of June, when the air begins to be unhealthy, and from that time it continues to the end of November, when heavy rains precipitate the miasma and purify the air.

The interminers of Sardinia last therefore for a month or later than the malaria in the Maremme of Italy. These people are also exactly like those of the north, and they feel themselves well clad in thick woollens to protect themselves against the burning sun. Excretion, exposure to summer showers, and fatigue of all kinds are studiously avoided, and a spare but good diet is adopted, with cool soups and drinks. The only disease which is peculiar to Sar donians is a fever of obscure origin, followed by great debility, which is injurious even to those who are accustomed to it, and generally fatal to strangers. Exhalations from the marshes and the beds of rivers which are nearly dry in summer, and putrescent vegetation, are active causes of the interminers, though in Italy they appear not to be the only causes. [Romx, p. 51.] By draining the marshes, embanking the rivers, and cultivating the ' ensie,' or desert tracts which cover about one-third of the surface of the island, the interminers might be diminished.

The Sardinians are of opinion that the large towns, and the larger districts are particularly deleterious. Corn grown on marsh grounds, on the contrary, is esteemed the finest. Hedges of the ' Fico Merotre,' or Caoutch Opuntia, are supposed to inhabit these districts, and protect the country from the earth, without absorbing moisture like other woods. Wherever the drier marshes, interminers of the west kind may be expected.

The migrations caused by the interminers, the erection of castles, pastures, and enclosures, and the numerous tracts of uncultivated land, give to the plains of Sardinia an aspect of desolation, especially in summer. The inhabitants of the plains are visited by those of the highlands with marred countenances, and broken limbs.

The lands of Sardinia are divided into feudal and non-feudal. Sardinia is now the only country in western Europe in which the feudal system remains. The feudal lands either belong to the respective nobles, several of whom are Spanish families and have not transfused their domains to indolent 'podastari,' or steward, or have been sold to private individuals, who still recognize the feudal lord by paying him a trifling fee, and are under certain restrictions, such as not planting vineyards or trees without his consent. The lands are either owned by the communities or individuals, and can be let or sold, or given away at the will of the owners. A small part of these lands are enclosed and well cultivated, and are called 'Toscan,' and produce a large proportion of the lands belonging to communities; they are mostly divided into three parts, each of which is cultivated in its turn, and while under culture is enclosed with a line of hurdles, and the rest, being fallow, is open to the wandering flocks, and is deemed commons. The government has of late years...
issued decrees in favour of enclosures, and trees and hedges and hogs were planted in many places. The leases are short, often for two years, and the rent is frequently paid in kind. In some parts farms are let on the metayer system, as in many parts of France and Italy. One-third of the surface of the island consists of moorish, or waste, consisting of stony districts, and lakes and marshes; another third is occupied by forests, and the remainder, which is estimated at five millions and a half of starelli (a measure about four-fifths of an acre), consists of corn-fields, vineyards, olive-grounds, orchards, and gardens. About one-fifth of the island is cultivated, and of corn, and if diligently cultivated they would produce enough to support three times the actual number of inhabitants. Wheat, under the present system of agriculture, gives a return of only seven or eight for one, but in some favoured districts the average is from fifteen to twenty. The Sardinian plough resembles the aratrum of the Romans; it is light, and penetrates only two or three inches into the ground, and has no couler. Most of the garden-grounds are worked with the hoe, the spade and mattock being generally unknown. The corn is first in the fields until threshed, which is performed by the treading of mares or colts on an area prepared by paring off the sward and beating the soil with a mat to the requisite hardness. Windmill is unknown, and water-mills are only found in some places in the Cape di Sottile, and at the mouths of ten of the chief rivers. Winnowing is managed by tossing up the corn into the air, for the wind to blow off the chaff. Corn is generally ground in a corner of the house by means of the "mola salinaria," or Dutch mill, which is the rudest way of manuring the ground; it is done however sometimes when urgently required. Paring and burning are the common processes. The only artificial fodder for cattle is the "minchiala," a mixture of barley, lucerne, basil, and vetches, which is cultivated admitted by pitchforks. 

Cattle, sheep, goats, and swine are divided into two classes; the "mancu," or tame, being those which work or yield milk, wool, etc., are carefully tended and kept in the best pastures; and the "kuda," which are for slaughter or for meat, are turned without care and feed on anything. The sheep and goats breed plentifully in the highlands, but swine exists in a wild state. Each flock or herd bears a particular mark on the ear. All the labour of the field is done by oxen. The breed of horses reared in the lanes, or enclosed grounds, is carefully attended to; horse-races are frequent. For the improvement of the breed there is an establishment in the plains of Ghilarza, called "Regia Tanca," where Arabian and Spanish stallions are kept, and also Swiss bulls and rams. Sardinian horses are in general free from vice, peaceful, patient, and above all, they have the blood of the Sardas are generally very good horsemen. The very small horse, called "achetta," which was antiently in esteem among the Roman ladies, is an easy-paced little animal. The mule is unknown. Oxen are used for drawing the plough and cart, and are divided into two kinds, one for the cultivation of the soil, and the other for the transport of goods. They have many parts of Portugal; the wheels are made of a solid piece of wood, and stuck round the edge with projecting triangular-headed nails, which are only iron used in the whole machine. The axletrees is fixed into the wheels, and turns round with them.

Sardinia is better provided with forests than Sicily; the best timber is in the mountainous districts of Gallura, Barbagia, Gacesa, Marghia, and Pianargia. On the south-west side of the ridge of Genargenta is an extensive cultivated plain, called "au Saracidana," covered with fine oak, beech, chestnut, and oak trees, and on the Monenjini range, between San Lussurgiu and Macomer is another elevated plain called "au littu di St. Antoni," about nine miles wide and nine miles long. The forests of Sardinia are very beautiful, and woods are also found in the Giarre di Sorri, and on the hills of Trebina and Arcusa, and they abound with wild hogs and game. Pine-trees are not common except near Tarrare. The cork-tree grows very fine and in great quantity in the plains, and the want of roads prevents the people from making use of that of the mountain forests. Dwarf mulberry-trees grow in abundance, but their cultivation is little attended to, although the government has proposed an endowment to encourage the natural plantations; and as early as 1758, a book was published at Cagliari, in both Sardinian and Italian, called "Morfaggia Sarda," in the form of a dialogue, pointing out to the people the advantages of this branch of industry, and explaining the methods to be followed, but it seems to have produced little effect, at least as late as the years 1813-4, when Captain Smyth took a survey of the whole of the orange-trees, and

Among fruit-trees, the fig, the vine, the apple, apricot, peach, almond, and prickly pear are the most common. Walnuts and chestnuts are only met with in some places. Oranges, lemons, and citrons are cultivated chiefly in the southern districts of Iglesias and Villa Cidro, and near Sassari, but are not held in great esteem. Date-trees grow on the Campidano, and some of the produce is gathered and sold, but it is not of a good quality. 

Vegetables are fine and plentiful; peas and cabbage grow wild in the greatest luxuriance, and the asparagus of the hedges is abundant in the markets in March and April. Celery and tomatoes are large and well flavoured. The "torzo," a kind of turnip-cabbage, grows to a gigantic size, weighing without the leaves eight or ten pounds. Saffron is cultivated, and is much used in cookery.

The vine is extensively cultivated, both soil and climate being highly favourable to it; and though the process of making wine is still very imperfect, Sardinia produces some excellent wines. The "monica," or malvasia-wine of Quarto, Cagliari, Boa, and Sorso, the muscat wine of Alghero, the red wine of Alghero and Oristano, and the canana, native, and quaranica of the Campidano are much esteemed. The natives in general make considerable use of it. More common wines are grown near Alghero, Nuoro, and Terra Valle, and also in the Campidano. About 2000 Catalan pipes of a hundred quartieri (the quartieri being about eleven pints English) are annually exported from Alghero, from Ogliastro on the eastern coast, and 500 or 600 from Cagliari.

There are several extensive olive grounds, but the oil has not yet been largely exported, although this branch of commerce is on the increase. The best olives are those of Sassari. Inferior oil is produced from the Ogliastro, or wild olive, which, with that made from the Lenticus, serves the peasants for burning.

Corn is the principal article of export, but the government does not allow the exportation unless the average price of wheat in the market is not below one and a quarter reals (11z. 3d.) the starrelo, each starrelo being about a bushel and a quarter Winchester measure. A heavy duty is also imposed on the exportation. The importation of foreign wheat is prohibited, if the average price is not above ten reals the starrelo. The greater part of the wheat raised in Sardinia is of a superior though soft kind called trigue; it will keep good only eighteen or twenty months; it is sowed in November and December, and reaped in June. Butter is also exported. The barile is inferior in quality as compared with the wheat; about 200,000 starrelas is the utmost quantity exported. Indian corn, though it thrives well, is not very extensively grown. One hundred thousand starrelas of maize, 200,000 of peas, and 1000 of lentils are also exported annually.

Cheese is a great object of rural economy; it is made chiefly from sheep and goats' milk, and being steeped in brine, it has a salt bitter taste. A great quantity is dispatched for Naples, where it is in great demand, being much used when grated to season maccaroni. Little butter is made, as the treatment of cows is not well understood, and fodder is scarce.

Salt is a monopoly of the government, and a profitable branch of the royal revenue, the continental states of the house of Savoy being supplied entirely from Sardinia. Sweden and other states take many cargoes of salt from Sardinia. The salterns, both natural and artificial, are many on the Gulf of Orosei, on the coast of the western part of the northern coast west of Porto Torres. The salterns are worked by convicts sentenced to the galleries, but the exclusion of the mounds and the carriage of the salt is a labour forced on the adjacent villagers, for which they receive a small compensation.

Tobacco is also a royal monopoly. This plant, which was introduced in 1714, while the island was subject to the House of Austria, thrives well, especially round Sassari, Alghero, and Olbia. The Zuccheraria, a fine sort of snuff, resembles that of Valencia in Spain.

Flax is cultivated in the neighbourhood of Oristano, and most of it is used in the linen manufacturers of the country. The finer sort of linen is made at Bussolli. Wool is coarse, swag to the fleeks being neglected, and it is mainly exported.
into coarse cloth for the peasantry. A better quality of cloth is made of lambs' wool, and also a fine sort of flannel called pantali, which is very valuable. It is spun in the Campodanaro, but is not cultivated to any great extent. Mulder grows wild, and is only used by the peasants for dyeing their coarse cloth. Some rock mosses are also gathered for dyeing. The wool is brought to the Delicate Vermillion mentioned by the ancients by the name of tinctura Sardinica, is no longer known. Barilla is forbidden to be cultivated, except in certain places, from an opinion that it impovershies the land. Bullocks' hides, sheep and goat skins, and tanning are done in large quantities. Leather is imported from Marseilles and other places. Among the yearly exports are from four to five thousand fox-skins; 2000 martin skins and 60,000 rabbit or hare skins. The fowls abound with stage, dainy or small birds, wild boars, and many kinds of game, a species of large sheep, clothed with hair instead of wool.

The fisheries of Sardinia are very productive, especially the 'tonnara,' or establishments for taking the tunny fish, which are at the Saline on the north coast, at Flumentargiu, Porto Pigna and Porto Scuss on the south-west coast, and at Cala Vinagia, in the island of S. Pietro; and Cala Sapone, in that of S. Antioco. The shoal enters the Mediterranean from the Atlantic in the spring, skrets the shores of Spain and France, then descends along the western shore of Corsica, part of it finds its way eastward through the Straits of Bonifacio, while the rest passes towards the Black Sea round the south end of Sardinia, remaining on the coast of the island from April to July. Many of the tunnies are caught on the shores of Sardinia, but some of them are above 300 lbs. All the parts of the fish are turned to account, and most of them are salted. Captain Smyth gives an account of the expenses and receipt of a tonnara for one season, in which 3600 tunnies were caught, the expenses of the company, which hired the tonnara for 115l., amounted to 174l. The heaviest item besides the rent is the wear and tear of the nets, which are divided into several compartments called chambers, and made very strong; as the fish is powerful, and strong; they are made of oil and salt for preserving the fish, the cost of the barrels, the wages of the men, &c. The receipts amounted to 14,590l., leaving a profit of 216l. One of the tunnies are let to foreigners, who ship off the produce to various parts of the Mediterranean, and a comparatively small proportion is used in the island.

The fishery of anchovies and sardines, which once used to be very productive, is much fallen off. Coral is taken off the west and south coast, especially off Alghero, between the months of January and October, a branch of it is also abandoned by the natives to the Neapolitans and Genoese, who send from 200 to 300 boats annually, and carry off the produce, paying only a small impost, and a small duty for anchorage. Each selsa or boat generally carries about 1500 lbs. of anchovies, held at about 12s. per English pound weight. The coral is polished and worked into necklaces, earrings, and other ornaments, at Genoa, Leghorn, Marseille, and Naples. Pearls of an inferior quality are obtained on the coast, as nodules, which are also in shallow bays, as at Porto Conte and Liscia. The shell measures from 15 to 27 inches in length, and is sought chiefly for the tuft of silky hair, the reverse of the antenata, which is attached to it. The filaments are of a glossy brown colour, about eight inches in length, and are easily spun into gorge, stockings, &c.

Sardinia was noted in ancient times for its mines, which were worked to a great extent, as is attested by vast excavations and remains of founderies. South-west of Iglesias is Mount Orose, which, from its name from the gold formerly extracted from it; the mountain has been reduced by excavation to a mere shell. There is no doubt that silver was found in considerable quantities, and is even now procured occasionally, but the government itself, as it neither undertakes to work the mine nor allows private individuals to work them. A vein of pure mercury was discovered near Oristano, the façade magistrat seized the place, on the ground that the walls and casters of the town had been broken up. The façade magistrat, and lead ore are found in abundance in many places, as well as copper. The government has however of late years sent minersologists to explore the island. In the eastern mountains are the four copps, porphyry, basalt, slates, and marble. Chalcedonies, jaspers, cornelian and quaquain are found in the districts of Sulco and other mountains of the west. Fossil wood is found at Oristano, Mandas, Chiaramonte, and other places. Some silver is found in the groottes of Sorrenti, niter is procured at Tula and Sammugheu, and is carried to Cagliari for the reparation of the manufacture of gunpowder. Arsenic and barytine are obtained at Procine and Isili. On the Espalmador of S. Barto there is a grey mixture of carbonate of lime and alumina, resembling fuller's earth, which is used by the niter washing, and is called terra sorantina. There are numerous mines of manganese, iron, copper, lead, and zinc in the Cidro, Fordongianus, in the south, and Castel Dora, Dioceli, Cordongianus, and Besentutti, in the north. They are however provided with buildings or any sort of accommodation for the working of the mines. Vestiges exist of the sulphurous springs of Fordongianus, on the left bank of the Tisri, but they are now quite forsaken.

The population of Sardinia amounted, in 1833, to 1,517,529. The island is divided for administrative purposes into seven prefectures, or small provinces: Cagliari, Iglesias, Isili, Leddus, Nuoro, Alghero, Busachi, Olzasi, Cuglieri, Tempas, Sassari. For ecclesiastical purposes it is divided into eleven dioceses: Cagliari, Oristano, Sassari, Galloteli, Nuoro, Iglesias, Ales, Alghero, Ampurias, Civita, Bossa, Busachi, and Sassari. The island has also 333 religious houses, of which 16 are Franciscan, 57 Benedictine, 38 Augustine, 113 Carthusian, and 99 secular. The orders of Augustinian, Carmelites, and Jesuits, are also established in Sardinia. The majority of the people are Protestants. The number of Catholics does not exceed 1,500. The Roman Catholic is the only religion of the country, no other is tolerated, and the native bosom that no heresy ever spread to this island. The majority of the islanders are of the three families the Santarinos and Aragonese and Spanish dynasties, probably contributed to this result.

Sardinia is at present administered by a vicerey, appointed by the king for three years: he has a salary of 66,000 francs. His residence is at Palermo, on the island of Sicily. He has an oath to preserve inviolate the statutes and privileges of the island. Sardinia has a representative parliament, called 'Blamenti,' consisting of the three orders or estates, after the manner of other kingdoms during the middle ages: namely, the ecclesiastics in stipendio, selected from the prelates and archbishops of Cagliari president; the military estates consisting of all nobles, with or without feoff, under the presidency of the most antient feudal nobleman above twenty years of age, and the royal estate, comprising all the representatives of the towns, under the Capofuori of Cagliari. Each estate holds its sittings apart, in a separate hall, and after separately discussing the matter in debate, communicate by deputies. The assembly of the estates is convoked by the king or his ministers, and can therefore constitute no permanent opposition to the royal will. The chief topic of discussion is concern for the 'donavi,' or supplies required by the sovereign. And when the estates have not been convened for a number of years, there has been repeatedly a loud outcry for them, and at times something like a popular insurrection.

The feudal system continues in activity, though considerably limited by the interference of the crown. The没收 rights vary according to the terms of the investiture; but the feudal lord is required, in all cases, to assist his vassals and support them during imprisonment. Nobles are subject to civil and criminal prosecutions, just as commoners are, with the privilege however of delaying their answer to any question for twenty six months. The vassals are required by the lord of Anglona, bear the title of prince, the others bearing marquises and counts; there is a numerous class of inferior nobles and knights, who have the privilege of bearing arms, but are required by the noble lord to pay nothing to the feudal lord, but only to the king and to the clergy.

Vassals in Sardinia are born free, and can change their lord and residence at will, while on a lord's estate there are bound to feudal services and tenures, all above the rank of eighteen paying annual tribute, either in money or kind besides the usual imposts on the land and stock, the last one
tributions for robberies and arson committed in the district, and for the exemption from the 'roada,' or one day's personal service, and from other dominical services. These

are levied in addition to the tithes, the royal impositions, a tax (asked as a due, and never refused) to mendicant monks, and other demands, which in some places amount to seventy per cent. on the earnings of the vassal.

For a long time the mixed race of the Tiberian and Arabian stock, and partly of Greek and Etruscan race, to which a considerable infusion of Carthaginian and afterwards of Roman blood was added. In later times Picens and Spaniards settled in the towns and lower country, but in the main women wear the dress characteristic of the earliest inhabitants, unmixed, and may be considered as the real descendants of the old Sards, who struggled hard against both Carthage and Rome. The Sards are of a middle stature, and well formed, the women wear a very costly costume, their complexions and blue eyes are also seen in the mountains.

In the Campidano they are more swarthy than in the north part of the island, and have generally a large mouth and thick lips. They have strong intellectual faculties, though mostly uncultivated, and an enthusiastic attachment to their country and their native district, in consequence of which families seldom remove or disperse. They are kind and hospitable, but are easily offended and excited to revenge. Being accustomed from early age to the use of arms, they have also become expert in ambush for their victim for whole days, until they have an opportunity of shooting him. If the family of the sufferer has influence enough to stir justice into action, the offender may have a length of time in the mountains, where he joins others of a similar description, and becomes a robber.

Some of these bands however will not molest strangers; they do not call themselves robbers, but assassins. They levy contributions on the villages and ships, and supply themselves with necessaries. But on the eastern coast, near Terranova, Dorgali, Galtelli, &c., there are real bands of robbers, who both plunder and murder; they are designated by the name of guerrieri, a square hole in the hand, a term derived years done much towards expatriating the robbers; it has abolished in a great measure the privilege of sanctuary; it has forbidden the use of fire-arms, except to the militia, the nobles, and other persons duly authorised; it has sent troops against the more infamous lands, and hunted and destroyed them. But as long as revenge is considered by all classes as a moral and hereditary obligation, outlaws will take shelter in the impracticable recesses of the mountains, where it is extremely difficult for the government to reach them.

Italian is the language of the government, and is also spoken by all educated persons in the large towns. The native tongue, which varies according to districts, is a dialect of the Sardinian, which is itself derived from the Latin, with an admixture of words of Greek and Arabic origin. The natives of the Barbajara district pride themselves on the number of Greek words which they retain, and their distinct but harsh and guttural enunciation, which is with difficulty mastered by the rest of the Sards.

The language is considered to be purest in the Gocenano and in the western district of Marghine, north of Oristano, but it is most elegantly spoken in the Sulus. At Alghero the Catalonians is generally spoken, the inhabitants being in great measure the descendants of a Catalonian colony, established by Peter the Cenomnus, king of Aragon, in 1355.

Among the nobles and citizens generally follow the fashions of Italy in their dress, but the country people have peculiar costumes. In the Campidano they wear a jacket or pelisse of undressed sheep or goat skins, with the fleece outside, the 'maestro' mentioned by Coero; that which is worn in the Gallura is a very mixed race, partly mere vine cloth; in the west, near Bossa, and in the Sulus, they wear the 'colletto,' or close sleeveless waistcoat of tanned leather, folding on the breast and reaching nearly to the knee. Some 'colletti' are made of heavy leather, from France, ornamented with large silver buttons in the Maltese style. The shirt is fastened at the neck by silver buttons, but no cravat is worn. The 'casabou,' or heavy dark-brown Maltese cloak, is much worn by the farmers. In Cagliari the men of the lower orders wear a red cap, but in most other parts of the island black caps are worn. The cap or net for hair is also much worn in the southern part of the island. In the highlands of Gallura and Barbagia the men let their hair hang loose over their shoulders, should be bound, or at least parted, in the form of a fierce aspect. A kind of black kilt over loose linen drawers, with cloth leggings, completes the dress of the men.

The dress of the females in the towns is an imitation of the Italian fashion; most women wear the Genoese 'mescaro,' or white veil, thrown over the head and shoulders; those of the upper class wear bonnets. The parasol adheres to their peculiar costumes. In the northern districts the women wear a white dress, alabaster in colour, and a coarse white net envelops their hair, like that worn by the men. The females of the Sulus wear a shawl round their heads, and scarlet stockings; at Orseo the women are clothed like their countrywomen, but the coral on their faces and their eyebrows is most expressive. Between the breasts, in shape not unlike a handkerchief, they have a piece of coarse linen tied loosely under the chin. The petticoat is made very full, with small plaits; the shift is buttoned at the neck; the corset is low, over which, on gala days, a rich embroidered jacket is worn, with loose cuffs and silver buttons. Corals, rings, rosaries, necklets, and other trinkets are generally worn.

The villages are generally large and well situated, but with unpaved narrow streets, mean houses, and a general want of comfort. Large dungheaps disfigure the principal streets of the villages. The women's hair is gathered into two blocks, and in the other northern districts of freestone; but in the southern division of the island most houses in the country are built of sun-dried bricks. The dwellings of the peasants have generally only one story, without windows, or if they have windows they are small, and the whole family often dwells in a single room, with their chickens, dogs, and kids, whilst the patient ass turns the corn-mill in a corner. In the centre of the room there is a stove for the heat of the winter, and boys and girls speak their way through the door or any accidental service. There is generally a large bed in one side of the room for the elders, the sick, or the stranger, for hospitality to travellers is common, and inns are searao. The younger members of the family do not sleep in a bed till they marry, but they lie down round the fire-place on mats, and frequently in summer in the open air. A few low chairs and a low table constitute the remaining movables. In the towns there are some tolerable mansions, though few: the mansions inside, like the towns, are small. South of Italy, and the Serus is generally called the number of beds indicates the importance of the owner, whose own room contains the saddles, bridles, arms, cordage, and other implements, besides hams and dried sausages, which are hung up, and cabinets filled with walnuts, cheese, pastry, and dried fish.

Throughout the island the cittadini, or inhabitants of walled towns, hold the contadini, or villagers, in utter contempt, a feeling which is cordially returned by the rustics, besides which the people of Cagliari and those of Castiari mutually hate each other. Kissing on meeting is an indispensible custom among men of all ranks. The hostess welcomes a stranger by a shake of the hand, saying, in a kind tone, 'the stranger is welcome.' Females however never sit at meals with visitors. It is to the honour of the Sardinian women that they are generally moral and dutiful wives, and the baneful custom of the cavalier servant is unknown. The extreme jealousy of the Sards, and their summary mode of avenging an injury, have probably prevented its introduction. In conversation however the women talk very freely, and laugh heartily at indecent allusions, as is the case in other southern countries. Among the peasants women are very anxious about their children and poultry, in manufacturing their linen and 'obuscii' or coarse woolens, and in making bread, and fetching water. The Sards are fond of feasting; they drink wines and cordials, though not to excess, but to the constant drinking. Particular occasions are given with a profuse hospitality. Fine wheaten bread is in general use, except among the shepherds of the eastern highlands, who eat a coarse kind of bread, and sometimes occurs, the Sards eat more butcher's meat than the Sicilians or South Italians. Poultiy is rather scarce, but game is plentiful. The 'mazurco,' or
substantial soup, made of pulses, cauliflowers, or herbs, is a national dish, as in Italy; and macaroni, aspide, and peas of your country are much appreciated at Cagliari and other places, and are in much request.

The Saracens are no great pedestrians: the only mode of travelling for both sexes is on horseback. There are few coaches, and those only in the large towns, and the large towns are in the central and high regions. The whole of the road is now finished, as well as branch roads to the most important towns in the interior. The eastern highlands however still remain difficult of access.

Field sports, such as hunting the boar, stag, or moufflon, as well as sporting for birds, are favourite amusements with the Saracens. Their religious festivities and processions, to which they are much attached, afford them also periodical amusements. They delight in the sight of the gorgeous dress, the pageantry, and the ceremony of the procession, and generally end in a feast. Weddings are celebrated with much ceremony and rejoicing. Captain Smyth observed traces of many customs which the Saracens have in common with the Europeans, such as town meetings for municipal purposes, marriage ceremonies, and superstitions. Some of these peculiarities are due to the Romans, such as a belief in bad or good omens, the evil eye, a dislike to mention death, and the bowing of the 'ascobadores,' a kind of priests, who are hired for mourning. The 'ascobadores,' in the mountainous districts of Barbagia and others used to perform another office, which was to throttle or suffocate dying persons in hopeless cases, in order to shorten the agony; hence the name, which means a 'smotherer' or 'strangler.' The Parosas are the last legates of the remanences of the Saracens, for a missionary called Padre Vassallo. A belief in witchcraft and demoniacal possession is still prevalent, and exorcisms are resorted to as a cure in the latter case.

The laws in force consist of — 1. 'La Carta di Logu,' which is a code written in the Sardinian dialect, consisting of 196 chapters, which was published in 1596, by Eleanor Giudicessa, or ruler of Arborea and of the greater part of the island. This code is the oldest in Europe, with the best natural order, and the times, is remarkable for its equity and wisdom, and being well adapted to the habits and opinions of the Saracens, has been adopted all over the island; it remains in force, with few modifications, to the present day. 2. The Royal Pragmatica, or ordonnance of the kings of France, which is written under the reign of Louis V, and promulgated by Philip IV, of Spain, in 1623. To it has been added a commentary, by D. Francisco de Vico, regent of the supreme council of Aragon. 3. Capitoli di Corte. These are muster books and registers, and before the kings of Spain by the national states, with the answers and decisions of the sovereign. To these also has been joined a commentary, by D. Giovanni Destatt, a Saracenic jurist. 4. The royal edicts, and the 'Pregoni,' or ordinances of the viceroys since the island has been under the dominion of the house of Savoy. 5. The new civil code, published in 1830, by the late king Charles Felix. (Calendario Sardo, 1831.)

This multiplication of laws, upon which numerous forms have grown up, tends to embarrass the course of justice and gives rise to much litigation and delay. The country judges are very poor, and venality is of common occurrence. Besides this, should a local magistrature prove more than usually subject to these evils, he is able to raise the costs of some of the parties, and Saracenic revenge respects no persons, neither magistrates nor priests. The effect of the whole system, especially in the remote districts, is a fearful insecurity of person and property. The superior courts which sit in the towns have a better character for impartiality, but the procedure is very imperfect. In criminal cases the judges in their interrogatories follow the old practice of inducing the accused to criminate himself, by browbeating and endeavouring to terrify him by reiterated threats suggestive of torture. Torture has been abolished in Saracenic law and the horrid tree for mangling and dislocating limbs is fixed on one of the buildings at Cagliari, which is used in the incidents of the people.

Piracy is still occasionally flogged through the streets upon no previous to execution. Common criminals sentenced to death are hanged, but nobles and lawyers are beheaded. None accused of capital crimes are tried by a jury of seven peers.

The law is the chief profession for young men of respectable connections, as the whole regular force raised in the island consists of only one regiment, which is annually in France. Protestantism and Judaism are not permitted, and the excesses are considered ignoble. The highest legal rank is that of a member of the 'Supreme Real Consejo' for the affairs of Sardinia, which consists of seven members, and sits in the Palazzo. It is divided into four divisions, appointed by the king, to consider all important matters, appeals, &c. It also examines the projects of law for the island, proposed by the king's ministers. The high court, called Reale Uditore, sits at Cagliari, and is divided into two sections, one for civil and the other for criminal cases. It is also a kind of council of state for the viceroy, and it proposes to the king candidates to fill up the vacant bishoprics and the judicial and juridical offices. A numerous train of fiscal advocates, solicitors, advocates for the poor, assessors, secretaries, &c., is kept up, under the Real Governo, which is a high court, which sits at Cagliari and civil and criminal matters relating to the northern part of the island. There is an appeal from it to the Real Consejo of Palermo. In the interior of the island there is a magistracy called Vicar, in some places Podesi, or Consul in others, who, with an assessor and secretary, have the first instance for the town and surrounding territory. The prefects in each of the eleven provinces are also judges in civil and penal cases, and sit at Cagliari, and are called 'Consulato,' which decides all commercial suits, besides which the 'Regia Capitania' constitutes a sort of Admiralty court for the island. A court called 'Triborogia delle Contenzioni,' decides questions which arise between the Saracens and the islands, and was established in the last year, called 'Cancelleria Regio Apostolico,' who is a clerical dignitary, and a secretary. This court was established in the latter part of the 14th century, in consequence of serious differences between the clergy and the sovereign, and has been sanctioned by several popes.

Sardinia is free from the burthen of the conscription, what has been entailed by the French revolution upon most countries of continental Europe. It furnishes by voluntary recruitment with the regular army, and when it has its militia, an irregular force of about 6000 cavalry and 1200 infantry, the officers of which wear a uniform, but are not required to receive pay. The privates have no distinguishing dress. There is a cockade which they wear on particular occasions. Nobles are exempt from military service, and the minor nobility are expected to enrol the country to arrest malefactors, to repair to any point which might be invaded by an enemy, and to assist the Board of Health in preserving the public health. Besides these there is a kind of yeomanry called 'Baraccoli,' an armed association for guarding property, especially in the lowlands, against robbers. Every village has its party, under a captain annually selected from among the most respectable inhabitants, and he chooseth his men. They maintain a strict watch during the night, from a certain hour in the evening, which varies according to the season, and is made known to the inhabitants by the sound of a bell, after which none is allowed to be out of doors till the tolling of the morning bell. The baraccoli are obliged to take up a position for all forts, and if a man man is wanted to have property to a certain amount, and be well known for his integrity. During the year of his service, and the following year also, he is exempt from royal and baronial service, and has the right of bearing arms. The reorganisation of the baraccoli arises from the annual sum, the aggregate amount of which, after deducting the losses which may have occurred, is divided among the men at the end of the year. In the year 1819, Count Revoltella, who was then the minister for the interior, wished to abolish the baraccoli, and supply their place by a regular cavalry from Piedmont, called Royal Caraminches, like the French gardesm, but as they proved insufficient for want of local knowledge, and the deadly hatred of the Saracens against them, the king was obliged to reorganise the baraccoli under the name of 'Consiglio Federale.' They
The mechanical arts are in a very low state; the guns of Tempio are in some repute, but the cutlery is of the common sort; the pottery and the platters are made by the country people; builders and carpenters are very indifferent workmen, besides which all artisans are extremely indolent. Superior workmen come from Piedmont and Genoa.

The principal towns of Sardinia are — 1. Cagliari, the capital and the residence of the viceroy. 2. Sassari, the head town of the north part of the island, situated on a gentle declivity, in a pleasant and fertile country, about nine miles from the sea by a cart road, and all inhabited by Cagliaritans, and, from its healthiness and other circumstances, a place proper to it as a residence. Sassari has a good main street, which is the only one paved, fine public walks, shaded by trees, outside of the walls, twenty-four churches, ten convents, three hospitals, a clerical seminary, the university of the Jesuits, several palaces, among which those of the governor and of the duke dell'Asinara are the largest and most remarkable, a public hospital, two tolerable 'locande,' or inns, besides coffee-shops, and some good shops of various kinds, among others a bookseller's shop, a rarity in Sardinia; about 20,000 inhabitants. The cathedral is a large structure, with a very elaborate façade. Provisions are good, abundant, and cheap; fruit and garden vegetables are exceptional; there is much wine good and cheap, and considerable springs or wells, but good water is brought to the houses by water-carriers, from a handsome fountain called del Rosello outside of the walls. Sassari was built in the seventh century of our era, by emigrants from the antient town of Oddo; and, which had been burned by the Saracens, the necessary establishments consist of a cabinet of natural history, founded in 1823, and a library of only 5000 volumes. An interesting account of the university of Sassari was given in the 'Bolletino di Notizie Statistiche' of Milan for the year 1834. Poor students from the country, while following their course of studies, support themselves by acting as attendants, errand-boys, &c. to wealthy families in the town, and are called 'Majuli.' In the head town of every province there is a similar institution; the average number of the pupils is about 6600, of whom above 1000 are in that of Cagliari. In pursuance of an ordinance of the late King Charles Felix, dated 1823, most villages have an elementary school for boys, in which reading, writing, and arithmetic are taught, besides the doctrines of religion and the elementary principles of agriculture. There are no public establishments for female education; those young females who can afford it become for a time boarders in the convents of the Carmelites, Dominicans, and others; but the Seminary of Gairina, in the 'Bolletino Universel des Sciences,' from authentic sources, that the results of elementary instruction and other improvements, such as the opening of roads and the establishment of a more effective police, which have been constantly supplied by grants in aid of the town, and that the prosperity of the people, and that murders, for instance, which are said to have amounted once to above 100 in one year, had decreased by about one-half.

The art of medicine is not in great repute among the Sards, and they have a proverb, 'Bivi de misgus e muri miserale; 'Vhverone lives by the doctor dies miserably.' In every almost every town there is an hospital for the sick, the insane, and the foundlings, supported by bequests and voluntary contributions, and served by the Benefratelli, or Order of S. Juan de Dios.

Although sciences and literature are not much esteemed in Sardinia, yet the island has produced many learned men, of whom few are known beyond its precincts. The following deserve particular mention: — Fara, author of the work 'De Rebuss Sardois,' Cagliari, 1580; Father Mado, who has written on the language of Sardinia; the judge Mameli, who published an improved edition of the 'Codice di Lusso,' at Turin, 1761; the jurist and historian Azuni, and his opponent, Father Napoli, who has refuted, in his 'Note Illustrate,' many of Azuni's statements concerning his native country; Cetti, the author of the 'Storia della Sardegna,' in three volumes, 8vo., Turin, 1786, 1787, 1789; and lastly, Don Giuseppe Mauri, who has published a good history of Sardinia. 'Storia di Sardegna,' 3 vol., 8vo., Turin, 1826, as well as a little work on the 'Vies dei Littorani,' besides several poems, either in the vernacular language or in Italian and Latin.
Sarbo (p. 228) says that the colonists of Iolosa inhabited the island jointly with the barbarians, who were Tyrrenians. Persia was found at plan A, in places where it appeared. Cariola or Cagliari assumed at one time the name of 'Civitas Iolosa.' The island became well known to the Greeks, and Herodotus (v. 106) mentions that Hestuex of Miletus promised to Darius the son of Hystaspes that he would render the great island to the Persians as a gift. According to Pliny, Timaeus called the island Sandaliotis, from its resemblance to a sandal: it was also called Ichnusa by the Greeks, from its likeness to the print of a foot.

Nura, afterwards one of the chief towns of the island, is mentioned in the Roman period on account of the inhabitants having accused the praetor Scaurus of usurperation, on which occasion Scaurus was defended by Cicer. But the anti-Roman origin of Nura is not to be doubted by the singular structure called Nuraggi, which is a large cone, constructed of coarse blocks without mortar, and flanked by four small ones, upon which rests the foundation of a Roman aqueduct that supplied Nura with water. There are also at Nura other Roman remains such as a small theatre, baths, etc., all very much defaced. Nura is said to have been destroyed in the wars of the Vandals. The Nuraggi are attributed by some to Iberian colonists and their leader Norax. They are a kind of tartar, made of a mixture of a trowel substance, consisting of large blocks of stone, lava, pumphy, or freestone, without cement, and forming two concentric walls, between which are stairs leading to the summit. The inner part has generally a stone roof, or abobe on the other. The entrance at the base is very low, and leads through brick walls to the lower chamber. The stairs give access to the upper chamber. The Nuraggi are of two sorts; the most common, and probably the most ancient, bear no marks of the chisel, and are constructed of massive blocks, irregular shape, and smaller stones in the interstices. The exterior materials of the walls are evidently worked by tools; and though the stones are not exactly square, they are placed in horizontal layers, and gradually diminish in size towards the summit. The Nuraggi stand generally on the summits of hills commanding a view of the plains. Some rest upon a solid and spacious substructure or platform walled round in the same manner, and in which are constructed hidden chambers, which communicate with the central one by a winding gallery. Captain Smyth gives the plan and section of one of these, which is in the plain of Giusveu near Bonorva. It is about 40 feet high, including the substructure, and the cone is about 40 feet in diameter where it rises above the substructure. One of the lopest Nuraggi is known as "Sansebvee and Fordunyans," in the district of Buschi, east of Oristano: it is nearly 60 feet high, and is called by the natives 'Su Nuraggi longu.' Nuraggi are scattered all over the island, some in number, some in state, one nearly perfect, others a heap of rubbish. They are very numerous in the district of Suleia, on the south-west part of the island, and also in the hilly region of Mannu, north of Oristano. There are also fine specimens of them in the Cargi' Oseri, and at Inili and Gennuni in the Campidano. The original purpose of these buildings was probably for watch and defence, though in after-ages some of them may have been used as monu-

ments for the dead, fragments of Roman terracotta and coins of the empire having been found in them; neither literal nor symbolic characters are discovered in these singular structures.

The first Carthaginian expedition to Sardinia, of which time is not, however, is not ascertained, was led by M. 

chusus, or Malchus, or Mules, who landed on the island, but was defeated by the natives, for which he was banished on his return to Carthage. Some time after, about 228 B.C., Hasdrubal and Lartius led another expedition to Sardinia, which gained a footing in the southern part of the island, and built or colonized Cariola and Suleia. Hasdrubal however lost his life in fighting against the invaders.

We have no account of the wars of the Carthaginians in Sardinia, but it appears that they never reduced it entirely, as the natives took refuge in the mountains, ever ready to rise at the opportunity. The opportunity was permanently in possession of the Carthaginians until the first Punic War. Suleia was one of their chief colonies, but the site of that once wealthy town is now a subject of controversy, some placing it on the southern coast, where a district still retains the name; while others, with more reason, place it on the north coast opposite S. Antioco, north of the town of that name, where considerable remains of walls, of a most, and an extensive necropolis are seen, and where, in 1819, an inscription was found, in which Suleia is styled a "colonia Romanorum" in possession of the insula. L. Corn. Marcellus, is recorded. In the same neighbourhood, in 1820, part of a brass arm-Gur was discovered, which is now in the museum of Cagliari, and which is believed to be of Greek workmanship. (Genz, Rerexpl. "Pli-M. &. F. Bronzepfl. in der Umgebung

S. Pietro an amphora full of Carthaginian brass coins was found by a farmer in ploughing the ground, while Captain Smyth was at anchor near the spot. During the time of the Romans attacked and defeated the Carthaginian fleet at Olbia, where Hasumo, the commander, fell; and again they gained another naval victory over the Carthaginians at Cariola, but they do not seem to have got a permanent footing on the island, which was the conclusion of the war still belonged to Carthage. But the mercenary troops that garrisoned the island, following the example of those at Carthage, revolted, and killing their commander Bostar and the other Carthaginians, made the island an independent state, enjoying all kinds of deprivations on the natives, who rose in arms, and at last drove them away. The mercenaries repaired to Italy, where they were couteounced by the Romans, eager for a pretext to seize upon the island, which was the condition of their rivals, who were just released from the horrors of the war of the mercenaries, the Romans threatened Carthage with a new war unless Sardina were formally made over to them. The Carthaginians were obliged to yield, besides paying the expenses of the Roman armament. The Romans, under T. Manlius Torquent and M. P. Matho, met with considerable resistance from the Sards, but they succeeded in subjugating the principal part of the island, which was incorporated into the Roman province Sardi, and about m.c. 228.

After the breaking out of the second Punic war, the Sards, weary of their Roman masters, applied to Carthage for assistance. The Roman garrisons were in a weak state, and the praetor Q. M. Scamulc was ill from the climate. The senate sent T. M. Torquentus with reinforcements to Sardina, where he found the natives of the central part in open insurrection, under a chief called Anicurus, who was seen after joined by a Punic force. A general battle took place near Carthage, in which the Sards and Carthaginians were utterly defeated, and Carthage, the stronghold of the insurgents, surrendered to the Romans. (Liv. 23, c. 40. &c.) After this Sardina remained quite during the rest of the Punic war.

About 178 B.C., Sardinia, being in a state of open insurrection, was made a consular province, and T. Sempronius Grachus was sent to it with an additional force of two legions and 12,000 Latin confederate troops. Sempronius defeated the Sards, the supposed descendents of the Carthaginians, and the Sards and Sards were utterly defeated, and Carthus, the stronghold of the insurgents, surrendered to the Romans. (Liv. 23, c. 40. &c.)
ties of the rest of the Roman provinces, following alternately the fortunes of Marius or Sulla, of Caesar or Pompey. By the peace of Marseus, Sextus Pompey retained Sardinia with Sicily and Achaea. But his freedman Menodorus, who was pretor of Sardinia, forsaking his master, gave up the island to Octavian. The island remained quiet during the period of the Empire, being considered by the Romans as one of their granaries and a penal colony for their criminals.

Tiberius sent thither 4000 Jews to make war upon the barbarians who plundered the country, or to die of its malaria. Piny (III 7) mentions Caralisa, Sula, Nora, and other places as towns that had the Roman civitas, and Turris Libyonica as a colony.

Julius Caesar, the son of Valentinian III, Genseric, king of the Vandals, invaded Sardinia from Africa. The emperor of the East, Leo, sent an expedition against Genseric, which retook Sardinia, but the latter soon after recovered possession of it.

His son Hunneric, being an Arian, like his father, persecuted the Catholics or orthodox with great cruelty, as well as his successors. Sardinia became a place of banishment for the orthodox prelates of the Vandal domination. After the overthrow of the Vandal kingdom by Belisarius, Sardinia was annexed to the prefectship of Africa, and was given to the landed proprietors who held it, and was divided into barony, duke of Sardinia, having defeated the tribe of Barbarecini, obliged them to abandon idolatry as a condition of pardon. This forced convention however was eluded by many, and the archbishop Januarius went to Rome to complain that by giving a fee to the military officers of the emperor, the natives were allowed to sacrifice to their heathen deities.

Pope Gregory the Great, in his Epistles, complains of the loose conduct of the clergy of Sardinia. The Saracens bore down upon the natives, and as the Byzantine emperors were unable to protect their distant dependencies, the natives applied for assistance first to the Lozobardia, and afterwards to Louis le Debonnaire, Charlemagne's son, to whom they tendered their allegiance.

About the year 1000, Musait, a Moorish chiefman, sailed from Africa to Cagliari with a large force, took it, and conquered the greater part of the island, and assumed the title of King of Sardinia.

Musait, not content with the possession of Sardinia, sent from thence armed vessels to ravage the coasts of Italy. The pope issued a bull against him, offering the investiture of the island to those who should drive him out of it. The Papal forces, however, were defeated by the Saracens, which the Saracens took possession of. Musait came with a strong force by sea and by land, A.D. 1015, and obliged the Pisan garrison to capitulate, but massacred the Pisans as they came out of the town. Musait then sailed for the coast of Luna in Italy, and massacred the population. He was however captured in his retreat, and lost most of his men, and even his wife, who was taken prisoner and beheaded. Musait escaped to Sardinia. The pope's legate now persuaded the Genoese to form an army (Pisa, Genoa, Sardinia). The common المنية of the two republics attacked the Moors and drove them away from both Sardinia and Corsica (A.D. 1016-1017).

After this, the Genoese kept for themselves Corsica and Capraia, and the Pisani had Sardinia. (P. B. Burghi. De Dominio in Mari Ligure.) Musait however, having obtained reinforcements from Africa, was still in the field in Sardinia, when the Genoese again assisted the Pisani in driving him away, A.D. 1022. The island being finally cleared of the Moors, the Pisani divided it into four provinces under four barons, one to each of the four Sanudo Princes, over each, styled ' Giudici,' each independent of the others, but all feudatory to Pisa. Cagliari in the south, Torres in the north, Gallura in the east, and Arborea or Oristano in the west, were the names of the four baronies. The Pisan rule was however assigned to the Genoese, among others Castel Sardo, which was for a long time in the possession of the Doria family, who built a castle near it, still called Castel Doria.

The name of Genoa was dissatisfied at not having a larger share of the island, and this creating a feeling of bitterness led to those disastrous wars between Pisa and Genoa, which, after a lapse of more than two centuries, ended with the ruin of the maritime power of the two cities. Genoa continued under its 'judges' to lie to Pisa, till 1164, when Barisone, judge of Arborea, instigated by the Genoese, offered to the emperor Frederic I a sum of 4000 silver marks, besides an annual tribute, for the investiture of the crown of all Sardinia, and he was actually crowned at Pavia by the bishop of Lille, acting for the emperor, the common of Sicily being absent for the payment. The other three judges however were not disposed to submit to Barisone, who appears to have been a shallow-headed man, and having received assistance from Pisa, they ravaged the territory of Arborea. The Genoese as protectors of Barisone, whom they had placed in custody, kept up a correspondence with the Genoese, laid claim to his dominions, and sent a fleet to Sardinia, which sacked and burnt the city of Torres. After the war had lasted ten years, Barisone, who had been released from custody, made submission to the authorities of Genoa.

The domination of the island lasted in fact after a constant subject of contention between Pisa and Genoa, whilst the lords of the various provinces made themselves independent in reality. The emperor Frederic II. took advantage of the necessity of his king of Sardinia. For this purpose he negotiated, in 1238, a marriage between him and Adelaide, the relict of Ubaldo, judge or prince of Gallura and Torres, who had however already made a bequest of his territories in favour of the papal see, in case of his death without issue. Hence the Genoese claimed king of Sardinia, and having possession in right of his wife of the two northern judicatories, he added to them that of Arborea, whose judge, Pietro di Caprera, had thrown off his allegiance to Pisa. Cagliari alone continued in the allegiance of the papacy, and the subject of the war between Frederic II. and the pope consisted of the Pisani, who were Guidelines, join together against the pope and the Genoese, and their combined fleet defeated, in 1241, a Genoese squadron, and took twenty galleys of the number of their transports. The Genoese bishops and princes, who were going to Rome to attend the general council convoked by Pope Gregory IX. Bentius distinguished himself for his bravery and determination both in Sardinia and Sicily, where he fought for his father against the pope and the Greek, until he was taken prisoner by the Bolognese in 1249, who kept him in confinement for the rest of his life, during which he bore the title of King of Sardinia. His title was however more temporary than the various judicatories of the island ruled as independent princes, whilst Pisa and Genoa continued to fight for their respective claims to the nominal sovereignty. Cagliari and some other towns continued to be garrisoned by Pisan troops. After the defeat of the Meloria (A.D. 1284), by which the Pisans were defeated in an engagement with the Saracens, which were made by the Genoese to release their numerous prisoners, provided Pisa would make a cession of Sardinia, and give up the castle of Cagliari into the hands of the Genoese; but the Genoese, repeated the attack against recovering their liberty at such a price. Some years later, the noble Nino Visconti, judge of Gallura, related to the famous count Ugolino, seated a considerable part in the civil troubles of Pisa, which ended with the catastrophe of Ugolino and his family.

In 1297, pope Boniface VIII., wishing to obtain the crown of Sicily for his protégé Charles II. of Anjou, king of Naples, induced James of Aragon to give up Sicily, in exchange for which Boniface, in the plenitude of his assumed power of disposing of crown and princedoms, gave James the investiture of the kingdom of Sardinia as a fief of the see of Rome. Although the Sicilians themselves did not consent to the exchange, and proclaimed James's brother, as their king, the investiture of Sardinia was confirmed by the pope, who was not at that time ready to enforce his claim till 1323, when he made large preparations on the coast of Catalonia for an expedition to Sardinia. The Pisani reinforced their garrison in the island, and proposed an amnesty to all those who should enlist in their service. Hugo, judge of Arborea, however threw off his allegiance, and in order to facilitate the Aragonese occupation, he laid a plot for massacring all the Pisani in his dominions, which extended over the whole western part of the island. This outrage was executed with the most merciless punctuality, he dispatched a messenger to Barcelona to hasten the departure of the expedition. In June the Infante Don Alonso arrived in the Gulf of Palma, and having landed his troops, was joined by Hugo and some of the native nobles, who tendered their allegiance to his father the king of Aragon. The combined
forces then besieged Iglesias, and after several months’ resistance the Pisan garrison capitulated through famine. The Insurgents then proceeded to blockade Cagliari by sea and land. A Pisan fleet, under the command of the Grand Master of the Order of Malta, arrived in the spring of 1324, and landed a body of troops, which were joined by some of the natives, but being defeated by the Aragonese, a treaty was concluded by which Sardinia was given up by the republic to the crown of Aragon, on condition that the Pisan soldiers and the island should be respected. But the insurrections went on, and in the spring of 1325, the Pisan squadron was being entirely defeated by the Aragonese in the Bay of Cagliari, the town was evacuated, and Sardinia was entirely lost to Pisa. But the judges were no more inclined to submit to their new masters than to the Pisans, and being assisted by the Genoese colonists, Castel Sardo and Castel Doria they blockaded Sassari, and carried on for many years a destructive warfare against the Aragonese. At last Peter the Ceremonious, king of Aragon, landed in 1354 with a strong force at Pisa, and having vassalized the principal part of the island, made his public entry into Cagliari, where in April of the following year, with a view of checking the influence of the factions, he convened a general parliament, after the model of the Cortes of Spain, consisting of the three estates, and common, which was called "Stamenti," or Estates. He thus laid the foundation of a representative government in Sardinia, which, although on a contracted basis, has been the means of saving the island from military despotism, and as such is greatly respected by the inhabitants. Of the many brave men, nor Doria, the head of the Genoese faction, attended the congress; and after Peter had returned to Spain, Mariano intrigued with pope Urban V. to obtain the investiture of the island for himself. His death in the plague of 1376 prevented his succeeding in his object, and his son, Guido, who was as ambitious as his father, was murdered by his own subjects at Oristano in 1383. Brancalone Doris, who had married Eleanor, daughter of Mariano, offered his surrender to the king of Aragon, to make the whole of Sardinia into a subject, but his wife, who was equally ambitious as her father and brother had been, put herself at the head of a strong party of natives, who named her son judge of Arborea. Brancalone, who went on to Spain, was detained there as a hostage, and after fruitless negotiations, Eleanor took the field, being joined by the people of Gallura, and drove the Aragonese from almost the whole northern division of the island. She ruled for several years by the name of "Guiseceas," but in fact as queen of Sardinia, and she compelled her subjects to conform to her ideas of government. The violence, however, ended abruptly in 1390, when Eleanor was killed in battle. Her son, too, a son of Doria and the Viscount, is said to have been murdered by his own subjects at Oristano in 1383. Brancalone Doris, who had married Eleanor, daughter of Mariano, offered his surrender to the king of Aragon, to make the whole of Sardinia into a subject, but his wife, who was equally ambitious as her father and brother had been, put herself at the head of a strong party of natives, who named her son judge of Arborea. Brancalone, who went on to Spain, was detained there as a hostage, and after fruitless negotiations, Eleanor took the field, being joined by the people of Gallura, and drove the Aragonese from almost the whole northern division of the island. 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over the feudal aristocracy. Many of the baronial palaces were destroyed, among others that of Sorso, a town of 40,000 inhabitants, on the north-east of Sassaari. At last the king's troops quelled the insurrections, and sent the leaders, who were not all peasants, were either executed or condemned to prison for life, which, in the present state of the Sardinian prisons, is worse than death.

118th July 1847, the ballad referred to Turin, leaving his brother Charles Felix, duke of Genoa, viceroy of the island. In 1821, in consequence of the abortive insurrection of the Constitutionists of Piedmont, Victor abdicated in favour of his brother, who took much interest in the affairs of the island, and formed an Academy, an Ethnographic Society, and the museum of Cathari; and he was the first to plan and execute a great carriage-road throughout the island.

SARDOS (Sardes), the ancient capital of Lydia, now Sard, was situated in the spacious valley of the Hermus, and on the Pactolus, one of the tributaries of that river. The south side of the valley is bounded by the lofty range of Tomius, the highest summits of which are generally covered with snow. The most remarkable feature in the site of Sardes is the Acropolis, one side of which, towards Tomius, is so steep, that in the time of Ctesias, when the rest of the Acropolis was fortified, this part was considered secure against an enemy. It was on this side however that the city was burned by Cyrus (Herod., i. 64). The Acropolis is continually eroding, and is now in a very rugged and fantastic outline. There are the remains of a large and magnificent temple, the western front of which is on the bank of the Pactolus, and the eastern under the ruin of the city. Among the columns of the exterior order of the east front, and one column of the portico of the pronao, with its capitals, are still standing; but the columns are nearly buried in the accumulated soil. It is probable that the greater part of the temple might be discovered by the removal of the stones of the aisles and portico, and the exceedingly fine specimen of the order (Cockerell). There are the remains of two Christian churches, one of which is constructed of magnificent fragments of older buildings. Under the north side of the Acropolis there are also the ruins of a theatre and an adjoining stadium; the exterior diameter of the theatre was 395 feet, and the interior 168. It is uncertain what the building was, commonly called the Gerania, the remains of which are in the plain to the west of the Acropolis. Sarti is now a miserable place, consisting of a few mud huts.

According to Strabo (p. 629), Sardes, though an ancient city, was of more recent origin than the date of the Trojan war. Sardes was the capital of the Lydian kings, whose dynasty was founded by Elanor, grandson of Croesus, and by the dominion of the Persians, it was the residence of the Persian government of this part of Asia. In the reign of Darius the place was surprised by the Ionians, aided by the Athenians, and the greater part of the city was burnt, owing to the misfortunes of the king which were the occasion of the Athenian expedition (Herod., v. 101.). When Alexander the Great entered Asia on his Persian campaign, Sardes surrendered to him. In the time of Tiberius, Sardes, with other cities of Asia Minor, suffered much from an earthquake, but the families was alleviated by the munificence of the emperor. (Tit. Ann., ii. 47.) Sardes was one of the seven churches of Asia mentioned in the book of Revelation. Julian, in his attempt to restore the heathen worship, built altars at Sardes, and his effigy was placed on them (Dion. Hal.).

Lake Gyges is about five miles north of Sardes, and the burial-places of the Lydian kings were near it. The barrows are of various sizes, covered with turf, and many of them retain their conical form. One of them, which is much larger than the rest, is the mound of Halayttes. [HALAYTTE.]

SARDINIA. [SARDIGNIA.]

SARDINIAN STATES (STATI SARDO) is the name of the dominions of the house of Savoy, which constitute a monarchy over the States of the title of Duke and the island or kingdom of Sardinia. These states consist of the duchy of Savoy; 2, the principality of Piedmont, in its larger sense; 3, the duchy of Genoa; 4, the county of Nizza; 5, the island of Sardigna, which forms separate administrative divisions. A geographical description of each of these great divisions is given under their respective heads. The continental territories, 'Stati di Terra Ferma,' have a population of 3,675,000 and an area variously stated by some at 16,000 and by others at 17,000 square Italian miles (60 Italian miles to a degree of latitude), have now one uniform system, administrative and judicial, being divided into 40 provinces, namely, 1, Savoy Proper, chief town Chambéry; 2, Tarantasia, chief town Moutiers; 3, Maurienne, chief town St. Jean; 4, Haute Savoie, chief town Hostal; 5, Genevois, chief town St. Jean-Capelle; 6, Carouge, chief town St. Julien; 7, Faucigny, chief town Bonneville; 8, Chablais, chief town Veytaux; 9, Aosta; 10, Susa; 11, Valsesia, chief town Varallo; 12, Ossola, chief town Domodossola; 13, Pallanza; 14, Biella; 15, Novara; 16, Vercelli; 17, Lomellina, chief town Marzengo; 18, Pavia; 19, Pavia; 20, Parma; 21, Massa; 22, Saluzzo; 23, Cuneo; 24, Asti; 25, Alessandria; 26, Mon- dovì; 27, Acqui; 28, Ivrea; 29, Tortona; 30, Voghera; 31, Bobbio; 32, Novi; 33, Genova; 34, Savona; 35, Albenga; 36, Oneglia; 37, San Remo; 38, Nizza; 39, Chia- vari; 40, Spezia. An account of these provinces, and their towns is given under their respective heads, as well as under the names of some of the old divisions of the country, such as Monferrato and Novara.

Each province is administered by a political officer called intendent, appointed by the king. The province being an aggregate of communes, each commune has a sindaco, or mayor, who is subordinate to the intendent. For judicial purposes, each province has a collegiate court, called Tribunale di Prefettura, which sits in the chief town. There is no jury in the Sardinian states, and the province is divided into districts called Giudicature, in each of which there is a judge called Giudice di Mandamento, answering to the French Juge du Paix, with a secretary. There are in all 327 of these giudicature in the states of Savoy, which are also courts of appeal from the Tribunali di Prefettura, and which are called Senato. The senate of Turin has jurisdiction over all the provinces of Piedmont in its most extended sense, that is to say, all the provinces on the north and north-east of the Alps, and there are 9 senatorial districts. The jurisdiction of the senate of Genoa extends to all the provinces of the duchy of Genoa, with the exception of San Remo. That of the senate of Nizza extends to the provinces of Nizza, Oneglia, and San Remo. The senate of Savoy, which sits at Chambéry, extends to Savoy, and to the limits of the duchy of Savoy. Each senate forms two chambers, one for civil and the other for criminal matters. All trials for felony or high treason appertain to the senate. The senate registers all edicts, letters of cantonment, and other papers, and is able to make remonstrances upon the subject of them; and it also decides contests concerning jurisdiction between the various authorities, as well as between the ecclesiastical and lay courts. In these and other important questions of civil and ecclesiastical law, the president acts in one body. The senators vote with closed doors; the president collects the votes, and secrecy concerning the individual votes is strictly enjoined on pain of dismissal. The senators are named as vacancies occur by the king for life, and by some previous establishment, and they can only be dismissed for grave misconduct by a sentence of the senate itself. They are generally men of high character and acquirements, they have good salaries, and their probity is considered above suspicion.

A court styled Regia Camera dei Conti sits at Turin, and decides in all fiscal and feudal suits, for although political feudality is abolished, monarchical and other territorial rights still remain, as well as Castellanie, or monarchical courts, and fiscal courts; it is also as an audit office, and in its capacity of a fiscal court, and also as a criminal court for all offences against the laws, for the crime of coinage, and also for malpractices of the administrative officers. There is an admiral court, which sits at Genoa.

Commercial courts are established at Turin, Chambéry, Nizza, Genoa, Chiavari, Savona, Novi, and San Remo. Those of Turin, Chambéry, and Nizza are called Consolati; the others Tribunali di Commercio.

Mercantile courts, Curie de Civiltà, exist in every district; their jurisdiction covers all phenomena matters relating to marriage and the misconduct of clerical persons, but for graver criminal charges ecclesiastical courts are tried by the respective senates, which judge also in civil matters concerning members of both orders of the clergy.

The old continental territories of the house of Savoy were administered till lately by the Reali Costituzioni, a compilation of numerous edicts and decisions of the dukes of Savoy, which was published in 1776, and is mainly based...
on the Roman and canon laws. The penal laws were very severe; blasphemy and sacrilege were punished by the galley, but on the other hand, the crime of high treason, which was punishable in most cases by death and confiscation; the same penalties were inflicted on duellists; domestic theft was punished in most cases by death; the body of a suicide was hanged; usury was punished by the confiscation of movable and immovable property; sedition was punishable by the galley; libels were left to the discretion of the judge, who could inflict even the punishment of the galleys for life, according to the circum- stances. Corrupt practices were more left to the discretion of the Tribunali di Prefettura.

The method of proceeding in criminal cases is the same as it was in the last century in most other parts of continental Europe, and still is in some, that is to say, secret, the deposition in writing, and the witnesses, as well as the accused, being examined privately by the instructing judge, and often by the judge di mandamento, or local justice of the district where the offence had been committed; upon which the fiscal advocate, or king's attorney, draws the act of accusation, a copy of which is given to the accused, whose counsel replies to it in his defence. One of the judges delegated for this purpose examines the acts of the proceedings for and against the accused, and makes his report to the court, which, after examining and comparing the acts of the fiscal advocate with those of the councillor for the defence, pronounces its sentence. Neither the accused nor the witness appears before the court, nor is the accused confronted with the witnesses against him, except by his counsel.

The punishment of the wheel, which was in use in 1817, has been aboli-heil since, as well as the torture. A new code, Codice Albertino, has been promulgated very lately by the reigning king Carlo Alberto, but not having seen it, we cannot say how far it differs from the old one.

The towns and other communes have a communal council, composed of notables of the place, at the head of which is the syndic, who is appointed by the king, and renewed every two years. The council supervises the local and civil administration of the commune, but its acts are subject to the sanction of the intendants of the province. The communes vary greatly in size, and especially in the amount of population, from 200 inhabitants to 200,000, which is the population of that of Turin. The very populous communes, consisting of large towns, such as Turin, Genoa, Alessandria, &c., have two syndics.

The city of Turin has a kind of charter with popular and elective magistrates, a numerous municipal council called Corpo Decurionale (council of civil administration), and a Vicariato, or judicial and political council, which supervenches the police of the town; a Consiglio degli Edili, composed of architects and engineers, to监督管理 all building and embankments; a Consiglio di Soprintendenza, a Segreteria, or finance department, the city of Turin being possessed of large revenues derived from the octroi and other local taxes, besides landed property and manorial estates, with feudal jurisdiction over several villages, is styled in public documents, L'Illustrissima Citta di Torino, Contessa di Grugliasco, Signora di Reinasco.

The government in the Continental states of the house of Savoy is an absolute monarchy, the king being the sole source of law. All the laws emanate from him, and are promulgated in his name. He can abrogate all decisions and sentences even of judicial bodies. He imposes the taxes, and has the uncontrolled administration of the revenue. He or his delegates in his name appoint all officers civil and military. He judiciously extricates his form of monarchy dates from the reign of Duke Emanuele Filibert, who, in the sixteenth century, abolished political feudal- dality, and by doing away with the military services of the great nobility, substituting a stately and auxiliary regular infantry, and created the militia called provincial battalions, which was raised from every province in proportion to its population, and being exercised once every year, and receiving one-third of the regular pay in time of peace, and the other two-thirds during the war, it came out into the field with the regular forces. This system continues with some modifications to the present day in all the continental states, the army being recruited yearly by means of a conscription. Every conscriptus, unless he provides a substitute, is bound to serve eight years in the regular army, after which he is em- rolled for eight years more in the provincial battalions of his respective district. In time of war the provincial battalions of the several districts were increased to 100,000 men. The regular regiments are formed into brigades of two regiments, each regiment having three battalions; the battalion consists of six companies, each of which musters 176 rank and file, and a captain. There are also batteries of cannoneers, a number of sappers and miners, and a corps of engineers. The corps of carabiniers, a numerous and most effective body of cavalry consisting of picked men, is, like the French gendarmerie, charged with the police of the country, being scattered in stations and detachments all over the various provinces, and men and officers receive much higher pay than the line, and are handsomely dressed and accoutred. They are generally trusty and well-behaved men, above temptation or bribery; civil to travellers, and are noted for their devotion to the monarchy, of which they are undoubted proofs during the insurrectionary movements of 1821 and 1831.

The naval force consists of four ships of war, four frigates, two corvettes, and two brigs of war, carrying as many as 52 guns, some of them being the old 36-gun frigates, others men-of-war, naval artillerymen, and one battalion of marines. The stations of the royal navy are at Genoa, Villefranche, and in the island of Sardinia. All foreign merchant vessels and craft in the Continental dominions are subject to the same registered duties as those of other nations, when men are wanted for the royal navy, each district is obliged to furnish its quota. The same system prevails in France, and is called 'inscription maritime,' it is in fact a regularised system of impression under another name. Although the French and other European nations declaim against the English impression, which they call tyrannical, forgetting their own much more oppressive conscription of landmen, and their inscription of seamen.

The king's ministry consists of a secretary of state for foreign affairs, a secretary of war and marine, a secretary of finances, and a secretary for the 'interno,' or home department, which is divided into the following offices or boards:—1. General affairs, king's household, ceremonies, and precedence; 2. grace and justice; 3. ecclesiastical affairs, Valdenses, and Jews; 4. commu-nal affairs, public works, water, and forests; 5. board of trade and statistics, revenue, belles-lettres, and the fine arts; 6. board for the affairs of the island of Sardinia; 7. general council, with a grande cancellario, or board for receiving and examining memorials to the king, and reporting to him thereupon. an intendan, or master of the royal household, with many ministers; a superintendent of the private domain and posts of honour; 8. the financial council, consisting of the secretaries of his majesty, and a numerous household.

The public revenue of the Continental states is sixty-two millions of Italian livres or francs, of which seventeen millions are derived from the land-tax, which absorbs one-tenth or one-twelfth of the annual rent of the land; thirty-five millions proceed from the gabelle, or customs and excise; the rest is made up of the post-office, regimental duty, monopoly of salt and tobacco, and other sources. The public debt amounted in 1834 to eighty-seven millions of francs (Sterriti, Statistiche dell'Italia).

The revenue of the island of Sardinia amounts to about 2,500,000 francs, derived from 'donative,' as they are called, voted by the states, and by indirect taxes, such as excise, Taxes of the inland trade, of wine, salt, and tobacco. The war force and royal patrimony, besides a small subsidy of 17,000 francs paid by the clergy.

The ecclesiastical administration of the Continental states is under the four archbishops of Turin, Chambéry, Genoa, and Vercelli, and Milan, Monreale, Tarantaise, Annecy, Aosta, Susa, Pinerolo, Aosta, Alba, Asti, Cuneo, Poggio, Ivrea, Mondovi, Salsomaggiore, Alessandria, Biella, Casale, Novara, Vigevano, Albisola, Avigliana, Brignano, Ponte, Aosta, Vercelli, Genoa, and Tortona, and Vercelli. The number of parishes is 37,567, that of collegiate churches, besides cathedrals, is 74, and that of clerical seminaries 54. In 1833 an ecclesiastical academy for the higher theological studies was instituted at Super near Turin.
convents of monks, of which about one-half are of the mendicant orders. The rest having lost most of their property, which they originally possessed as members of the Benedictine order, has given them property or rents equivalent to a capital of 100 millions of francs. There are 82 convents of nuns.

The number of Jews is about 6740, of whom about 1500 are at Turin, and the rest at Casale, Vercelli, Alessandria, Acqui, and other places.

The Valdenses near Pinerolo amount to about 20,000 individuals, and their public worship is now unmolested. Their candidates for the church ministry generally study at Geneva, and are licensed by the cantons of Switzerland. [Valdenses.] At Genoa there is a chapel for those Valdenses and foreign Protestants who reside there.

Although the clergy of the established Roman Catholic church have no longer any direct political power or jurisdiction over laymen, there being no Inquisition in the Sardinian states, yet they exert considerable indirect influence, greater perhaps than in any other part of Italy except Rome. The parish clergy exercise an active kind of moral censorship over their flocks. The introduction of prohibited books, especially on religion, is strictly guarded against, and is subject to severe penalties, which some imprudent foreigners have incurred of late years.

The nobility are very numerous in Piedmont; they are chiefly landed proprietors with moderate incomes, many of whom have mixed with the lower middle class of the people, and are thus considerably aristocratical. The commercial class is not so numerous or important as in the duchy of Genoa. Most of the commissions in the army, as well as the principal offices of state, are held by them, and they have privileges even in courts of justice. 'The clergy and the nobility,' says an observing traveller who wrote in 1834, 'have evidently the upper hand in this country. The throne is supported by the altar; and as the population is generally religious, there is no fear that they will ever lose it.' In Piedmont, some at least, have thrown aside their pretensions to supremacy over the church, and the clergy have found no sympathy here. A great proportion of the inhabitants of Piedmont are landed proprietors, and are therefore attached to order and personal comfort. They have not forgotten the French invasion, they can appreciate the true meaning of a liberty which is enforced by foreign bayonets, and they know that constitutions and systems of government transplanted from abroad seldom take root. All the enlightened liberals here expect no good from either a French invasion or a Sardinian revolution; they look to an education and the progress of ideas. These liberals, whom I may style progressive, to distinguish them from those who are merely revolutionists, are numerous in Piedmont, and exist even among the ranks of the nobility. The only innovation which they desire is the establishment of the equality of all before the law.' [Walsh, Voyage en Suisse, en Lombardie, et en Piémont.] During the years that have elapsed since the work just mentioned was written, several useful reforms in the administration and in the municipal and judiciary systems have been effected by the present king Charles Albert; and although the government continues to be a monarchy, the administration is becoming more enlightened.

Public instruction is afforded by the royal and communal colleges. In every province there are one or more royal colleges, in which grammar, rhetoric, and philosophy are taught; and in some of them there are chairs of law, medicine, and divinity. In most towns there is a communal college, besides grammar-schools, 'Scuolé di Latinis Inferiores.' The aggregate number of all these establishments amounts to 286, a number greater in proportion to the population than that of any other Italian State. In the old territories of the monarchy, Piedmont, Savoy, and Nice, the principal establishments of this kind are the Cairoli Institute, which is a late acquisition. Of these 286 establishments, 23 are administered by monastic orders, and the others by laymen or secular priests without distinction. The result of all this is, that a considerable degree of information prevails among the upper and middle classes of Piedmont and Savoy.

Female education is afforded almost exclusively in the convents of nuns, of which there are 42 that serve for that purpose. Scientific instruction is given in the two universities of Turin and Genoa, the former of which is attended by about 1250 students. [Turin.] The university of Genoa is attended by about 500 students, and has 36 professors. It has the faculties of divinity, law, medicine and surgery, and philosophy and arts, and a library of 45,000 volumes. Among the professors there have been some distinguished men, such as Viviani, professor of botany, known for his works, and especially for his 'Flora di Savoia,' and Cynar, of the 'Flora dell' Etruria,' and others. The great hospital of Genoa, which is admirably administered, affords a good opportunity for the medical and surgical students becoming acquainted with clinical practice. The studies of medicine, surgery, and pharmacy are perhaps those which flourish most at Genoa. The medical and surgical faculty is vast and splendid, like most architectural buildings at Genoa. A board of instruction, styled 'Deputazione degli Studi,' composed of five members, has the superintendence of the university of Genoa and of all the colleges and schools, public and private, of the duchy.

At Turin there is likewise a board, called 'Magistrato della Riforma,' which supervises all the establishments of education in the old territories of the monarchy, Piedmont, Savoy, and Nice.

Turin has a royal academy of sciences, a royal agrarian society, a royal academy of the fine arts, a royal military academy, and a philharmonic society. An academy of the fine arts exists at Genoa, an academy of sciences and arts at Alessandria, and a scientific and literary society at Posaiano. There are a royal school of horsemanship and a royal veterinary school at La Veneria near Turin, a school of mineralogy at the mines of Mouliers in Turin, and a school of chemistry at Castel in Turin.

Elementary education is not in such a thriving condition as collegiate and scientific instruction; most communes have schools for boys, but there is no general or uniform system.

The Continental states of the king of Sardinia have several six- and carriage roads, and some at least which intersect their territory. The most remarkable are: 1. The great road of Mont Cenis, leading from Chambéry to Turin, constructed by Napoleon; 2. that of the Simplon, leading into Switzerland, likewise constructed under Napoleon; 3. the road between Luserna and La Spezia, constructed by the French; 4. the new road from Genoa to Novi by Serravalle, constructed also since the Restoration; 5. the road Della Cornice, from Genoa to Nizza, along the Western Riviera, begun under Napoleon, and finished under the late king Charles Felix. A new road leads from La Spezia to Pontremoli, partly through the Sardinian territory, by the valley of the Magra, and thence over the Apenines to Poma. A new road is in progress between the towns of Alassio and Feri. There is a well-regulated post-office system throughout the Sardinian dominions, as well as diligences for travellers on all the principal lines of road; and public conveyances called Veicoli on the provincial or cross roads.

The plains of Piedmont are well supplied with canals, chiefly for the purpose of irrigation, the principal of which are in the provinces of Alessandria, Vercelli, Biella, Casale, Ivrea, Alba, and Turin. The river system of Piedmont is described under Po, BAIN OF THE.

The staple products of the continental Sardinian territories for exportation are:—silk, which is produced annually to the value of between twenty-four and thirty millions of francs; rice, which is raised in the lowlands near the Po; hemp, wine, and oil. The whole exports amount to about fifty millions of francs. Most of the wine is consumed in the country. The principal manufactures consist of paper, silks, woolens, linen, glass, and cotton yarn. The importation of colonial and English sugar is very considerable, and much of the leather enters through the port of Genoa. A considerable trade is carried on with Switzerland and Germany by the Lago Maggiore and the new road of the Bernard Mount leading to the Grisons.

1. History of the Sardinian States. The history of the country is identical with that of the house of Savoy, for, unlike some compact European kingdoms, the various and heterogeneous parts of which the Sardinian monarchy is composed have been gradually united, the conquests of its sovereigns, that dynasty having become their common bond of union, and having succeeded also in creating a sort of national spirit where there was no common nationality. The history of such a house is therefore very curious, and forms no unimportant part of the history of
Eurasia during the middle ages. The origin of the house of Bavaria is involved in the greatest obscurity. Some genealogists have derived it from Wulfram, the Saxon chief, who fought against Charlemagne; others from Adalbert, son and coleague of Berengarius II., marquis of Ivers and king of Italy. The first historical ancestor of the house of Bavaria is Humbert II., called the white-handed; count of Maurienne and great vassal of Rudolf III., the last king of the second kingdom of Burgundy. When Rudolf died, a.D. 1032, Conrado the Salic king of the Germans and emperor of the West, who had married Rudolf’s niece, succeeded to his land, and found Conrado, count of Maurienne, in the count of Maurienne, who, commanding the passes of the Alps, was enabled to introduce the Italian militia of the emperor to assist in reducing the other refuging Burgundians. Conrado then placed his adherent, Count Alexis Conde, at the head of the County of Savoy. These facts only confirmed Humbert in his extensive title of Maurienne, but gave him military jurisdiction over other parts of Savoy, the lower Valais, and also the valley of Aosta, on the Italian side of the Alps, which was part of the kingdom of Burgundy. Count Humbert died about a.d. 1048, and was buried in the cathedral of St. Jean de Maurienne. His eldest son Amadeus, styled I., succeeded him, but, dying shortly after, was succeeded by his brother Oddo, or Otho, who, by his marriage with Adelaide of Susa, daughter and hereditary regent of the county of Maurienne and marquis of Italy, extended the dominion of his house to the banks of the Po. These facts have been established by the best Piedmontese critics, and the title of succession from Amadeus I. to Otho, and from Otho to his son Amadeus II. is generally admitted. Official genealogies of the house of Savoy (Cisario, Storia della Monarchia di Savoja, Turin, 1840.) Former historians have confounded Amadeus I. with Amadeus II. and had left out Otho altogether. [AMADEUS I.] March of the Lombards on the Italian side of the Cottian Alps, including several counties, of which that of Turin was the principal. The former duchy of Turin, which in the time of the Longobards embraced the greater part of the actual Piedmont, had been annexed by the policy of the Emperor Pepin, into the counties of Turin, Aulaire, Bredolo, Alba, &c. After the Carolingian empire became dismembered by the forced abdication of Charles the Fat, and Italy erected itself into a separate kingdom, those counties which adjoined the Cottian and Graian Alps became the frontier on the side of the new kingdom of Burgundy, and the military command over the whole border region or marches was given by the kings of Italy to a high noble, called marquis, who had jurisdiction over several counties. [MARCHES, Tile.] These marches were bounded on each side by the passes whence they watched the passes of Mont Cenis and Mont Geneve, and they are accordingly also styled in the chronicles marqueses of Susa.

The march of the king of Italy in July 1066, was Hermann, duke of Susa, who, after the death of his father Odeler, about A.D. 1036, became marquis of Italy in right of his wife. Hermann dying without issue, Adelaide married, about 1048, Oddo, count of Maurienne, and son of Humbert the White Haired, who by this marriage became marquis of Italy and count of Turin, and master of the principal passes of the Western Alps; and in addition to that of Great St. Bernard and Little St. Bernard, which were already within his Burgundian jurisdiction, which extended over the valley of Susa, he also possessed those of Mont Cenis and Mont Geneve. Of Oddo’s life we have no other historical record, except an act of donation, dated A.D. 1058, of some land to St. Peter of Turin, which is close to the road of the soul of his father Humbert. [Muratori, Antiquitez, I., 1. 4, p. 365.] The next event in or prior to the year 1060, as appears by another donation made by his widow Adelaide, on Trinity Sunday of that year, to the chapel of the Trinity in the cathedral of Turin, shows the position of his soul, in which Adelaide’s father, Odeler Manfred, was buried in that chapel at the foot of the altar. Oddo left by Adelaide three sons, Peter, who is styled marquis, and Amadeus, who is called count, having respectively assumed those titles after their father’s death, and two daughters, Bertha, who married Henry, afterwards Henry IV. of Germany, and Adelaide, who married Rudolf, duke of Susa, who was afterwards elected in place of Henry by his revolted vassals, during the famous War of the Investitures. Adelaide, the mother, appears to have governed, after the death of her husband, as regent or colleague of her sons, the extensive territories belonging to them on both sides of the Alps. Cardinal Peter Damiani, her contemporary, who was sent into North Italy as apostolic legate to effect a reform in the clergy, in a letter addressed to Adelaide, styles her duchess and marchioness of the Cottian Alps, and of the marches of her jurisdiction, adding that he.animation to the two kingdoms of Italy and Burgundy, and embracing several districts: he extols her firmness in bearing the cares of a kingdom without the assistance of a king. Her eldest son, Peter, marries Agnes of Poiut, by whom he had two daughters, Agnes, who married and founded the Abbey of Bales, and Alice, who married the marquis Boniface del Vasco, from whom the marquises of Saluzzo derived their descent. After the death of Peter about 1078, his brother Amadeus had accordance with the title of marquis, the investiture of which, it is believed by some writers, was given to ofome of his marcher lords, who had married the eldest daughter of Peter, the late marquis.

The emperor Henry IV., be being excommunicated and deposed by pope Gregory VII., resolved to proceed to Italy, where he had a party in his favour. The passes of the Eastern Alps being closed against him by the duke of Bavaria and other revolted vassals, he proceeded through the lower Valais, and then the Graian Alpine passes, to the banks of the Leman lake, where he was met by his mother-in-law Adelaide, and by Count Amadeus, his brother-in-law, whom he requested to allow him to pass into Italy with his wife Bertha and his son Conrad. Adelaide, being already a widow, consented to his request, and passed with her daughter Bertha, refused him the passage in order to obtain which the emperor added to the dominions of Amadeus, styled count of Savoy, a fertile province of Burgundy, a.m. 1077. The march of Humbert in the valley of Susa is believed to have been that of Eugy. Henry, attended by Adelaide and Amadeus, crossed the Mora Jovis, or Great St. Bernard, in the depth of winter, and they all repaired to Canossa, where Gregory was, and where, partly by the force and partly by the generosity of Count Humbert, and the pope took place, in January, 1077, after a severe trial of humiliation on the part of the emperor. [GERARD VII.] 

Little more is recorded of Adelaide, who appears to have expressed the chief authority in the name of her son Amadeus II. till he died, leaving by his wife Joan, daughter of the Count of Geneve, an infant son, who is styled Humbert II. The Marchioness Adelaide continued to administer to her dominions, as guardian to her grandson, eleven years later, till after the death of Fulk of Briancon. 

Humbert II., count of Maurienne, succeeded to his father’s Burgundian estates in Savoy, and even increased them by the acquisition of Tarantaus, since the chor of the Alps had been given up to him by minority several claims. Boniface, son of Savoia, and husband of Alice, Humbert’s aunt, took possession of the counties of Bredolo and Auria, which had belonged to the Marchioness Adelaide, whilst his sister-in-law, Agnes of Poiut above mentioned, occupied the county of Turin, which was also claimed by Conrad, son of Henry IV. of Germany, in right of his mother Bertha. In the midst of all this the great towns, Turin, Asti, Chieri, and others, availed themselves of the general confusion occasioned by the long struggle between the pope and the emperor to assert their independence of all vassalage except the nominal one to the Empire. Humbert crossed the Alps in 1097; and not being strong enough to attack all his opponents, he made a treaty of alliance with the towns of Casaluno of Asti, and its bishops; and in consequence of the firmness of the newly acquired liberties of the citizens of Asti, and by ceding to them several villages and territories, and ensuring to them free passage and protection throughout the province of the Alpine passes, the long struggle between the emperor and the great towns of the Province of Asti, which one of the oldest documents in which the name of Humbert is mentioned as bishop of Genoa, is finished by the fact that Humbert made donations to several churches and communities, and he also intended to proceed to Palestine with the Crusaders; but he died in Savoy in 1093, and was buried in the cathedral of Montier in Tarentaise. By his wife Guda of Burgundy he had a son — another lord of the name of
Amadeus III, and a daughter Adela, or Adelaide, who married Louis VI., king of France. Anselm of Aosta, who became archbishop of Canterbury, corresponded with Humbert; and a letter from him to the count, in which he recommends to him the interests and privileges of the churches of his dominions, is contained in the works of St. Anselm. (1196.)

Amadeus III., who has been sometimes styled Amadeus II., received from Henry V. of Germany the investiture of all Savoy as an Imperial county. His predecessors were thereunto not entitled, and this was an act of increase of their authority over the greater part of Savoy. Amadeus recovered also in part his ancestral Italian dominions, and, above all, the city of Turin, of which he was acknowledged lord on the 1st of March 1213. In his diplomacies Amadeus styles himself Count of Aosta and Duke of Savoy. In 1140, Guy, Count of Albon, and Dauphin of Vienna, having advanced by the valley of Isère, and laid siege to Montferrat, was defeated by Amadeus, and died of the wounds he received in the battle.

About the year 1147 Count Amadeus III. proceeded with the crusade to Syria, and died of disease at Nicea in the island of Cyprus, in the year 1148. He was the founder of the magnificent abbey of Hautecombe in Savoy, which was for a long time renowned, and who of the last reigning dynasty, whose monuments remained to the end of the last century, when they were plundered and destroyed by the French revolutionists. The monarchs were restored by the late king Charles Felix. Matilda, daughter of Amadeus, married Ammonio Longo, the founder of the Portuguese monarchy.

A.D. 1149-1188. Humbert III., called 'the Saint,' son of Amadeus III., succeeded him as count of Savoy and marquis of Montferrat. He married Manfred, marquis of Saluzzo, to acknowledge himself his vassal. During this reign of the emperor Frederick I. against the Italian communes, Humbert, as great vassal of the empire, at first followed the banners of his sovereign, but afterwards kept aloof from him, and who of these rebellions against his empire, he and his successors were destined to bear the brunt of. His cause was at one time supported by Pope Alexander III., at another, by the emperor, and at another, by Philip Augustus of France. In 1184, the abbey of Hautecombe was benefitted by the rights of the abbots of Hautecombe. In 1187, the count of Savoy, Humbert III., in a ceremony of the highest importance, was invested with the regal insignia by the emperor Frederick, as count of Savoy and marquis of Montferrat.

1188-1233. Thomas I. succeeded his father Humbert III.

Having acknowledged Philip of Swabia as king of Germany, in preference to his competitor Otto of Aquitania, Philip restored Thomas to all the titles and prerogatives of which his father had been deprived by Frederic II. Thomas purchased of the Viscount Berthom the seignory of Champery for 35,000 sous of Aosta, equal to 84,200 francs, and enlarged the town and built the castle. Until this time Aiguebelle had been the capital and residence of the counts of Savoy. Thomas enjoyed the friendship of the emperor Frederic II., who appointed him his vicar in Lombardy. The citizens of Turin, instigated by Boniface, marquis of Montferrat, and also by their bishop, refused allegiance to the count of Savoy. Thomas crossed the Alps and laid siege to Turin, but the people of Asti and other parts of Montferrat coming to its assistance, the count was obliged to raise the siege and return to Savoy. In the following year he came again with more force by the Val d'Aosta, but he fell ill and died, in January, 1233. He left a numerous family, of which he was the founder in the following reigns.

Another, Boniface, became archbishop of Canterbury; and another, Thomas, became count of Flanders by marrying Joan, the daughter and heiress of Baldwin, count of Flanders and emperor of Constantinople.

1233-1284. Amadeus IV., son of Thomas, recovered the dominion over Turin, the bishop and citizens swearing allegiance to him, and he was created by Frederic II. duke of the Chablais and of Aosta. He married one of his daughters to the Marquis of Montferrat, and another to the Marquis of Saluzzo, both old rivals of his house. Amadeus IV. died in 1253, and was buried at Hautecombe. Amadeus gave up to his brother Thomas, count of Flanders, the 'utile dominium' of his Italian states with the title of count of Piedmont. Amadeus was, in 1254, placed under the guardianship of his uncle Thomas, count of Flanders.

The people of Turin, having revolted again and being supported by the free city of Asti, took Thomas prisoner. When Boniface was of age, he crossed the Alps, and laid siege to Turin, but the Marquis of Montferrat, and Charles, count of Anjou and Provence, who had begun to extend his dominions over Piedmont, marched against the Count of Savoy, and took him prisoner. Boniface died in prison at Turin, and left no issue.

1253-1268. Peter, son of Count Thomas I., and uncle of Boniface, born in 1203, succeeded to his nephew. By a fortunate event, he was able to secure his rights, and retain them within their own boundaries, their independence being imperilled by the efforts of Charles of Anjou, and his nephew Philip. Peter married Eleanor of Provence, daughter of Beatrix of Savoy, Peter's sister. In 1241 Peter had repaired to England, and had been received with great honours by Henry and his consort. Henry made him Earl of Richmond, and gave him the property of his residence, next to the palace of the Thames, which was from that circumstance called Savoy House. Peter was sixty years old when he succeeded his nephew Boniface as count of Savoy. His first care was to reduce the city of Turin, in which he succeeded after a long siege. Peter afterwards returned to England, where Richard of Cornwall, who had been elected king of Germany, bestowed upon him the extensive inheritance of Hartmann, count of Kyburg, styled 'the old,' who had married Peter's daughter. Richard's issue failed, and the possessions passed to Robert of Habsburg, king of Germany, concerning the territories of Kyburg, north of the Leman lake, and through this and the grants of former emperors to Peter's ancestors the house of Savoy became possessed of the whole of that fine county called the Barony of Vaud, afterwards Pays de Vaud, and now the land of Switzerland. Peter died in the castle of Chillon on the shore of the Leman lake, in 1268, and was buried at Hautecombe. He left only one daughter by his wife Agnes, married to the duke of Austria, who succeeded him. Peter, marquis of Montferrat, made substantial contributions towards the building of the castle of Amphion at the bugbee, leaving no issue.

1285-1323. Amadeus V., styled the Great, son of Thomas, count of Flanders, succeeded his uncle Philip. He had frequent wars with the dauphin of Vienne and with the counts of Geneva, whom he repeatedly defeated. He gave Piedmont in lieu to his nephew Philip, who, having married, in 1304, Isabella of Valois, daughter of King John of England, Countesses of Aghan and More, received the investiture of the same from Charles II. of Anjou, king of Naples and count of Provence. Robert, the successor of Charles, however, of all Italy, and of all Italy; the son of Amadeus V. having been clothed with the imperial title, the towns of Turin and Asti, and with the marquis of Montferrat, for the purpose of establishing his own dominion over all Piedmont, where the Anjou were already possessed of Alba, Cherasco, Savigliano, and other towns. But Henry of Luxemburg, the newly-elected king of the Germans, coming to Italy in 1310, passed through Savoy, where he was received and splendidly entertained at Champery by Count Amadeus, who, with his brother Louis, baron of Vaud, and his nephew Philip, prince of Achaia, accompanied the emperor to Milan, where he was crowned emperor, in August, 1312. The emperor then made a donation of the city and county of Asti in favour of Count Amadeus. Henry's death, which happened in March, prevented the accomplishment of his designs, but his successor forced the title over Asti, which was occupied by king Robert of Naples. Amadeus afterwards is said by some chronicles to have gone to Rhodes, to assist the knights of St. John to defend that island against Sultan Othman, and afterwards returned to Italy, where he died, in 1323.

1323-1339. Edward, son of Amadeus, succeeded him. He had to repel the repeated attacks of the dauphin of Vienne, the count of Flanders, and the lord of Hautecombe, who were leagued against him. At last, through the mediation of Philip of Valois, king of France, peace was made. The
count of Savoy, in 1328, led a body of men to join King Philip against the Flemish, and contributed to the defeat of the latter by the French at Mount Cassel. After the termination of that war Count Edward went to Paris, where he fell ill and died, in November 1329, leaving no male issue.

1330-1343. Aymon, Edward's brother, was proclaimed his successor by the states of Savoy, in preference to Edward's daughter, who was married to the duke of Brittany. The states declared on that occasion, that so long as there were any male descendants or collaterals in the house of Savoy, no female, however near in the direct line, should reign.

Aymon's reign was peaceful, and the count applied himself to improve the administration of Savoy and his other states. He created new offices of chivalry and justice as the head of the judicial order, and he also established a supreme council of justice at Chambéry, to hear appeals from the local courts. He decreed, by an edict dated 1336, that no judge in his dominions might be summoned before the assessors; and the charges brought against him by private individuals.

Aymon married Yolanda, daughter of Theodore Palamogus, marquis of Montferrat, and son of Andronicus the Elder, emperor of Constantinople. In the marriage contract it was stipulated that the heir of Savoy should inherit Montferrat, in default of male issue of the marquis. Aymon died at Montmélian, in 1343.

1343-1363. Amadeus VI., called the 'green count,' son of Aymon, succeeded him. His long reign was suspended during the wars of his brother, the king of Naples, from Southern Piedmont; he defeated the marquis of Montferrat, who was urged against him with the Visconti of Milan; he received the voluntary allegiance of Chiari, Monferrato, and other towns; he captured the town and castle of Montbéliard, which he assigned to his son by his marriage with Desdemona, suo jure, and he conferred the dukedom of Piedmont on his son by his third marriage with Joanna, sister of Louis XI. The duchess sent a body of troops to join the army, which, with Charles le Teméraire, duke of Burgundy, invaded Switzerland, A.D. 1476. These troops were placed under the command of Charles, but all perished; the duchess died at Chambéry, in 1475; and Charles, fearing that the duchy might turn against him in his adversity, gave secret orders to seize her and her children, which was effected by a party of men ambassadors, who were sent to the duchess, and who succeeded in getting her away without any armed escort. A Piedmontese gentleman succeeded in concealing the young duke Philip, whom he carried to France, to his uncle Louis XI., who soon after sent an armed party to deliver the duchess from the hands of the king of France, who was confined by Charles, and he restored both her and her son to their dominions. In 1478 Yolande died; and in 1482 Duke Philip, being now of age, went to Lyon on a visit to King Louis, but died soon after in that city, leaving no issue.

1391-1440. Amadeus VIII., son of the preceding, succeeded his father. His long reign is memorable in the annals of the house of Savoy for his having consolidated and enlarged his dominion on both sides of the Alps, and for the powerful means by which he effectuated the extinction of the line of the counts of Geneva, he inherited the county of Genoa, and the susseranté over the imperial city of Geneva. He purchased the valley of Ossola from the Grazi. [NOVARA, VALLI DI.] He obliged the marquises of Saluzzo and of Ceva to swear allegiance to him; and he obtained of Filippo Maria Visconti, duke of Milan, the cession of the town of Vercelli and its territory west of the Sisia. In 1418, Louis of Savoy, prince of Morea and Achaia, and prince of Piedmont, dying without issue, Amadeus VIII. inherited the title and property of Piedmont to his other dominions, which thus extended without interruption from the shores of the Leman lake to those of the Mediterranean Sea, and from the Rhone to the Sisia. The extensive possessions, passing through Chambéry, formally created Amadeus duke of Savoy, in 1416, confirmed by the former investitures granted by his predecessor, and moreover debarred all subjects of the house of Savoy from appealing to the imperial chamber from judgments pronounced by him or his successors.

Amadeus VIII. bore the titles of duke of Savoy, Chablais, and Aosta, prince of Piedmont, count of Genevois, Bugey, and Nice, baron of Vaud and Fauconcy, and marquis of Italy, and from his time the house of Savoy assumed a distinguished place among the sovereign houses of Europe.

He collected the edicts and statutes of his ancestors, and from them and the 'droit coutumier,' or customs of the Genevois and Fauconcy, he compiled a code of laws for all Savoy, under the title of 'Bisuita Sabaudia,' which he published in 1420.

Other particulars of the life and vicissitudes of this remarkable prince, who assumed for a time the papal tiara, are given under Amadeus VIII.

1440-1455. Ludovic, or Louis, son of Amadeus VIII., assumed the ducal crown in consequence of his father's abdication in 1440, when Amadeus was raised to the papal chair. Ludovic had married Adelaide of Cyprus, who exercised a great influence over him. His second son, likewise named Ludovic, married Charlotta, heiress of that kingdom, and he was crowned king of Cyprus in 1458; but he and his wife were soon after driven away by the queen, sister of the late King John of Cyprus, who seized the crown of Cyprus, and fell by the hands of the Venetians. [CYPRUS.] The title of king of Cyprus and Jerusalem is still assumed by the representative of the dynasty of Savoy. Ludovic established the college of all the orders of chivalry of the kingdom of Cyprus, and the house of Savoy was made a court of justice for Piedmont, called a Senate; and he admitted the barons of Piedmont to the first offices of the state, which had been till then monopolised by the Savoyards. Ludovic died at Lyon, in January, 1455, whilst proceeding to the court of his father in Savoy, and was succeeded by his son.

1465-1472. Amadeus IX., son of Ludovic, succeeded him. He was of a sickly frame, and of a contemplative turn of mind, and was little suited to the cares of government.

Amadeus IX. (1465-1472), son of Philip, son of Amadeus, succeeded him while yet a minor under the guardianship of his mother Yolanda, sister of Louis XI. The duchess sent a body of troops to join the army, which, with Charles le Teméraire, duke of Burgundy, invaded Switzerland, A.D. 1476. These troops were placed under the command of a party of men ambassadors, who were sent to the duchess, and who succeeded in getting her away without any armed escort. A Piedmontese gentleman succeeded in concealing the young duke Philip, whom he carried to France, to his uncle Louis XI., who soon after sent an armed party to deliver the duchess from the hands of the king of France, who was confined by Charles, and he restored both her and her son to their dominions. In 1478 Yolande died; and in 1482 Duke Philip, being now of age, went to Lyon on a visit to King Louis, but died soon after in that city, leaving no issue.

1482-1490. Charles I., Philip's brother, assumed the ducal crown, and in November, 1483, made his public entry into Turin. He found himself engaged in a war against the marquis of Saluzzo; but Charles VIII., king of France, interfered, on the plea that the marquis was his vassal, and assumed the duchy for himself as under his protection. After several years of negotiations, Charles fell ill and died at Pignerol, in March, 1490, being only twenty-two years of age.

1496. Charles John Amadeus, styled Charles II., son of the preceding, was a mere child when his father died. His mother, Bianca of Montferrat, was proclaimed regent, with the assistance of a council. Turin was definitely chosen for the residence of the court. From that time the house of Savoy became really Italian. In 1494 Charles VIII. of France passed through Turin on his march to the kingdom of Naples. He was received by the duchess regent with great honours, and she even lent to the king her jewels, as he was in great want of money. In April, 1495, the young duke died of a fall, at the villa of Moncalieri near Turin.

1496-1497. Philip II., count of Bresea, and a son of Duke Ludovic, succeeded as duke of Savoy and prince of Piedmont; but he died after eighteen months' reign, in November, 1497. He left by his first wife a son, Philip, who reigned after him, and a daughter, Louise, who married the duke of Angoulême, and was the mother of Francis I. of France; and by a second wife, Charles, who succeeded Duke Philip after his death.

1497-1513. Philip II. Louis, son of the above, was married to a daughter of Austria, daughter of the emperor Maximilian I. The dominions of the house of Savoy, placed as they were between France and the German empire, whose jurisdiction extended over both Italy, were rendered of the more important, but extremely delicate, especially in the long wars which broke out in the sixteenth century between the house of Austria and France. The duchy of Savoy had the title of Imperial vicar in Italy, and was by interest as well as duty attached to the Imperial cause. Philip II. however allowed Louis XII. of France to
pass through his dominions on his way to invade the duchy of Milan in 1799. In 1504 Phillip II. died without issue, and was buried in the convent of Bron at Bourg-en-Bresse, where his monument, with his statue and those of his mother and his brother, Charles III. of France, was erected. 1504-1533: Charles III., brother of Philibert, although fond of peace, found himself for the greater part of his reign in the midst of the most destructive wars; first between Louis XI. and the leagues de Vaud, and against the emperor Charles V.; and later against Julius II. against the French; afterwards between Francis I. on one side, and the Swiss and Duke Sforza of Milan on the other; and lastly between Francis I. and his powerful rival the emperor Charles V.: in all of which the territory of Savoy was involved. Emanuel Philibert, having a neustria neutrality, were devastated without mercy by French, Swiss, and Imperialists.

Duke Charles acted as mediator between Francis I. and the Emperor Charles V.; in 1523-1530, he abjured the League of Cambrai, and signed the treaty of Cateau-Cambrésis; the negotiations of the league were then divided into two camps, one at Geneva, the other at Brest, to which the peace was signed. Emanuel Philibert, married Catherine of Austria, daughter of Philip II., and became attached to the alliance of Spain, which was then the preponderating power in Italy, being possessed of the Milanese, Naples, Sicily, and Sardinia. Trusting to the support of Spain, Charles Emanuel thought of taking from the French the marquisate of Saluzzo, upon which he had old and legitimate claims. Remonstrances having proved useless, the Duke collected his army, entered the territory of Saluzzo, took the capital, as well as the castles of Revel and Château Dauphin, and the Alps became the boundary between France and Piedmont. France, distracted by civil and religious wars, could not resent the loss at the time, but twenty years after having taken the part of the League against Henri de Navarre, a desultory war was carried on for years on the borders of Savoy and Piedmont, between the troops of Savoy and the partisans of Henri IV. in Dauphiné, led by Lesdiguières.

After the death of Henri IV. of France, in 1610, Charles Emanuel declared the marquisate of Saluzzo, and the claim being refused, he invaded Savoy in 1610. By the peace of Lyon of the following year, Saluzzo was definitively given to the house of Savoy, by a treaty of friendship with France, and the county of Gex, which were ceded to France.

In December, 1602, Charles Emmanuel attempted to surprise Genoa by scaling the walls in the night, but the attempt was discovered in time, and his troops withdrew, having suffered great loss of men. The following year, by the treaty of St. Julien, the duke formally acknowledged the independence of Genoa.

Charles Emmanuel was afterwards engaged in a war against the Spanish governor of Milan for the possession of the marquisate of Montferrat, which was terminated by the peace of 1617. The war broke out again in 1625 on account of the affairs of Valtellina, and lastly the disputed succession of Mantua and Montferrat occasioned another war in Italy in 1628, when Charles Emmanuel joined with the emperor against France. The French invaded Savoy and overran Piedmont, and in the midst of this Duke Charles Emmanuel died at Savigliano, in July, 1639.

1639-1673: Victor Amadeus, second son of Charles Emmanuel, obtained possession of the greater part of Montferrat, by the peace of Cherasco, in 1635. In 1635 he was obliged by the threats of Cardinal Richelieu to join the French against the Spanish possessions in Italy. He died in October, 1637, in the midst of the war, leaving two infant sons, the first of whom, Francesco Giacinto, reigned nominally only for one year, as he died in 1638.

1638-1675: Charles Emmanuel II., second son of Victor Amadeus, was proclaimed Duke under the regency of his mother Christina of France. French troops, in their quality of allies, were in possession of the greater part of the country, and Cardinal Richelieu, who wished to reduce the dukes of Savoy to the condition of vassals of the Crown of France, commanded in Piedmont by means of his cabinet. In the mean time Thomas of Savoy, prince of Carignano, and Cardinal Maurice of Savoy, uncles of the infant duke, being supported by Spain, demanded for themselves the regency and the crown, in order to free the territories of their house from the benevolent influence of France. A Spanish army from the Milanese entered Piedmont, led by the two princes, and most of the towns opened their gates to them. The war was thus raised to a level, and the two princes marched into France. The duchess returned to Chambéry, and the war between the French and Spaniards continued to rage in Pied-

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ment. In 1640 Turin, being in possession of Prince Thomas and the Spaniards, was besieged by a French army, which had possession of the citadel, and the French were in their turn surrounded in their entrenchments by a Spanish army commanded by Count Legenas. At last Turin capitulated, and Legenas wounded the Duke during the siege, and the French and the princes her brothers-in-law, weary of the Spaniards, came at last to a secret understanding, which was facilitated by the death of Richelieu in 1649. Piedmont was freed of foreign troops, and Charles Emmanuel became governor of the government, and named his uncle Prince Thomas governor of Asti and Alba, and Prince Maurice lieutenant-general for the county of Nice. The peace of the Pyrenees in 1659 terminated the Italian wars between France and Spain, and it lasted well for the interregnum for nearly 80 years. Duke Charles Emmanuel enjoyed peace during the remainder of his reign. He applied himself to the improvement of his dominions. Among other things he opened the Passo delle Scalas from Chambery to Lyon, for which purpose a cut was made through the rock for the distance of more than half a mile. He died in 1672, generally regretted.

1673-1730. Victor Amadeus II. succeeded his father Charles Emmanuel. He found himself harassed between Louis XIV. of France on one side and the house of Austria on the other. The imperious Louis sent him commands as if he were his vassal; he ordered him to persecute the Valdivies, to send him several regiments to join his army in Piedmont, and gave to understand that he would give up the citadel of Turin. Victor Amadeus summoned round him the nobles of Piedmont, and declared war against France. Being joined by an Austrian force, he disputed every inch of ground against the French; but the war lasted only till 1695, when Louis XIV. by fair promises, succeeded in detaching the duke of Savoy from the emperor. The peace of Noyon restored peace to Italy, and the French evacuated all the territories of the Duke, including Piemont, which they had possessed for about a century. In the war of the Spanish successions (1701-14) the house of Savoy sided first with the French, but afterwards joined the emperor, because he considered it extremely dangerous for his dominions to allow the house of Bourbon to become possessed of the kingdom of France and the Spanish territories in Italy. The consequence was that the French armies again overran and devastated Piedmont, and in 1706 besieged Turin, which made a noble defence. Victor Amadeus, being joined by the Austrian army under his relative Prince Eugenius of Savoy, defeated the French besieging army on the 7th September, 1706, and delivered Turin. By the peace of Utrecht, 1713, he obtained the Valdivies, the territory of Monferrato, and other districts on the borders of the Spanish kingdom, and he was crowned at Palermo, in December, 1713. By the subsequent treaty of London, Victor Amadeus gave up Sicily to the emperor, and received in exchange the island of Sardinia with the title of a kingdom. (SARDINIA, A. J.) His new kingdom brought him great honours. The house of Savoy became numbered among the royal houses of Europe.

Victor Amadeus employed the peaceful period which followed to improve the administration, to recruit his finances, and to encourage agriculture and industry. Through his care the cultivation of the mulberry-tree and the rearing of silkworms attained in Piedmont that perfection which they still maintain. He also reformed the university of Turin and the colleges, and abdicated in favour of his son Charles Emmanuel, and retired to the villa of Moncallier, where he died in 1732. He was distinguished both as a general and a statesman, and was well worthy of being the first king of his dynasty.

King Victor Amadeus was married to Anne Marie of Orleans, daughter of Philip, duke of Orleans, brother of Louis XIV., and of Henrietta Maria, daughter of Charles I. of England. This alliance is the origin of the connection between the kingdom of Savoy and England. 1730-1733. Charles Emmanuel III., King of Sardinia, Duke of Savoy, Prince of Piedmont, &c., assumed the crown in times of peace. But the ambition of the court of Spain, excited by Elizabeth Farnese, wife of Philip V., aimed at recovering the house of Savoy and the kingdom of Sardinia by force of arms. The attempt was supported by France in consequence of the family alliance. The contested election for the crown of Poland became the pretext for a new war in 1733. The French cabinet, in order to obtain the alliance of the king of Sardinia, pro-

ixed him the duchy of Milan, which was to be taken from Austria. Charles Emmanuel sent to, unite his forces to the French army under Villars, and the Milanese were conquered in a few weeks. Don Carlos, Infant of Spain, on his part conquered Naples. In September, 1734, the battles of Caravaggio and the Restauro took place. The French, with the Spaniards, and the French and Sardinian troops, were joined by King Charles Emmanuel, on the other. The Austrians lost 45,000 men, and were obliged to retreat. In 1735 the pre-eminence of his enemies ascended, and Charles Emmanuel was dispossessed of the duchy of Milan, obtained only the Novara and Tortona. This was the last war in which the house of Savoy joined France against Austria.

In the war of the Austrian succession, King Charles Emmanuel of Sardinia joined the Spanish arms. He saw that the Bourbons had again become sufficiently powerful in Italy by the acquisition of Naples and Sicily, and it was not his interest to favour their further aggrandisement. He opened the pass of the Alps to the troops of Austria and England, and to prevent the French from crossing the Alps. In 1743 the king of Sardinia signed a treaty with Maria Theresa and England, engaging himself to defend Lombardy with 45,000 men. England agreed to pay him a subsidy, and to keep a fleet in the Mediterranean during the war. The French and Spanish combined arms invaded Piedmont by the way of Nice, and laid siege to Cuneo, which they could not take. In 1745 another French and Spanish army, passing the Rhône, entered Lombardy, and the king of Sardinia, united with the Austrians, drove them away. In 1747 a French force of fifty battalions, commanded by the Chevalier Belleisle, moving from Briançon, crossed the Alps and occupied Genoa; the king of Sardinia, at the pass of the Col de l'Assiette, situated between the sources of the Dora and those of the Chiese, where the Piedmontese troops had formed an entrenched camp. The French attacked the camp on the 19th of July; but after the most strenuous efforts, they were defeated, and the king of Sardinia, with about 450 officers and 16,000 men. This defeat put an end to all attempts at invading Piedmont for half a century. By the peace of Aix-la-Chapelle, Sardinia obtained the upper Novara, or Vellii di Novara, and the districts of Voghera and Vigoroso near the Po.

The remaining twenty-five years of the reign of Charles Emmanuel III. were spent in peace, and employed in the cares of administration, in which he was assisted by his minister Count Bogino. He published the 'Costituzioni, Reali,' or code already mentioned; he effected the 'catalogue' or general survey of the land, in order to put the immemorial customs of the country with the feudal tenure on a rational basis; he established special schools of artillery and mineralogy, and learned men on scientific journeys; he opened new roads, excavated canals, gave new privileges to the town of Nice, in order to increase its commerce; and in 1771 he published the first of his 'Lettres diplomatiques et personnelles.' He carried on the great improvement of the road system, by new bridges, and personally directed the works. He endeavoured to put in practice some of his projects in the navy, but his successors never fully accomplished them. Victor Amadeus II. died at Turin, in February, 1733, at 72 years of age, regretted, both by his subjects and foreigners, for his able public conduct and his unspotted private character. Before his death he married Maria Carolina of Austria, a lady of the purest virtues; a thrifty personage, a fine army, and a full treasury. 1733-1798. Victor Amadeus III., son of Charles Emmanuel, showed himself very fond of military parade and exercises, and he increased his army in time of profound peace. The finances became exhausted, the paper debt increased, and fresh taxes were laid on the people. The king greatly favoured the nobles, giving to them almost exclusively the public offices, civil, military, and ecclesiastical. He was in consequence of his treatment of the Jesuits, he reorganised the public colleges and schools after the expulsion of the Jesuits, and he appointed 81 professors to the chairs of the university of Turin. The storms of the French revolution rendered the end of his reign calamitous; he lost his kingdom of Sardinia in 1796, and died on the 20th of July, 1796, after 23 years of desolation and sanguinary warfare along the line of the Alps, in which the Piedmontese troops displayed their accustomed valour and discipline, the line of defence formed by the Alps was turned by the French passing
SARDONICUS RISUS, a convulsive affection of the muscles of the face, in which the lips are drawn involuntarily apart, so as somewhat to resemble the expression of the countenance in laughter. The name is derived from a species of ranunculus that grows in Sardinia, called Herba Sardonica, or Sardoa, which is said to produce this affection.

Risus Sardonicus is observed as an effect of certain vegetable poisons, such as the Ranunculus sceleratus of Linnæus, but is more frequently met with as one of the symptoms of tetanus, or locked-jaw, or as an attendant on other convulsive affections.

The term is employed figuratively to denote that forced laugh by which persons sometimes endeavour to conceal their real feelings.

SARDONYX. [Quartz.]

SAREE. [Persian.]

SAREPTA. [Saratow.]

SARGUS. [Saratow.]

SARGUÈVE. [Manoumialia, vol. xiv., p. 459.]

SARK, or SERK. [Grenseby.]

SARLAT. [Dordogne.]

SARMATIA was the name given by the Romans to all the country in Europe and Asia between the Vistula and the Caspian. It included both the region of the Oxus and Mount Caucasus, and was divided by the Danube into Sarmatia Europea and Sarmatia Asiatica. The people inhabiting this country were usually called Sarmatians, by the Greeks and Sarmatians by the Romans.

Sarmatians. See Sarmatia. Neither Herodotus nor Strabo, either of the European Sarmatians. The Sarmatians of Herodotus dwelt to the east of the Tanais, by which they were separated from the Scythians of Europe, and inhabited a tract of country extending northward from the Palus Muticus equal to fifteen days journey in length. (Herod. iv. 21, 56.) Herodotus also says that the Sarmatians sprang from the intermixture of a body of Scythians with some Amazons who came from the river Thermo in Asia Minor, and that their appearance was a corruption of the southern part of modern Russia. 4. The Alani or Alani Sychei, in the central part of Russia, in the neighbourhood of Moscow. The knowledge which the ancients possessed of these people was very small, and is represented as a mere name, without definition or unity. The people with whom the Romans were brought most in contact were the Iazyges, generally called Iazyges Sarmatian, and sometimes Iazyges Meta-

SARNO. [Salerno.]

SAROS, NEROS, SOSOS. These names are from the fragments left of the Greek. The Chaldeans had three astronomical periods so called, the saros of 60 years, the neros of 600 years, and the sosos of 60 years. Of the two latter we know nothing more, and as to the saros, the duration given by Berosus is either entirely wrong, or else subsequent writers have misunderstood him. Other Chaldean books relate that the saros is neither of the three above, and applied the term saros to it. (Pliny, l. ii., c. 13.) remarks relative to it, that eclipses return again after a period of 223 (the third of 669) months; but the text here again was corrupt, until Hallay (Phil. Trans., No. 194) restored the
true reading, which was afterwards confirmed by manuscript. To complete the misfortunes of this period, Suidas has the word Saros, but it was omitted from his Lexicon except in the faultiness of one line, in which Dr. Pearson restored it (Esp. of the Creed, 1683, fol. 59, according to Weidler), and even then it gives 222 months instead of 233, which was again corrected by Halley. In the time of Riccioli, Geminus and Polenio were the authorities cited in this period, and the name was not applied to it. Many writers (Costard for example) confounded it with the Metonic period of 235 lunations, which is a totally different thing: others again, as Geminus, and even Riccioli, supposed a period of 233 lunations as a period for the determination for the Saros or eclipse cycle: if so, the term lunation or month; and perhaps the assertion made by some others, that the Chaldæans were in possession of the Metonic cycle, may be another confusion between the latter and the saros.

Leaving the authorities on the subject, we know [Moon, p. 373] that 223 average intervals between full moon and full moon make up very nearly 242 nodical months, or passages of the moons from one node to the same again. Now since the eclipses entirely depend upon the manner in which the full and new moons take place relatively to the node, it is obvious that if 223 lunations were exactly 242 nodical months, and if the sun's and moon's orbits were truly circular, and their motions uniform, all the eclipses of one saros would be parted so as to be in the same order during the next 223; that is, if there were (say) an eclipse of the sun during the 47th lunation, reckoning from a given full moon, there would necessarily be another towards the 47th, or the 48th, and so on. All these suppositions are near enough to the truth, to make this sequence of eclipses very nearly take place.

For since 223 lunations make 241'429 sidereal months, 238'992 anomalistic months, and 241'999 nodical months, it is obvious that since the end of one saros the moon is in the same position with respect to the sun, nearly in the same part of the heavens, nearly in the same part of her orbit, and very nearly indeed at the same distance from her node as at the beginning of the period. Now 223 lunations make 6585'32128 days, or 6585 days, 7 hours, 42 minutes, and 38 seconds; or 18 years (of 365 days), 15 days, 7 hours, 40 minutes, and 38 seconds. Consequently a saros of five leap years is 18 years, 105 days, and one of four leap years is 18 years, 114 days, nearly. The Chaldæan period is 6585'34 days; and to avoid fractions they appear to have put together three such periods, making 19,756 days, and 669 lunations. From what has been said above, it might be inferred that the revolution of the moon's node is made in nearly a saros; and in fact that revolution does take 19'8 years.

It is to be observed however that the end of each saros is not in the same part of the day as the beginning, which is of consequence as to the solar eclipses, though not so as to the lunar, and still more of consequence as to the inexactness of the period of the saros is made in this way. For a saros contains 241'999659 mean nodical revolutions; so that if the moon be in her node at the beginning of a saros, she will want '001341 of a revolution of being in her node at the end of it. This is about 29', nearly the moon's diameter, which makes it sometimes happen that a lunar eclipse which takes place in a certain saros of one saros does not take place in the same lunation of the next, and very often causes the same as to a solar eclipse. And the effect must be that at last the eclipse of any lunation is destroyed by the accumulation of these errors of 29' each time. Nor do the circumstances of one saros precisely resemble those of another until a long period of about 746 such periods has elapsed. But in the same manner that eclipses are removed out of one lunation by the inexactness of the period, they are carried into another. There are about 78 eclipses in each saros, 30 lunar and 48 solar.

The Metonic cycle of 235 lunations gives 255'021 nodical months, which is not near enough to a whole number to produce anything like a return of similar eclipses. But it is, as explained [Moon, p. 373] near enough to an exact number of years to restore the full moons to the same day of the year, or the preceding or following day. The Metonic cycle is a chronological period; that is, portions of time measured from a given epoch, and each equal to 19 years, are used in chronology. But the Saros is not a chronologically exact period, but only a portent, with any arbitrary commencement. Hence the student must not look in works on chronology for any information upon it. (Riccioli, Alm. Not.; Weidler, Hist. Astron.; Bouilland, Astr. Phiol.; Ferguson's Astronomy.)

SAROS. [HUNGARY]

SARRACENIACEAE is a natural order of plants placed by Lindley in the albuminous group of polytrichous Equiseta. It consists of herbaceous perennial plants inhabiting bogs with fibrous roots and radical leaves, with a hollow or shaped petiole-shaped petiole, at the point of which is articulated the lamina, or blade of the leaf, which covers the petiole like a lid. The flowers are solitary or on scapae, and the petals and sepals are herbaceous. The calyx is composed of 5 persistent sepals, often having a 3-leaved involucriform without, imbricate in distribution. Corolla of 5 petals, angustacostata and concave. The stamens are hypogynous and staminalis, filaments short, anthers 2-celled, bursting longitudinally. Ovary superior, 5-celled, with a central many-seeded placenta; style simple; stigma much dilated, peltate with 5 angles, a globe-like capsule, with 5 lobes, 5 cells, and 5 valves. Seeds very numerous; albumen abundant. The affinities of this order are not very obvious. It is usually placed near Papaveraceæ, on account of its dilated stigma, indefinite stamens, and embryo in the midst of a corporeal albumen. Lindley considers it to be related to Dianæa, wherever that genus may be ultimately placed in the remarkable structure of the leaves this order agrees with Nepenthaceæ and Cephalotaceæ.

There is only one genus belonging to this order, of which there are about six species, all of them inhabitants of the bogs and swamps of North America. Of their properties we know but little; they are chiefly interesting on account of their pitcher-like leaves, which are capable of holding water, and are thus said to furnish drink to wild animals in their native forests during periods of drought. The pitchers frequently contain the dead bodies of flies and other insects, which become putrid and produce an unpleasant smell around the plant, but are said to afford the plants a source of nutrition.

Sarracenia purpurea.

a. Entire plant with leaves and flowers; b. the dilated stigma; c. an ovary columnar style; d. transverse section of fruit, showing seeds attached to it; e. pistil; f. capsule; g. section of seed, showing the minute embryos and abundant albumen.

SARRALBE. [Moselle.]

SARRAEU. [Morbihan.]

SARREGUEMINES. [Moselle.]

SARRUBUS or SARRUBUS. [Gezlo, vol. xi, p. 103.]

SARSAPARRILLA. [Silmak.]

SARSAPARILLA, EAST INDIAN, a root used in medicine, and sold by druggists as a substitute for sarsaparilla, under the above name. This is imported from India, as the year, or the preceding one, or the following year. Sarsaparilla is a plant not known to be found within the limits of that country. Species of Similax are however common in India, but are not described as being employed in the materia medica. Dr. Royle (Proc. R. Asiatic Soc. June, 1835) states having received a specimen of this root, which had been brought from India, and that he obtained...
specimens of an exactly similar root at Godfrey's, London, under the name of Similax aspera. On consulting the works of Amalthe, Rezborough, and a figure of Rheede, he found that the root corresponded in every respect with that of Aesculaps pseudo-sarsa, now Hemisdesmus Indicus, which by the natives is called "wult," and by Europeans in India "country saraparilla." The roots are long, slender, and have a pleasant odor, often compared to that of oris-root. It is rugose, with its cortex often loose, furrowed longitudinally, and divided transversely into ring-like pieces. It has been long and widely used in various ways; for instance, for the same purposes as saraparilla, whence European practitioners were induced to give it a trial; and having been found efficacious, it has continued to be employed in the hospitals.

Attention was drawn to it in this country by Dr. Asbur, who published a paper in 1831, which he states increases the appetite, acts as a diuretic, and improves the general health, — plumpness, clearness, and strength succeeding to emaciation, muddiness, and debility. It has also been employed by other practitioners, who have spoken favourably of it; and as it is abundant and cheap, it seems worthy of introduction into general practice.

SARTHE, a department in France, taking its name from one of the streams by which it is watered, the Sarthe, an affluent of the Loire (now the Loire proper). The boundaries of the department of Indre and Loire, near Château la Valière, may be estimated at 62 miles; its greatest breadth from east to west, from the neighbourhood of St. Calais to the bank of the Barange, is 45 miles. The area is estimated at 2407 square miles, being very near the average area of the French departments, and rather exceeding the conjoint areas of the English counties of Hants and Berks.

The population in 1831 was 457,372; in 1836, 466,888; showing an increase in five years of 9351, or above two per cent., and giving 194 inhabitants to the square mile. In amount and density of population it exceeds the average of the French departments in the proportion of about six to five, and is a little superior in both respects to the English counties. The capital is its chief town, Le Mans, which, according to the late Dr. Robert, is 111 miles in a direct line west-south-west of Paris, or 122 miles by the road through Versailles and Chañiere.

The surface is generally level. There are a few hills in different parts, but none of any height. The principal are just on the north-western border, about Stil-le-Guillaume. The south-east side of the department is occupied by the formations of the cretaceous group which envelope the chalk basin of Paris. The line which defines the outer edge of these formations passes northward from the southern boundary of the department between Le Lude and Le Fléche to the neighbourhood of Le Mans; west of that town; it then runs north-east to the neighbourhood of Bonneterre, and then turning east-south-east crosses the Braye into the department of Loir et Cher. From beneath the cretaceous group, the formations between the chalk and the new sandstone crop out, and occupy the remainder of the department. North-western border is the lower strata, the granite rocks of the great primitive district of Bretagne make their appearance. Some of our authorities speak of coal as produced in the department, but whatever works existed appear to have been given up. There were in 1834 three pits of anthracite, which yielded, that year above 18,000 tons, and gave employment to 150 men. Iron is procured; and there were in 1834 five iron works, with five furnaces for producing pig-iron, and five for the manufacture of brass. Coal, iron, and fuel almost exclusively employed. Freestone for building, marble, especially fine black, sandstone for paving, slates, millstones, granite, and fullers' earth are found. There are some mineral waters, but none in much repute.

The principal river is the Sarthe, which touches the border of the department on the north side near Alençon, and flowing south-west separates it from the department of Orne, except near Alençon, where its course is beyond the boundary, to which however it soon returns. Several miles above Frény, or Fresnay-le-Vicomte, it quits the border and flows in a winding channel south-east to Le Mans, just below which it enters the Sarthe, the bank from the north-east. From the junction of the Huine the navigation commences, and the river flows south-west into the department of Maine et Loire. Its whole course on or within the border of this department may be estimated at 110 to 120 miles, for about 30 of which it is navigable. The Loir, a tributary of the Sarthe, crosses the department just within the south-eastern and southern border, from between Montoire (department of Loir et Cher) and Le Lude to Tours. The Loir enters between the departments of Maine et Loire: it does not join the Sarthe in this department. Its course in this department may be estimated at about 55 miles, for 33 or 40 of which, viz. from Château-d'Or, it is navigable. Beside the Huine and the Loir, the Sarthe receives the Bienne and the Orne on the left bank; and the Geay, the Végre, the Eres, and the Vaige on the right. The Loir receives the Braye, the Elangot, and the Orne on the right bank; the Huine receives several small streams. The Sarthe is found in fish; the Huine and its tributaries yield excellent trout.

The official statement of the inland navigation of the department is as follows:—

<table>
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<tr>
<th>Sarthe</th>
<th>52 miles</th>
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<tr>
<td>Loir</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>98</td>
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There are no navigable canals.

The climate is milde and healthful. The soil varies much. The parts occupied by the formations of the cretaceous group presents little else than a succession of sands. Part of the tract is made by care to yield good crops of grain, and the liberal parts have been less injured. A great deal of St. Maix, Le Mans, and Le Fléche. Roads run from Le Mans by Beaumont-le-Vicomte to Alençon (department of Orne); to Lavau (department of Mayenne); by Ecomoy and Château-d'Or to Tours (department of Indre et Loire); and by Boulouire and Saint Calais to Blois (department of Loir et Cher). A road from Laval to Tours passes just within the south-western boundary of the department, through Sablé, Le Fléche, and Le Lude; and one from Alençon to Orléans (department of Loir) passes just within the northern border through Marmes. The departmental roads had an aggregate length of 219 miles, viz. 199 miles in good repair, and 20 miles unfinished. The bye roads had an aggregate length of 7000 miles.

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du-Loir are reputed to be excellent. The woodlands occupy about 170,000 acres.

The department is divided into four arrondissements as follows:

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</thead>
<tbody>
<tr>
<td>Le Mans</td>
<td>(Cent.)</td>
<td>733</td>
<td>10 116</td>
<td>137,851 164,667</td>
</tr>
<tr>
<td>Manners</td>
<td>N.</td>
<td>692</td>
<td>10 144</td>
<td>121,867 133,444</td>
</tr>
<tr>
<td>Saint Calais</td>
<td>G.</td>
<td>432</td>
<td>5 68</td>
<td>71,334 76,834</td>
</tr>
<tr>
<td>La Flèche</td>
<td>S.</td>
<td>620</td>
<td>7 78</td>
<td>96,320 97,943</td>
</tr>
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2407 53 394 457,572 486,888

In the arrondissement of Le Mans are-Le Mans, population in 1831, 19,672 town, 17,792 whole commune; in 1836, 21,164 commune [Mans, La], La Guericq and La Sarthe; Ballon, population 4078, near the Orne; Conneré and Montfort, on the Oise; St. Mars-de-Luyère, on the Vernant, another small affluent of the Oise; Ecouy or Economoy, population 3499, near the Orne, an affluent of the Loir; Ballon, on the Gervé; and Sillé-le-Guillaume, population 1917 town, 2666 whole commune; and Conlie, between the Vige and the Sarthe. Le Sarthe, a branch of the river, which forms a handsome bridge. Close to the town are the ruins of the castle, formerly occupied by the lords of the place. The townsmen are engaged in the manufacture of wax-lights, hats, saddles, and carriages; and carry on a brisk trade on foot, in woollen cloth, laces, and hardwoods; there are six yearly fairs. Ballon is remarkable for the ruins of an ancient castle, which, from its situation on a hill, forms a conspicuous object in the landscape: it was antiently one of the strongholds of the county of Maine, and was taken A.D. 1375 by Philippe Auguste. The townsmen manufacture coarse linen, in which, and in corn, they carry on considerable trade. Conneré has two remarkable Druidical monuments. One is a tumulus formed by a slab or block of sandstone about 2 feet thick, supported by five other blocks, forming three sides of an irregular quadrangle of more than 20 feet long and 8 to 10 feet wide. The other monument is an upright stone or obelisk, about 12 feet high above the ground, 8 feet broad, and on an average 2 feet thick. The blocks are all rough. The town of Conneré is small, but pleasantly situated in the meadows watered by the Longéve, a little stream which here joins the Ille and over which, at the entrance of the town, is a good stone bridge. Montfort, distinguished from other places of the same name as Montfort-le-Rotrou, is on the slope of a hill, the summit of which is crowned by an old castle, whose massive walls render it an object of striking beauty. The townsmen are engaged in the manufacture of linen, which they excel in bleaching; and carry on trade in corn, hemp, yarn, and linen: there is a large market and four yearly fairs. There is an hospital in the town. The linen manufacture is also carried on. Sillé was distinguished by Sillé l'Étiqueté, that is, Sillé the paper town at St. Mars. Ecouy is a busy place: excellent butter is made, and building-stone and limestone are quarried and potters' earth is dug round the town; there are brick-yards, lime-kilns, and potteries; the townsmen manufacture linens. The church has a beautifully modelled equestrian statue of St. Martin. At Ballon, Louné, and Sillé-le-Guillaume linens are manufactured, and trade in corn is carried on: Sillé-le-Guillaume has an ancient canape.

In the arrondissement of Manners are—Manners, population in 1831, 5720 town, 5822 whole commune; in 1836, 5704 commune, between the Bienné and the Oise; Fresnay-le-Vicomte, population 2775 town, 2840 whole commune; and Beaumont-le-Vicomte, population 1518 town, 2381 whole commune, on the Sarthe; Burgoy-le-Roy, between the Sarthe and the Bienné; La Ferté Bernard, population 2532, on the Oise; Saint Côme and Bonneval, population 3672 town, 3603 whole commune [BONNETABLES], between the Orne and the Ille; and Montoire on the Ille. Manners was antiently fortified, and was taken in the eleventh century by the count of Belême, and afterwards by the Normans; but there are now scarcely any traces of it. This town is irregular in outline, and consists of two large places or squares, with a number of streets adjacent to or terminating in them; neither streets nor squares are paved. The houses are tolerably well built, chiefly of stone. The smaller of the two squares is occupied by a handsome covered market; the other, a large building, formerly a convent, now containing offices of the sub-prefect and the mayor, the college high school, the public library, the theatre, the prison, and a hospital for the sick of the population. The townsmen are engaged in the manufacture of linen, in which 1600 persons in and round the town are occupied, and of calico, which gives employment to 42 more. Hosiery is also made; and there are breweries at Tavant, and the street trade is carried on to a great extent. There is a cattle market, and the market-week, with a market-house, is well attended; corn and oats are sold. There are several vineyards near the town; but they do not prosper. La Ferté Bernard was scene of a conference in 1189, between Henry II. of England and Philip August, king of France, and was taken by Philippe: it was again taken, A.D. 1424, by English, under the earl of Salisbury; and in the reign of Henry IV., A.D. 1590, by the prince of Conti. The townsmen manufacture linen, and some of them are clothiers. There are one or two market-places, with a market-house, well attended; corn and fat geese are sold. There are several vineyards near the town; but the do not prosper. There is a pleasant park near the town, and an old wall of the town remains; there is a castle, and the townsmen are very good citizens.

In the arrondissement of Saint Calais are—Saint Calais, population in 1831, 2864 for the town, or 3638 for the commune in 1836, 3783 for the commune, not far from the right bank of the Baye; Vibraie, pop. 3037, and Besßé, on the Braye, La Chartre, and Château-du-Loir, pop. 2752 town, 2730 whole commune, on the Loir; Grand-Lucé, on the Véron, which flows into the Elengé; and Bouloire or Boulière, on the Vouvray, which joins the Longueville, or Longueville feeder of the Ille. Saint Calais was antiently called Aul, from the name of the brook on which it stands, until in A.D. 456 it received the name of St. Malo. It was founded a monastery here in the sixth century. The abbey stands on a hill, amid hills covered with scanty crops of corn; it has an interesting Gothic church and a spire, two parishes, one of the Emmanuel of the town, and a small hospital, and a spacious square. The inhabiting manufactures are those of wool, cottons, linens, leather, and glass. They are carried on in trade in cotton goods and fine wool. There is a subordinate court of justice and a high school. Near the house of the bishop of the arrondissement of Macon, on a tanyard, and an hospital. Much corn and many provisions are sold in its market, and it has seven yearly fairs. Besßé, cotton goods, wax candles, and paper are manufactured. La Liére gets its name from an ancient castle, the counts of Aul, erected at the end of the twelfth century and demolished in the sixteenth. The older part of the town is badly laid out, and is surrounded by deep, narrow, and dark. Nocturnal visits are taken here, and the townsmen are noted for their hospitality.
build streets; but the new street, along which the road from Le Mans to Tours passes, is straight and composed of neat stone houses with gardens; it traverses a handsome and regular avenue of trees, and provides a pretty public walk, on the site of the ancient castle. Near the town, on a hill overlooking the valley of the Loir, is a singular fountain, or suburb, consisting of not houses, but of caves hollowed out in the rock in two rows, one above the other, which is approached by a flight of steps. At Parc presbytery, on the banks of the river, there are few weavers chiefly, but some vine-dressers and labourers. There are at Château-du-Loir an hospital, a theatre, public baths, and a college. Linens, leather, and cotton yarn are manufactured; and, on the Loir, corn and wine are sold; there is a considerable weekly market, and on the second Sunday of the month the market at a distance from town.

The Loire is crossed by a bridge over the river, built of marble quarried near the town, which, though in its rough state of a slate colour, becomes of a deep black with veins of white when polished. There is a handsome mansion near the town, built of stone in the beginning of the sixteenth century, but allowed to go to decay. A considerable manufacture of gloves, which are sent to Paris, is carried on; and there is considerable trade in corn, fruit, and the marble quarried near the town. There are four fairs in the year. At Précigné, or Pressegne, is a tolerably well frequented mineral spring; the town has a manufacture of coarse woollen cloth, and there are two fairs in the year. Leather is made at Brulon.

The population, where not otherwise noticed, is that of commune, and from the census of 1836.

This department, with that of Mayenne, constitutes the diocese of Le Mans, the bishop of which is a suffragan of the archbishop of Tours. It is in the jurisdiction of the department of Maine-et-Loire and of the Archidiocese of Sens, and in the fourth military division, the head-quarters of which are at Tours. It sends seven members to the Chamber of Deputies. In respect of education it is considerably below the average of France. In every hundred young men, about 60 are in the army or the navy; 10 are in the communes, and 20 in the equation; 12 are in the factories; and 8 are in the schools of commerce and the police. It is a county where one can read and write, the average of the French departments being above thirty-nine.

The department was in the earliest historic period chiefly included in the territories of the Anjou Comenani (Anjou-Comenani, or Comunian). Some portions on the border were probably included in the territories of the adjacent tribes, the Angeln (Evre), and the Acerini (Évre; Ancien). In the time of the Visigothic kingdom, the department was included in Maine, except the southern border, which was included in Anjou; it was the scene of frequent hostilities in the middle ages, during a short period of the existence of the duchies of Burgundy and Gascony, and in the time, everywhere else, may be adduced as a proof of its inherent weakness, and of the want of that power in the composer which is apparent in most of his works that are known to us. Sarti was a bel canto singer. Of the latter, the terzetto alluded to above, 'Amplius lave me,' is well known and deservedly admired. He died at Berlin, in 1802.

SARTO, ANDREA VANUCCHI, called del Sarto, from the occupation of his name, who was born in Florence in 1486, and having shown an early predilection for drawing, was placed with a goldsmith to learn the busi-
ness of engraving or plate. Being noticed by Giovanni Barile, a painter of no great celebrity, he persuaded his father to entrust his son to his care. With him young Sarto remained three years, and manifested such extraordinary talent that Barile placed him with Pietro Cosimo, who was considered the best pupil of the great Valerio Croudino. When the school of Cosimo he formed an intimacy with Francesco Bigio, with whom he executed some works in the public buildings of Florence, which gained him considerable reputation. Barile was so pleased with his progress that his admirers made more rapid than that of many other artists, but slow and gradual. It has been erroneously asserted that he never was at Rome, but we are assured by Vasari that he passed some time in that city. We are informed that it was after his return from Rome that he painted for the church of Santa Maria Novella, the pictures of the Descent of the Holy Ghost, the Birth of the Virgin, and the Last Supper. Of the last, Lanzi reports, that at the siege of Florence in 1529, the soldiers, after having destroyed the church and part of the convent, when they entered the refectory, stood motionless before it, and had not the heart to demolish it.

Francis I., king of France, desiring to procure specimens of the works of the most distinguished painters in Italy, Andrea del Sarto was commissioned to paint a picture for his Majesty, and sent in a Dead Christ, with the Virgin, St. John, and other figures, painted in his best manner, which is now one of the chief ornaments of the Gallery of the Louvre. Sarto was being unwell, when, on the invitation of his admired pictures of the Descent of the Holy Ghost, the Birth of the Virgin, and the Last Supper. Of the last, Lanzi reports, that at the siege of Florence in 1529, the soldiers, after having destroyed the church and part of the convent, when they entered the refectory, stood motionless before it, and had not the heart to demolish it.

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SARZEAU. [Morshian.]

SASSAFRAS, the name of a genus of plants belonging to the natural order Lauraeaceae. This is one of the genera into which the old genus Laurus of Linneaus has been divided by Nieu von Eisebeck and other botanists. It is known by its diocious flowers, 6-petalled membranaceous calyx, 3-lobed, and 6-ovulate, the seed being permanent at the base. The barren flowers have 9 stamens, which are inserted on the stalked glands at the base; the anthers linear, 4-celled, with their faces turned inwards. The fertile flowers have sterile stamens, which are fewer than or as many as in the barren flowers, and which are inserted in which can be seen at the apex of the peduncle, and seated in the torn unchoked calyx. The leaves are deciduous; flowers yellow. The species of this genus most known is the S. officinale, the Sassafras Laurel, on account of its medicinal virtues. It is an inhabitant of the woods of North America, from Canada to Florida. It is mostly a small tree or bush, but sometimes attains the height of 40 or 50 feet. Its flowers are arranged in naked downy racemes, which open before the leaves appear, and are furnished with subulate deciduous bracts. The leaves are membranaceous, bright-green, smooth above, finely downy beneath, very variable in form, and tapering in a wedge-like manner into the petiole. The fruit is of a bright blue colour, as large as a small cherry, and seated upon red calyx. In America it is divided into two varieties, the red and white. Its great use is for medicinal purposes. It is however employed in America for making bedsteads and other articles of furniture, which are not liable to the attacks of insects, and give out a very pleasant odour. It is the name of Sassafras, the god mentioned in the history of America, as it is said that it was the strong aromatic smell that convinced Columbus, when seeking the New World, that a shore was near at hand, and encouraged him to persevere, at a time when his crew had abandoned the enterprise. The objects of his expedition were threatened. This tree has been grown in Great Britain, and in some instances has attained great height and grown luxuriantly. It may be propagated by cuttings of the roots or suckers, and should be planted in a rich, well-tilled soil. Its foliage is best when grown against a wall.

A species of Magnolia, the M. glauca, is called in America the Swamp Sassafras, and the Sassafras nuts of the Londoners. According to Humboldt, the produce of the Nectandra Pachyginorna.

SASSAFRAS, MEDICAL PROPERTIES OF. The tree which yields this substance is the Sassafras officinale (Nees) (Laurus Sassafras, Lin.), a native of North America, occurring in all the mountains, and Martius mentions it as a part of the Materia Medica of Brazil; but it is probable that it was introduced from Florida. The root is the official part in the London Pharmacopoeia; but the whole plant possesses the aromatic odour common to the genus. It is said to grow in Mexico, but its branches are stronger than that of the root; but this seems to be an error. The root, inrusted with the bark, comes to Europe in pieces sometimes two feet long, and from the thickness of an arm to half a foot in diameter, irregularly bent, knotty, and with a light, soft, porous wood. The bark also occurs detached from the wood in pieces two or three inches long, from one to a half to two inches broad, sometimes rolled outwards, but more generally curved inwards; and its brown or yellowish exterior, and a fungous surface, of a reddish colour internally. The taste is sharp, acid, aromatic, and, as well as the odour, resembles fennel.

The chief constituents are: volatile oil, resin, and oxalic acid, of which the last is the most active. It may be obtained by distillation. Ten pounds of the root yield two and a half drachms. The specific gravity is 1.994. It consists of two oils, separable by water, in which the one floats and the other sinks. By time or a low temperature, it deposits a white, amorphous mass, at Amherst.

Sassafras acts as a stimulant to the circulation, especially of the capillaries, causing an increased secretion from the skin, if the person be kept warm, or from the kidneys, if cool. Should these organs fail to function properly, with headache are the results. It is of unquestionable utility in gout and rheumatism, but its activity is generally destroyed by the improper mode of administering it. Desiccation dissipates the volatile oil, and is a more objectionable preparation. Infusion or a tincture may be used, or the volatile oil rubbed up with sugar. Other species of Sassafras are used in India and Java.

SASSAVIDE. [Papua History.]

SASSARI. [Sardinagn.]

SATELLITE (satelles), an attendant soldier or guard, a name given to the smaller planets which accompany and revolve round the larger ones. With this exception, that the moon of Mars (Phobos) is not in it, the Satellites move in the same time as their orbital revolution round its primary, in every case in which it has yet been fully made out that there is a motion of rotation, there seems to be no circum-

SAXON. [Papua.]

SATERLAND, a district in the grand-duchy of Oldenburg, comprises the three parishes of Scharrel, Ramsloh, and Strasslingen, with a population of about 2606 inhabitants. This little town is protected by impregnable morasses, over which there has hitherto been no road and scarcely a path. It is situated on two rivers, the Mark and the Obre, which unite at Scharrel, and then, after passing through Sater-Land, unite with the river Leine. It is 12 miles long, 5 broad, and is surrounded on all sides, except the river, with marshes and heaths. In very dry weather it is possible to enter it from East Friesland on horseback and in light carriages, though this is attended with considerable difficulty and distilling the country to the three sides. The inhabitants, who are all of Frisian descent, still speak their mother tongue and likewise the Westphalian dialect. From their secluded situation, they have retained the manners of their ancestors, which may be considered remarkable. Their country is watered by the Sater-Em, which facilitates their communication with East Friesland, whither they send their superfluous produce for sale, and receive in return the few articles which they require. They cultivate rye and buckwheat, which thrive very well in their sandy soil. They have oxen, sheep, and cows, considerable turf-moors, but no wood, and only here and there an isolated fruit-tree. They are exempt from game laws, and are protected in their pursuit of the number of wild-fowl. They employ themselves in knitting stockings, and manufacture most of their clothes from the wool of the sheep; all of them are likewise free to exercise the trades of brewing, baking, brewing, and distilling, and accord them a licence. At the hay-making season, the morasses are crossed in very light wagons with broad wheels not hooped with iron, and the horses have pieces of board attached to their feet, to prevent them from sinking in. The country is governed by twelve burgomasters, four from each of the three parishes; half of them go out every year, and choose their successors, who must not be related to them by consanguinity, and whose appointment is confirmed by the people. This takes place in a general assembly of the inhabitants, held every year, on Shrove Tuesday, at Ramsloh, in the church of which the archives are kept.

SATIN. [Silk.]

SATIN SPAR, Carbonate of Lime, Fibrous Arrago-}

nites. [7.] Structure fibrous, the fibres parallel, usually waved, and always transverse to the vein in which the mineral occurs. Like arragonite in general, it is harder than common calcareous spar. Colour white, sometimes yellowish or greyish. Occurs at Alston Moor in Cumberland, and North America, in tabular masses of an inch or two in thickness, in veins in slatey clay and shale. It consists chiefly, if not altogether, of carbonate of lime.

SATIRE is properly a species of Roman poetry, and must not be confounded with the Satyrical drama of the Greeks. The Latin word Satura or Satiris appears to have originally signified a collection of various things, and accordingly this name is applied to food composed of various ingredients, and also to a law consisting of several distinct
particulars of a different nature. (Festus, t. v.; Diomed., ii. p. 483, ed. Putsch.) The Roman satire is first mentioned as a kind of dramatic performance (Liv., vii. 2), and appears to have been, like the early Atellian Farce, often a rude improvised farce, without dramatic connection, but performed in the streets and with the assistance of a most facetious interpreter, which arose from the practice, which has prevailed in Italy from the earliest times to the present day, of the country people making rude extemporaneous verses ridicule of one another at various festivals, and especially at the time of the vintage. Such were the Fabulls, to which Macrobius alludes in his Satyricon, and which Macrobius describes as Saturnian (Saturn., ii. 4) were sometimes written as satires upon persons. The old dramatic Saturne continued to be performed on the Roman stage till a late period, under the name of Enodia, which were laughable interludes in verse, and were performed at the end of the games of the different theatrical performances as a sort of prelude to the real drama. The name of satire was afterwards limited to a species of poetry peculiar to the Romans, in which Ennius is said to have been the first writer. The satires of Ennius appear to have been so called because they were written on a variety of subjects, and in many different metres; but as hardly any fragments have come down to us, we know very little of the subjects of which they were composed. Lucilius was the first who constructed satire on the manners and people, which were so much ridiculed in the works of Menander, on the style of Horace as essential requisites in a satiric poem. Lucilius principally used the hexameter metre, which was afterwards almost exclusively employed by the satiric poets. His poems were not only satires upon the vices and follies of mankind, but also contained attacks upon individuals. They formed the model on which Horace wrote his satires; but the circumstances of the times prevented Horace, even if he had the inclination, from attacking eminent political characters, as Lucilius had done. His own happy and happy disposition was, as well as the attacks upon individuals. The works of the other Roman satirists are lost, with the exception of Persius and a few verses on the banishment of the philosophers by Domitian, which are ascribed to Sulpicia, who is supposed by some writers to be a contemporary of Tibullus, and by others of Ausonius. A list of modern authors on the subject of the Roman Satire is given in the article Rome., p. 115.

Sature, in Law, is the word to exist where a party, having a right of action, accepts from the party against whom he has it, a certain and valuable thing, or the performance of a certain and beneficial act, in lieu of his right of action. If the action is afterwards brought, the satisfaction may be pleaded in bar of it. Satisfaction may exist as to actions in which damages are recoverable, and as to some others (Blake's case, 6 C. R., Rep., 44; Peysor's case, 9 C. R., Rep., 78), but it cannot operate so as to dispense with the performance of a covenant under a deed, by reason of the rule of law that a deed cannot be made by an instrument of the same nature, and therefore implying the same degree of deliberation. Though where a right of action upon the deed has vested, in consequence of some wrong or default occurring subsequent to the execution of the deed, as from the breach of covenant or the deficiency of title, c., there may be satisfaction. The satisfaction, to be valid, must have been accepted by the party who has the right, and must have proceeded from the party who is liable. Nothing which is paid or done to a third party, or proceeds from the party, does not operate as a satisfaction. It must be certain, that is, definite as to time, &c., and available; thus where the satisfaction is by a mutual agreement, it must be such an agreement as an action may be maintained upon. It must be valuable; by which it is understood not only that there must be a satisfaction, that has value, as, for instance, a rush; but also that the value must be at least not obviously inferior in amount to that for which it is given, such as a payment of a less sum of money at the same or a subsequent day as that on which a greater is due. Although if there are advantage-
termination of Chaldee: noughts, and the a prefixed to the word causes it to correspond to the Euxine (醚海) corposal, which is used by Theopompos instead of satrapes.

SATARA, or SATARA, a city of Hindustan, the capital of the small state of Satara, is situated in the province of Beopore and dist. of Satara, in 12° 6' 30" S., and 74° 3' 30" E., long., 67 miles south from Poona in a straight line. Satara is a small town on a rocky and precipitous mountain, with a fortress of great strength, and a handsome palace built by the raja since he came under the protection of the British. On the present raja were deprived of their power by the Peshwa in 1869. The British however captured Satara in 1818, and restored it and the territory to the raja. A notice of these transactions and of the limits of the territory is given in the Appendix A.

SATURATION. When common salt, or indeed most other saline and many vegetable bodies, are added to water until it ceases to dissolve them, the solution so obtained is termed a saturated solution of the substance dissolved.

It is to a known extent a state of one body and not to another; thus water saturated with common salt will still dissolve sulphate of soda, and vice versa; so also a saturated solution of common salt will dissolve sugar. There are many other cases in which the point of saturation may be determined by the cessation of the process; if, for instance, carbonate of lime or carbonate of lead be added to dilute nitric acid, no more of these substances is dissolved than is requisite to saturate the nitric acid; and the solutions produced, when excess of these bodies remains unacted upon, are termed saturated solutions of nitrate of lime or nitrate of lead.

But there are other cases in which saturation cannot be determined by insolubility; as when both bodies are employed in a fluid state, or the one solid and the other liquid. A saturated solution is one in which the solvent, that may be water, or a more or less definite mixture, is soluble in the water which holds the saturated salt in solution; if, for example, we add carbonate of potash in powder to dilute nitric acid, it will for some time continue to dissolve in the acid with effervescence, owing to the expulsion of carbonic acid therefrom (in its orbit) only, the effervescence ceases, we may consider the solution as consisting of nitrate of potash, or nitric acid and potash, in which the saturation has been mutual; but the carbonate of potash, unlike the carbonate of lime, is soluble in water, and that which holds the excess of potash formed in solution is capable of dissolving it. In these cases the point of saturation is determined by the use of papers stained with different vegetable colours; if, for example, too much carbonate of potash should have been added to the nitric acid, the indicator, paper coloured yellow with turmeric, brown; while, on the other hand, excess of acid is in general ascertained by paper stained blue with litmus, which is rendered red by the action of acids.

This means a very important process in the manufacture of soap and glass is conducted; it is termed alka-

\[ \text{saturation}, \text{and employed for ascertaining the strength of different samples of the carbonates of potash and soda, so largely used in glass and soap making.} \]

The variation of temperature produces but little effect; thus cold water will take up nearly as much common salt as hot water; but sulphate of soda is more soluble in hot water than in cold, and hence it is that a saturated hot solution of this salt is made in many other salts deposing crystals on cooling. Cold water, on the contrary, dissolves more lime than hot, and a saturated solution prepared with water at about 30° holds nearly twice as much lime in solution as one prepared at 21°, and when the cold prepared solution is heated, little alteration is observed. This is a case of much rarer occurrence than the contrary one.

SATURDAY. [WEEK]

SATURN, the name of one of the old planets, the largest of all the bodies of the solar system, except the sun and one planet has been discovered with the observation of revolution being to the equatorial diameter in about the proportion of 11 to 12. It is accompanied by two rings of solid matter, unconnected with the planet and each other, but revolving round the former; these, not being usually called satellites, are so supposed, to be considered part of the planet, though the former denomination would perhaps be more correct. There are also seven satellites, of which and the rings we shall presently speak more at length. There are also, as in Jupiter, certain thin zones or belts on the surface of the planet, though they have never been always seen.

The apparent equatorial diameter, at the mean distance from the earth, is about 16° 2': the real diameter, that of the earth being 1, is 9° 9′, or about 79,000 miles, which gives a bulk of about 955 times that of the earth. The mean density is about '55 of that of the sun; nearly one eighth of that of the earth; and the mass of the planet is about 1-3512th of that of the sun. It revolves on its axis in '428 of a day, or 10 hours, 29 minutes: its equator is inclined to the ecliptic at an angle of 3° 19′. Its light and heat are about one eighth of the earth's.

Elements of the orbit of Saturn.

Epoch 1801, January 1, 12° mean astronomical time at Greenwich.

Semi-major axis, 9° 53′ 77′′, that of the earth being assumed as the unit.

Excentricity, 0° 56′ 50″; its secular diminution (or diminution in 100 years) 0° 00′ 32′′.

Inclination of the orbit to the ecliptic 2° 29′ 53″; its secular diminution (or diminution in 100 years) 0° 00′ 14′′.

Longitudes from the mean equinox of the epoch: (1) of the ascending node 11° 56′ 37″ 4′; its secular increase (combined with the precession) 30° 7′ 14′; (2) of the perihelion 59° 9′ 29° 6′; its secular increase (combined with the precession) 65° 4′ 20° 6′.

Mean sidereal revolution in 3652 days 349° 38′ 13″; sidereal revolution 107592195174 mean solar days.

The first six satellites move nearly in circular orbits (though that of the sixth is said to be sensibly elliptical) nearer the plane of the planet's equator, which is also that of the rings. The seventh satellite, which is much the largest (and which is known, by William Herschel's observations, to revolve on its axis in the same time as its revolution in its orbit) is more nearly in the plane of the ecliptic than in that of the planet's equator, and has a sensibly elliptical orbit. This is all that is known; for while on one hand the difficulty of seeing the satellites so as to get good measures has prevented an accumulation of proper observations, the ring on the other hand presents by its attraction a new disturbing force, the complete effects of which, in the absence of sufficient observations, it has not been thought worth while to trace.

The farthest satellite but one and also the largest but one (now called the sixth) was discovered, by Huyghens, in 1655. As soon as the five last satellites were discovered, and until the time of Herschel, they were called the first, second, &c., in the order of their distances from the planet. This old system of nomenclature was after the discovery of a sixth and a seventh satellite by Herschel, being in reality the first and second in order of distance. Some confusion however has ensued in various places: thus, in the article Astronomy (pages 535 and 539) it is said that Cassini discovered the first and second satellite, and also that Herschel did the same: both assertions are true, inasmuch as Cassini discovered what were the first and second satellites (now the third and fourth), and Herschel discovered what immediately became the first and second satellites in right of their position. The following table contains all the comparisons requisite to correct this confusion:

**Satellites of Saturn.**

<table>
<thead>
<tr>
<th>Order</th>
<th>Planet</th>
<th>Dis-</th>
<th>Distance from the</th>
<th>Mean \nbar</th>
<th>Date</th>
<th>Discovery.</th>
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<td>solar days.</td>
<td>revolution</td>
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<tr>
<td>1</td>
<td>1</td>
<td>0.0</td>
<td>3520 or 0.99771</td>
<td>361-351</td>
<td>1799</td>
<td>W. Herschel.</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0.0</td>
<td>2582 or 0.99704</td>
<td>688-360</td>
<td>1748</td>
<td>W. Herschel.</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>0.0</td>
<td>1517-45 or 0.99514</td>
<td>972-559</td>
<td>1672</td>
<td>D. Cassini.</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>0.0</td>
<td>457-45 or 0.99417</td>
<td>661-284</td>
<td>1784</td>
<td>D. Cassini.</td>
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<td>5</td>
<td>1</td>
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<td>324-45 or 0.99358</td>
<td>562-576</td>
<td>1755</td>
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<td>6</td>
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<td>640-359</td>
<td>1671</td>
<td>D. Cassini.</td>
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The rings are solid circular bodies, rounded, it would seem, at the edges, and two in number, having a motion of revolution round their centres, which is completed in 428 of a day, or 10 hours, 16 minutes; about 13 minutes less than the rotation of the planet itself; this is also the table in which a satellite would revolve at the same distance from the planet as the middle part of the ring. Sir John Herschel gives the following as the result of Professor Struve's observations and his own:

- Eccentric diameter of exterior ring = 176418 miles
- Interior = 155272
- Exterior diameter of interior ring = 151699
- Interior = 117339
- Equatorial diameter of the body = 79168
- Interval between the planet and interior ring = 19090
- Interval of the rings = 1791

Several observers have seen concentric black lines in the outer ring, as if it consisted of several rings; but neither W. Herschel, Sir J. Herschel, nor Professor Struve, with the most powerful instruments, could detect these lines. The question is a curious one, because if it were the consequence of a fault in the ring only, it would demand a search for a whole new class of rings; but a ring only should exhibit these appearances. Captain Kater sums up this question ("Mem. Astron. Soc.," vol. iv., p. 387) in the following manner: "From the observations which have been given in the present paper, we may deduce the following facts:"

- That the exterior ring of Saturn was observed by Short to be divided into three or four concentric rings.
- That Professor Quesnel, in December, 1823, at Paris, with an achromatic lens of 100 us, was able to see the outer ring of Saturn divided into two concentric rings.
- That on the 17th December, 1825, the outer ring of Saturn appeared to be made up of at least four rings, the widest interval being in the middle. That on the 18th and 19th January, 1826, I again remarked these divisions of the exterior.
- That these divisions were also observed by a friend who was with me on the 17th December, 1825, but who did not remark that one division was stronger than the others.
- That another division, which I am convinced was the same as the one observed by the same person on the same evening, and who is very shortsighted, saw the stronger division, but could not perceive the others. I think it will be allowed that the evidence given here is of sufficient authority to establish the probability of the outer ring of Saturn being composed of several concentric rings, and that other observers have seen such rings. Sir William Herschel, Mr. Herschel, and Mr. Struve, though observing with very superior instruments, could perceive no such divisions as those which I have described.

On the 22nd January, 1826, the moon being perfectly favourably placed, I examined Saturn with great care for several hours, but no divisions of the outer ring were then perceptible.

It has been remarked by Sir William Herschel, by Mr. Struve, and by persons who have observed Saturn, that the eccentric diameter is much less brilliant than the interior: may this not be from light in the outer ring arise from its having a very dense atmosphere: and may not this atmosphere, in certain states, admit of the divisions of the eccentric ring being seen through it, though under other circumstances they remain invisible. With respect to the form of the edge of the inner ring of Saturn, next to the planet, the appearance under favourable circumstances is such as to leave no doubt in my mind of its being round.

The physical theory of the rings is curious as having been one of the points in which theory outstripped observation. Supposing the figure of Saturn a perfect spheroid, and the rings to be perfectly regular in figure, it is obvious that the attraction of the planet would never disturb the system, since it would draw all sides equally towards the centre. But let the slightest disturbance take place, that is, let the centre of the rings be thrown in the smallest degree out of that of the planet, and one side begins to draw more forcibly towards the planet than the other, and this effect must continue and become stronger, until at last the ring is thrown upon the planet at one point. Laplace showed that it was essential to the stability of this system that the centre of the rings, instead of being fixed in that of the planet, should describe a small orbit; that is, that the rings should have a slight oscillating motion to and from the planet combined with an oscillating motion of their planes; and recent observations have shown that such is the case. (Sir I. Herschel, "Astronomy," p. 294.)

The phenomena of the rings to an inhabitant of (say) the northern hemisphere of the planet must be as follows, when the sun is on the northern side of the equator, a parhelion arc must be visible, extending from horizon to horizon. At the equator, only the thickness of the rings will be visible, extending only to the horizon. When going from the equator towards the north pole, the arc will gradually rise and set farther south, but its meridional thickness will increase, and its greatest altitude will diminish. At about 40° north latitude, the lower arc will have become a thin, veiled segment of a disc, and the range of the upper becomes lower and lower until, at 60° or thereabouts, the higher arc will have become only a segment; and a few degrees more of north latitude will make it visible altogether. But in the south latitudes, the ring will not shine at all while the sun is north of its plane, and not even be a portion of its thickness; while those who are in the shade of the rings will not see the sun at all, sometimes for several years. For many days together, in certain latitudes, the only day will be the emergence of a part of the sun from the side of the rings.

To an inhabitant of the earth, the phenomena of the rings are as follows:—They are projected into an elliptical form, of which a portion is sometimes hidden behind the planet, when this is the case, the shadow of the planet is seen to pass over the ring. When the sun is high in the sky, when something leaves the plane of the rings, the latter appear to spread and the opening continues during a quarter of the Saturnian year; when the opening is widest, the longer diameter appears about double of the shorter one. The north or south of a part of the ring is seen, according as the sun is north or south of its plane.

SATURNALIA, a festival celebrated by the Romans in honour of the god Saturnus. [SATURNUS.] Accordine to some traditions, it had been celebrated by the Aborigines of Rome before the city was founded, and was ascribed to the fabulous king Janus, after the disappearance of Saturnus from the earth. Others said that it was instituted by the Pelasgi, or by the followers of Hercules, who had been left behind in Italy. (Macrobi., Sat. i., 7.) A festival celebrating the harvest and corn festival was celebrated at the feast of Saturn which was a festival of Saturn in a much later period; one of them ascribed it to king Tullus Hostialis, who, after a successful war against the Alban and Sabines, was said to have founded the temple during the festival of Saturn in A. 749. (Macrobi. sat. ii., 6.) According to Livy (ii. 21) and Dionysius (vi. ab initio) which refers it to a later time, ascribed the institution of the Saturnalia to consuls A. Sempronius and M. Minucius (497 B.C.). The Roman authorities do not agree as to the date on which Saturnalia should be observed, but it is ascribed to the Capitoline Festival. After this time the Saturnalia was celebrated at his altar at the Roman Forum prior to 497 B.C., yet the regular and perpcular celebration of the Saturnalia may not have been introduced before this time, though it was likely that the R吉利s were the first to institute the Saturnalia and was observed throughout Italy. In the Capitoline Festival the Saturnalia were celebrated on the 17th (Macrobi. sat. i., 10), and the people, being free of such merry-making, continued the festivities until the fifteenth, and even longer. This however was not an annual festival, but the celebration of the Saturnalia was before the month of January and had been instituted making many holidays (generally seven) at the season of the Saturnalia, though it was known that the festival of Saturn—night itself did not last more than one day. Augustus at some time added three more days, and Caligula and Claudius increased the number to five days. (Macrobi. sat. i., 10; Sueton. Cæs. 17; Dom. Cass. lxi., p. 739.)
The Saturnalia was a harvest festival and was held, as we have seen, at a time when all agricultural labors were over, and as at such a season every husbandman would naturally give himself and his servants a holiday, and offer his prayers to the god whose especial protection he solicited, so the Saturnalia were national festivals instituted with the sanction of an oracle. When the golden age of the reign of Saturnus there were no slaves, and the Saturnalia were intended to restore that happy state of things for a short time, by giving to servants and slaves a complete holiday. They were on this occasion allowed to appear in the degree of citizens, even sons of Saturnus. Some among the guests called upon other Satyrs, who were waited upon at their feasts by their masters, were free from every kind of service, and enjoyed the most perfect freedom of speech. Even criminals were sometimes restored to full confidence in their masters, and the right to Saturnus. The whole season was one of universal rejoicing for all the people of Rome, and the city resounded with the shouts, 'Io, Saturnalia! Io, bona Saturnalia!' Everybody ate and drank plentifully, and invited or visited his friends and relations. It was also customary for persons to make presents to one another on this occasion (Senec., Epist., 18; Sueton., Aug., 75), and clients presented their patrons with wax-candies. (Macrobi., Sat., 1, 7.; Varro, De Ling. Lat., iv., p. 19, Bipont.) Children generally received little figures, which they called sigilli saturnales; the name of the Saturnalia derived the name 'sigillaria.' During this festival all business, private as well as public, was suspended; no war was commenced, no battle was fought, and no punishment was inflicted on offenders. (Macrobi., Sat., 1. 10.)

The Greeks, who offered sacrifices to Saturn had their heads uncovered. The Greek writers, when speaking of the Roman Saturnalia, generally call the feast 'Kronis,' as they considered the two festivals as well as the day, the same in whatever parts of the empire they were held, Saturnus and Kronos, as identical. (Comp. Buttmann, Mythologus, ii., p. 52, &c.; Hartung, Die Religion der Römer, ii., p. 124, &c.)

SATURNUS, one of the principal divinities of the ancient Romans, was considered to be the protector of agriculture and of all civilization arising from it, whence he is generally represented with a sickle in his hand. His name probably contains the same element as the verb sero (sa), whence he was considered as the protecting divinity of all that was soon and planted, and as the god of plenty. The Italian legends represented him as having come from abroad to the shores of Italy, in the reign of Janus, by whom he was hospitably received. Notwithstanding this, Saturnus was always considered as the first king of the Aboignes, preceding even Maro (322 for the year 857), and the god was revered in his own name from his reign. (Virg., Aen., viii. 319; Auroul. Vict., De Orig. Gent. Rom., c. 1, &c.) He was said to have established a settlement on the Capitoline Hill, which from this circumstance and the place where it happened to have been founded, called Saturnia. The settlement itself, Saturnia, he now began to teach the Italians the art of cultivating the fields, and led them from their savage state to the peaceful occupations of civilized life, so that the whole land of Italy was called, after him, Saturnia, or the land of fruit. In agriculture he is said to have taught his subjects the use of manure (stereus), from which he derived the surnames of Stereucus, Stereucinus, and Stereuncius. (Macrobi., Sat., 1. 7.) His rule was so just and mild, that the age in which he reigned was afterwards described as the golden age of Italy. His wife, called Ops, was in aftertimes worshipped as the goddess of plenty. After the death of Saturnus, or rather after his disappearance from the world, he was raised to the rank of a god, and an altar was erected in Rome on the spot which was afterwards called the place near the hill of the Buttes, which was a long time called the Line of the Buttes. Consulting his worship at Rome, see SATURNIA.

The Greek writers and the later Romans, who were fond of identifying the deities of the two nations, by which they professed great confidence in his oracle, also ascribed Saturnus and Kronos as the same divinities. This opinion has been maintained with strong arguments by Buttmann, Mythologus, ii., 28, &c.; but Hartung, in his Die Relig. der Röm., ii., p. 123, more justly considers the two divinities as quite distinct, and Saturnus as an ancient national divinity of the Italians.

SATYR (Satyro, Satyr) is the name by which the antients designated a class of rustic deities, or Dionysian. Like the Paeans and Fauni, they were a kind of intermediate beings between men and animals, and the features which they had in common with the latter were chiefly derived from goats. They seem originally to have been a sort of rustic or sylvan gods, who were worshipped in the province of Peloponnesus. In the earlier works of antient art they are represented with rather long and pointed ears, bald-headed, and with little protruberances like horns behind their ears. In the later times the features assumed the animal form, as they were represented with goats' feet and horns. During the best period of Grecian art the human form is entire, and the animal character is expressed by a little tail at the lower part of the back, and by a conical head, which was placed still further to the animal form, as they were represented with goats' feet and horns. In the Greek drama the choruses at the Bacchic festivals originally assumed the character of satellites of Bacchus, that is, of satyrs, and it is expressly stated that Arion not only invented the tragic dithyramb, but introduced satyrs, whence, according to some accounts, the name tragedy, or goths' song, arose. But the chorus of the Ares tragedy, in the course of time, gradually lost its satyric character, and a distinct satyric drama was developed, which is described by the antients as a playful tragedy. The complete separation of this satyric drama from tragedy is ascribed to Pratinas of Phlius.

SAYYID. [BUREPADER]-alert.

SAUBERLAU [Goanevny]

SAULIE. [Côte d'Or]

SAUMAISE. [Sealsmus]

SAUMUR, a town in France, in the department of Maine-et-Loire, on the Loire, 182 miles from Paris by Orleans and Tours, 40 from Tours, and 29 from the capital of the department. Saumur is not noticed in history before the eighth century. In the eleventh century it belonged to the count of Blois, from whom it was taken by the Duke of Normandy in 1068, and from whom it passed to the house of Ponthieu, from whom it came to the house of Dreux, a branch of the house of Alençon, who had married a daughter of the last count of Blois. In 1229 it was ceded to the Dauphin, afterwards Henry III. It was placed, as security for some engagement, in the hands of Henri IV., who appointed Du Plessis-Mornay governor. Under the care of this eminent man, it rose to great prosperity; the Huguenots from all parts came to settle here; an academy was instituted, and commerce and the arts flourished. But the renovation of the edict of Nantes ruined the town: the population diminished from 25,000 to a fourth of that number; and it has with difficulty recovered so far as to number, in 1831, 9,957 for the town, and 16,183 for the commune. In the year 1853 there were 24,925 inhabitants in the commune. Saumur was taken in June, 1793 by the Vendéens, but they were forced, after a few days, to evacuate it. The town stands on the south bank of the Loire, 16 miles from Angers, on the north bank of the river, and is united to the town by a succession of bridges, of which that nearest Saumur is a noble structure nearly 900 feet long, with twelve arches. The river Thoue flows near the town on the south-west side, and joins the Loire a short distance below. Saumur is ill laid out, but the houses are pretty good and built of stone, and a considerable number of them may be called handsome; the new quartier of the town presents a fine appearance. There is a fine quay along the bank of the river. Among the public buildings are the church of St. Pierre, an ancient structure with a modern portal and a steepie remarkable for its height; the church of Notre-Dame-des-Ardillières; the town-hall, a Gothic building; the ancient castle, long used as a state prison, and now occupied as an arsenal; the theatre, elevated on arches which inclose a market-house, and handsome within; a fine range of military barracks with two riding-houses; the abbey of St. Florent; and the house formerly belonging to the abbots, restored by Napoleon. There are altogether in the town five bridges, four churches, two nunneries, a foundling and two other hospitals, a high school, a cavalry school, a public library, a theatre, and abundant public and private houses.

The townsman manufacture beads and other small ornamental wares in glass and enamel, and some copper and iron utensils: there are rope-walks, tan-yards, curriers' shops, and a refining-house for saltpetre. The glass and enamel works employ workmen to 600 persons of both
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sections and of all ages. Trade is carried on in corn, pulse, white wines of good repute, brandy, vinegar, hemp, flax, and plums. The market is well provided with to deal in the neighborhood: a considerable quantity is sent down the Loire to Nantes.

Saumur gave name to the district of Saumurais, a subdivision of Anjou. It was the birthplace of Madame Du Cierc.

SAUNDERSON, DR. NICHOLAS, an English scholar, particularly distinguished by the extent of his acquirements in classical learning and mathematics, under the disadvantages of having become blind from the small-pox at the age of twelve months. He was born in 1682, at Thurleston in Yorkshire, where his father held an appointment in the Exchequer; and at an early age he attended the free-school at Penrith, where he was taught the rudiments of the Latin and Greek languages. It is not stated by what means the youth obtained a knowledge of the forms of letters or numbers; and probably the first instruction which he received in literature and science was conveyed to his mind by oral information only.

The older Saunderson appears to have very soon observed the prolifection of his son for mathematical subjects, and, though nurtured with the duties of his appointment and the labours of his numerous works, the labour was enlarged to make him acquainted with all the science which it was in his power to communicate. This consisted merely of the first elements of numbers; and how these may be in the scale of knowledge, it will be the logician to conceive. Thus the pupil had to perform an arduous task to perform in enabling a pupil bereaved of sight to understand the combinations which enter even into the rules of common arithmetic. The benevolence of Mr. Richard West of Underbank and the late Mr. Hetherington, was in furtherance of the father's efforts; and these gentlemen perceiving the remarkable talent of the youth, then about 18 years of age, zealously exerted themselves to communicate to him in his instruction in algebra and geometry. By the kindness of his friends, Saunderson was enabled to spend a part of the time in the prosecution of his studies at an academy near Sheffield. From this time his progress became rapid. By the help of a retentive memory he succeeded in resolving the questions usually given as exercises in elementary works, and by the power of his genius he discovered methods of investigating propositions of considerable intricacy. His application to mathematics did not however prevent him from continuing to cultivate the study of classical literature; and it is stated that, besides making him familiar with Calvino, Virdelius, &c., he was enabled to understand the works of Ruelle, Archimedes, and Diophantus, when read to him in the original Greek.

Mr. Saunderson having decided on making an effort to establish himself at Cambridge, he went there in 1707. He resided in Christ's College, and immediately commenced a series of lectures on the Universal Arithmetic, the Optics, and the Principia of Newton. At this time, Mr. Whiston, the Lucasian professor of mathematics, was engaged in the delivery of lectures on the same subjects; and it is honourable to the benevolence of this gentleman, that he readily consented, at the request of the friends of the blind youth, that the latter should labour in the same field. The peculiar circumstances under which Newton was brought up and educated, as well as the encouragement of many pupils, and were the means of bringing him into a correspondence with Sir Isaac Newton, and into intimacy with the other great mathematicians of that time. When Whiston was removed from his chair, in 1711, queen Anne, &c., who was then the heiress of the nation, was induced to confer on Mr. Saunderson the degree of M.A. in order that he might become qualified to hold the place which had become vacant by the retirement of his friend. Saunderson, on being appointed, pronounced an inaugural discourse in Latin, and was elected a fellow of Christ's College to perform his annual duties. In 1725 he married a daughter of the Rev. Mr. Duckes, rector of Cotworth; and in 1729, when the king. George II., visited the university, he was, by the royal authority, made Doctor in Laws.

He continued to live in good health till near the end of his life. He died on the 19th April, 1739.

This extraordinary man composed, in writing, for the use of his pupils, several lectures on different subjects of natural philosophy, but they were never prepared, nor perhaps intended for publication. A valuable treatise which he had composed on the subject of algebra, appeared at Cambridge in 1740, in two vols. 4to.; and another on fluxions or fluxions, including a commentary on some parts of Newton's 'Principia,' came out in the year 1736.

In order to perform arithmetical computations, Saunderson used a square board divided by lines at one-tenth of an inch on the face, and parallel to the sides, into many small squares, each of which was pierced with nine holes in three parallel rows. Small pins were placed by the hand in these holes, and the value of a digit was represented by a circular hole, in each square, in which the pin was placed. A large head placed in the centre hole denoted zero, and one with a small head in the same hole indicated unity. A largeheaded pin in the centre, with a small-headed pin in the first hole of the first row, expressed the number 2; a large-headed pin in the centre, with a small-headed pin in the second hole of the first row, expressed the number 3; and so on. The process is described in the first volume of the 'Elements of Algebra,' and it is evident that by such means any number may be easily expressed, and any arithmetical operation performed. He used the same machine for representing geometrical diagrams; the pins being placed at the angles of the figure, and connected by threads which indicated the lines.

The usual forms in geometry, in which plane solid figures would assume when viewed by an eye placed in a given position, were remarkably correct and distinct; and we are informed by Dr. Reid (Inquiry into the Human Mind, ch. 61.1) that he was able, by these rules of perspective and the projections of the sphere. But the mental process in which this kind of information was probably peculiar to himself.

Dr. Reid states that once in conversation Saunderson acknowledged that he had found great difficulty in understanding Dr. Halley's demonstration, that the angle made by two circles of the sphere, was equal to the angle made by their projections on a plane, adding that when he considered the proposition in his own way he became aware of its truth.

Saunderson possessed in a high degree the senses of feeling and bearing. It is said that he could distinguish true from counterfeit Roman medals by the different degrees of their smoothness; and on one occasion, when some students were taking the sun's altitude in the garden of Christ's College, he so affected the sun upon his person, when very light clouds were passing over the disk of the luminary. When he entered a room, he could judge of its magnitude and of his distance from the walls by the sound of his footsteps. In his youth he had learned to read and write while on horseback: and after he became blind, he happened to give room to suppose that if he had applied himself to music, he might have excelled in it as a great deal as in mathematics.

Saunderson is described as having been extremely pious. He was imbued with a strong sense of the importance of truth, but he too often expressed his sentiments with a freedom which caused him to have many enemies. It may be said that he was better qualified to inspire admiration than to make or preserve friends. He is accused moreover of having been decidedly a sceptic in matters concerning religion.

SAURAT, a town in France, in the department of Ariege, not far from Tarascon. The inhabitants, who are 1725, 6, and 504 the commune, are engaged in the manufacture of fairs of leather, into which the ore is immediately converted. Charcoal is the fuel exclusively employed. The ore is obtained in the environs. There are two fairs in the year.

The SAURAT is subdivided into the term of which the large family of Lizards is generally designated. The animal forms more strictly included under it are those comprised under the genus Lacerta of Linnaeus (after deducting the Crocodilians and the Salamanders), and under the genus Lacerta is to be understood.

To these, Cuvier observes, the family Anguis might even be joined, because their osteology, especially that of the head, resembles the osseous structure of many of the Lizards.

In the large acceptance of the term Serpentes, the Pyracycles, Elasmosaurians, and Crocodiles were included.

The general arrangement of the term will be found under the article Reptilia.
Skelon.—If we take the living forms collected under the genera of Limnæus above mentioned, after eliminating from the genus Lacerta the groups above accepted, we shall find that all the animals have a similar structure of the skull, of the shoulder-blade, and of the os hyoïdes, or that they exhibit but slight variations in the composition and proportion of the parts, whilst they differ considerably from the Crocodiles and Tortoises, and still more from the Salaman- 
ders, as Cuvier, with his usual acuteness, has observed.

Skull.—Cuvier remarks that the common characters of this family, relatively to the osteology of the head, consist principally in the following points:

1. The four ordinary occipital bones form the ring which surrounds the encephalon backwards. The lateral occipital is not divided into two, as in the Tortoises. In front of the occipital bones are placed the sphenoid below, and the os petrosum laterally: the parietal covers the whole like a roof.

2. The sphenoid bone is visible throughout its inferior surface; the pterygoids, forming a simple continuation of the palatine bones, are prolonged to the internal border of the tympanic cavities (caenii), not touching the sphen- noid, except upon a lateral tuberosity of that bone, and not uniting together.

3. The sphenoid is prolonged forwards into a cartilag- inous stem upon which the interorbital partition is elevated; and in this last, various points of contiguity show them- selves, which belong to the ethmoid bone.

4. The bone analogous to the os petrosum, which is not hidden by the tympanic cavity, is extended outwards, and forms with the sphenoid and the occipital bones, the whole of the posterior part of the wall of the cranial cavity.

5. The anterior lateral wall of the cranial cavity, from the os petrosum to the interorbital partition, is membranous, and contains only on each side a bone of various configuration according to the species, the temporal and the ortibital ala.

6. An osseous stem rises from the upper border of the pterygoidian, where it is articulated in a fossa set up to the lateral or partial border, where it is attached by a ligament. Some anatomists," says Cuvier, have thought that they saw in it the analogue of the temporal ala, but it does not fulfill the functions of that process; others have named it tympanic, without even a perceptible motive, however dis- tant, for such a determination. One cannot even say that it is attached to the tympanic cavity, since it is in the cranium, and this wall has also sometimes in the thickness of its membranes a point of ossification which represents the true temporal ala. Cuvier then states that he would call this bone the corn. Its function is to sustain the vault of the cranial cavity, while the posterior is supported in front, because the orbital ala, the temporal ala, and the ethmoid bone are in great part membranous.

7. The lateral occipital bone has a part projecting out- wards, to which are united by their extremities the mas- toïdian, which is very much reduced, and the temporal bones; to this common union of the three bones is sus- pended the tympanic bone, which descends vertically to serve as a pedicle to the lower jaw. This bone, most fre- quently, is not attached, except to the anterior edge of the tympanum; and the rest of the contour of that membrane, as well as the posterior wall of the tympanic cavity, is car- tilaginous or even only simply membranous. The Eustachian tube is only a wide communication of the cavity of the postero-external part of the mouth, be- tween the extremity of the pterygoidian and the sphenoid. In the recent animal it answers to that part of the inside of the mouth near the articulation of the jaws, and the com- 

8. The transverse bone unites the pterygoidian bone to the jugal and the maxillary, as in the crocodile.

9. The palatine bones have no palatine laminae, or, at least, these laminae are not sufficiently extended to unite; and the posterior bony nostrils are great holes in the anterior part of the vault of the palate, beyond the maxillary bones, the vomers, and the palatine bones.

10. The extremities of the external bony nostrils are always separated in the skeleton by an intermaxillary ap- phyxis of the intermaxillary and sometimes of the maxillary bone.

For the rest, the division of the frontal bone into the principal, the anterior, and the posterior, and the other osteological circumstances, are as in the tortoises and croc- ilden and mammals. The principal frontal and the parietal bones may be demonstrated to be what they are by the same arguments as hold good in the crocodile and in the mammal. These elements form, in all cases, the bone of the anterior and posterior frontal bones, to the lacrymal bones, to the maxillary, and to the intermaxillary.

This constitution of the cranial of the Saurians, of Cuvier, which will also serve to explain that of birds, requires to be discussed and proved; and be, accordingly, addresses himself to the task.

He observes that there is no difficulty with regard to the occipital bones, which are four in number, as in the croco- 
idles and mammals. The principal frontal and the parietal bones may be demonstrated to be what they may be by the same arguments as hold good in the crocodile and in the mammal. These elements form, as we have seen, the bone of the anterior and posterior frontal bones, to the lacrymal bones, to the maxillary, and to the intermaxillary.

Thus, the nature of the os petrosum is determined, as in the crocodile and in the tortoise, by the position which it takes in the cranial cavity, especially the internal ear, and especially of the vestibular cavity, as well as by the notch for the exit of the nerve of the fifth pair.

The tympanic bone is nearly always reduced to a prismatic form, does not consolidate (see s'engrèn point) with the other bones, forms a part of the upper part of the head, and seems in the skeleton to be nothing but a pedicle for the lower jaw. But besides that the tympanic is always attached to it, it will be found on examination, in the dragon for instance, in the form of a drum, more or less hollow and with edges more reflected (revenans en avant) than in the tortoises themselves, having behind, as in the tortoises, a notch for the ossiculum auditus. The only difference is, that its cavity does not extend into it, such as in the crocodile, but it is still closed by the tympanum, whilst it is less closed by the edges than in the dragon. The skink also exhibits a striking analogy with the tortoises, inasmuch as that its temporal bone is covered by a lamina of the prefrontal bone, which unites with a great enlargement of the posterior bony nostrils, but the front of the nasal is more notched as in certain tortoises, but longer and narrower.

Thus, the maxillóid bone must be recognised as such, notwithstanding its extreme smallness. The common face, where it traverses the covering on the temporal bone, and, moreover, all the upper part of its orbit is covered by an expansion of the anterior frontal bone. The lower jaw of the Saurians is composed of six bones on each side, as in the crocodile and tortoise, but rather otherwise disposed, and producing a general form which is somewhat different; thus the cornoid apophysis projects very much, and is placed more forward; the lower angle has also a more forward position, and the dental part is shorter in proportion.

The dental row does not carry the teeth in alveoli or sockets, as in the crocodile, but they adhere to its internal surface. Its external surface is united backwards by a squamous suture to those of the complementary, the sur- rangular, and subangular portions. The part of the internal surface of the dental bone, which the opercular bone covers below and behind the teeth, varies much in extent in differ- ent subgenera. The opercular bone is united backwards to the internal surface of the complementary, the aricular, the articular and the subangular portions, and often to that of the surangular portion.

The complementary portion forms along the great cornoid apophysis, extends on the upper edge of the jaw in front of that apophysis, and descends backwards to the internal sur- face, where it traverses the surangular to unite itself with the articular portion.

The articular portion furnishes the glenoid facet, and the
aphysis, which is behind it, for the digastric muscle, and
has often even a small epiphysis at the extremity of this
aphysis; it advances to the internal surface, and even
sometimes along the inferior border to the opercular
bone.

The angular portion extends under the portion of the
lower border, which is between the lower angle on one side,
and the dental or opercular portion on the other. It is not
always that the angle of the jaw entirely belongs to this,
for the opercular bone sometimes comes to form it.

The angular portion occupies nearly the whole of the
external surface of the superior moiety between the four
other bones which are seen on this aspect. It forms the
upper border between the coronoid apophysis and the arthri-
tic portion.

For the entrance of the nerves and vessels there is a great
opening on the internal surface of the coronoid apophysis,
between the complementary, the surangular, and the arthri-
tic portions; and for their exit there are holes at the ex-
ternal surface of the dental bone and on the internal surface
of the opercular bone. The number and the position of these
holes vary according to the subgenera and species. The suran-
gular portion generally has two.

Such are the general dispositions, noticed by Cuvier,
combined with all the Saurians; and he proceeds to point out
the principal differences observable in the subgenera.

The same distinguished zoologist remarks that the os
hyoideus becomes important in proportion as we approach
the fishes; he observes that it is composed of five parts: viz., a body in the form of a flattened transverse
arch; two anterior and very long horns, which proceed to
attach themselves to the temporal bone below the mentus
antolarius, and of which the upper part is there soldered at
a very acute angle; a posterior horn which takes the plas-
tics of the temporal bone; whilst the lower part, for a long
time simply ligamentous, has below, at the point of junction
with the body, an osseous grain (cornu minus); and finally,
two cornua (cornua majora) supporting the larynx by means of a ligament which attaches to them the
thyroid cartilage.

The numerous variations which this body of the tongue
presents in the class Mammalia, depend on the form of its
body, on the more or less prompt soldering which takes
place with the posterior cornus, and on the form and the
proportion of the pieces of the anterior cornus. Very often
in the Ruminants, the Solipedes, and the Cetacea, the
body takes, in becoming soldered to the posterior cornus,
the form of a triangle; and it is generally ligamentous, es-
cially in the two first families, that it produces anteriorly a
more or less long apophysis; but the anterior horns are
always suspended to the cranium, and nearly without ex-
cept the apophysis of the Ophidiaceae and to the neigh-
bouring part of the tympanic cavity.

This suspension does not take place in those birds in
which the anterior horns run round the back of the cranium
(Woodpeckers; Trachyphylax); and are only there attached
by muscles and cellular substance.

The body of the tongue-bone is most frequently of a
rhomboidal form. To its posterior part is articulated or
soldered a slender unequal bone on which the larynx re-
poses, and which singly represents the two posterior cornus;
and to its anterior part another bone, sometimes double,
which penetrates into the tongue, and which Cuvier names
the lingual bone. The anterior horns consist generally of
only two pieces.

Cuvier then refers to a prior part of his work, in which he
had pointed out the simplicity of the os hyoideus in the cro-
codile, and the variety of that bone in different tortoises.
In the Saurians it offers some relations with that of the birds;
but its composition is more complex. It generally consists
of a simple body and two pairs of cornua, of which a third
is sometimes added. The body always gives off anteriorly a
slender stem, which is prolonged more or less into a carti-
lage which penetrates into the tongue. The anterior horns
are also sometimes double, and the posterior horns differently
directed according to the species. Without regard, as to the
third pair, they exist but rarely, and sometimes are
rather posterior productions of the body than particular
horns.

Cuvier then proceeds to notice the diversities in the dif-
ferent families, &c.; and he remarks that the os hyoideus
of the Saurians continues with little change to the Ophisauri,
the Orveta (Anaxis), and the Amphibia. In the two
former the anterior horn is nearly reduced to a membraneous
state; but the posterior one is well ossified. In the Am-
phibia, the second articulation of the anterior horn is re-
duced to a simple vestige. There is none in the third horn.
The os hyoideus in the true serpents is reduced to two long
bony elongated filaments, which, one directed forward to the
sole vestige of the body, a species of membrane, hardly dis-
cernible in those which are not very large.

The teeth in the true Saurians are not placed in sockets
their place is taken by the teeth which are lost or shed produced in the cavities of the old teeth; but the ge-
nerous germs of the teeth adhere to the external surface of
the dental bone without having any bony partitions between
them, and sometimes without being guarded on the internal
surface by a layer of bone; and even that bone is often so
are only separated from the cavity of the mouth by the gum.
The base is not divided into roots; but when the tooth grows,
the same phenomenon is manifested as is seen in fishes. The
gelatinous nucleus becomes ossified; it unites itself inti-
ately on one side to the bone of the jaw, while it contracts
on the other an intimate adherence with the tooth which it
has exuded; the tooth then appears like a prominence, an
apophysis of the jaw, only it is covered with enamel, whilst
the remainder is mucous, and is seen in all the Saurians.

The teeth are to be seen strie and little pores by which the
veins have penetrated or still penetrate into its internal cavity,
and which also mark the spots where the rupture will take
place when the tooth must yield up its place. The new
crown is formed within the gum, but in proportion as its
crown increases in growth, it often forms a nodule in the
base of the nearest tooth, where it is partially encroacned.
Then it is that one might believe that the new tooth is en-
closed in the old one, but it is never entirely enveloped in
it. But, continues Cuvier, in whatever manner the new
tooth comes, the time arrives when its increase entirely pushes
out the old tooth, producing on its ossified base a species of
neocron, which breaks off its adherence to the jaw and
causes it to fall out. This is not a rupture in some degree
of the most durable, and the most tenacious places; rather
fall before their successors have budded. (Ossissmes Fa-
mites.)

Professor Owen, in his valuable chapter on the 'Teeth of Sau-
rans' ("Bone Anatomy," pi. ii., p. 224, et seq.), commences
his inquiry with the Ophidiarian teeth, as the reptiles are
several genera of reptiles, which, like the true snakes, are
externally devoid of locomotive extremities, or have them
indicated only by minute rudiments, but are covered by
small uniform scales, and resemble the Ophidiaria more
than the Ophidians in their anatomical structure, especial-
lly in the fixed condition of the jaws, which cannot be
distinctly articulated, or rotated backwards and forwards upon
a moveable tympanic pedicle. These snake-lizards, he
adds, have always intermaxillary as well as maxillary
teeth.

In the Amphibiaeanians, Professor Owen remarks that
there are both pleurodont and acrodont species, as in the
Saurian; but the pleurodonts are the most numerous,
and have their teeth applied in a simple way, without
the advantages of an external alveolar wall. In Trigonognathos however the teeth are blended by their whole base with the alveolar
ridge, are so closely approximated that they cohere, and
are unequal, conical, subcompressed, and obtuse. The
intermaxillary teeth are in unequal number, the middle
zygos tooth being longer than the rest.

In Chirotes, Professor Owen found the teeth slightly
curved, simple, and nearly equal, with the exception of the
earliest sign of teeth, which are neither more pointed, nor
shorter, yet they are not quite equal, or similar, but
are small at first, but increase as they are placed back-
wards.

In Amphibians, the teeth are short and conical; five
are fixed to the intermaxillary bone, of which the middle
tooth is longest; five teeth are on each premaxillary bone,
and eight on each mandibular bone; the first tooth short,
the second and third longest.
The typical Blind-worms or Anguinae [Ouvat] have, according to the Professor, only maxillary teeth; the palatine teeth being absent. In *Anguina fragilis* [BLIND-WORM] the first five of the upper teeth on each side are small, with cutting edges, and are placed on the maxillaries; the next eight are much larger, pointed, and recurved, and are separated by intervals. In general form therefore, Mr. Owen observes, the teeth of the true Anguinae adhere to the Ophiodes. They are equal or nearly equal in shape and size, and in the *Acoontias* [JAYNEE SNAKE], they are conical, obtuse, and straight. In the subgenus *Lerista*, Ablepharus, *Hysteropus*, *Dibamus*, *Typhilitus*, and the rest of the family of Blind-worms, the teeth are deciduous, and in the *Paroptes* *Palosii* [SCELEFOUM], is furnished with sixteen teeth on each side of the upper jaw, and twelve (the latter in a continuous series) in the lower jaw. A median interval separates the two lateral series in the upper jaw. The anterior teeth in both jaws are deciduous; the posterior teeth have a hemispherical triturating crown. The palate is armed with small conical and simple teeth, which are arranged in one moderately long row on each side.

*Ophthalmus* is provided with a close-set row of simple teeth in both jaws, and Professor Owen observes that these glass-snakes very remarkably repeat a dental character observable in certain Batrachians, especially the Nects of the same continent to which the Anguinae belong; these are seen formed in the throat of the mouth, arranged in several rows, chiefly supported by the pterygoids, and in a small proportion by the palatine bones. The teeth composing this 'palatal pavement' are short and conical; the maxillary teeth are deciduous or are present in the same shape and size. The number of teeth amounts to twenty on each side of the upper jaw, and eighteen on each side of the lower jaw.

No palatal teeth have been detected in *Panodontactylus*, in which the maxillary teeth are slightly compressed with a triangular edge, and are conical and simple. The teeth are close set and equal.

*Ectoplopus* is similar in its dentition to *Panodontactylus*, with the exception of the inequality in the maxillary teeth, and their termination in a simple edge. The former lizards (*Luctera Monodonactyla*, *Shaw*; *Chamaeleuca*, *Dum.* et *Bib.*). these teeth are subcylindrical and obtusely pointed; and, as in the two preceding genera, there are no palatal teeth. In the heterodactyls *Chalca* [CICHELEUS] the maxillary teeth are slightly compressed, straight, and divided into two or three obtuse points. Those of the annulated Chalca are described as conical and terminating in a simple obtuse summit. In neither species are the teeth implanted in sockets, but applied to the roof of the mouth.

In *Zonurus griseus* there are about twenty equal, conical, or subcylindrical, obtuse teeth on each side.

The maxillary teeth of *Tricholobus* and *Scansophis* are conical; and the maxillary teeth are straight and subcylindrical. The obtuse sides of these teeth are on the base and a great part of the outer side, with the alveolar parapet of bone. Mr. Owen points out, in continuation, that in the young of *Uromastix* there are from two to four anterior or intermaxillary teeth, which subsequently become ankylosed together, so as to appear like one lobated tooth. In the lower jaw the crown of this complex tooth is received into a wide interspace between the two anterior teeth. The molar teeth are described as triangular or subcylindrical, with rather obtuse and subcompressed summit, approximately, and increasing in size as they pass forward.

In the common *Stelio*, Professor Owen found most of the teeth, sixteen or seventeen on each side, triangular, with a small cusp before and behind, and two larger conical teeth, like canines, at the anterior part of the upper jaw, and two maxillary bones. Two small conical teeth, which have no correspondents in the lower jaw, are supported by the intermaxillary bones.

The canines of the Dragon are proportionally longer in those of *Stelio*, but otherwise the dentition is the same.

There is a resemblance between the two most remarkable from *Agamae* (Trupelus) and the *Stelionae*, inasmuch as the former have two conical teeth longer than the rest, beginning in the lower jaw, and another pair in the upper jaw; but the *Agamae* have four small conical intermaxillary teeth, without corresponding teeth below. Seventeen triangular teeth were found to succeed the canines in the lower jaw, and fifteen in the upper jaw, in *Trupelus atro* *Agama orbij*

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The palate has no teeth in the short-footed Skinks (*Sphenops*, *Wagler*), and their maxillary teeth are conical, straight, pointed, smaller, and more numerous than in the common Skink. In the Galliwasp (*Gallinaea*) the jaws are armed with equal, close-set, simple, conical teeth, which are sometimes subcompressed at the crown. The palate is toothless. The teeth are compressed, and their crowns are wedge-shaped in most of the species of *Gongylus*, *Dum.* et *Bib.*. They are only subcompressed at the summit in the subgenus *Gongyloza*. In the ciliated Skink and its congeners (*Euprepetes*), the pterygoids are furnished with teeth, which are very numerous in the Golden Skink (*Euprepetes Cyprius*), each of whose pterygoids supports two rows of small, straight, strong, and perfect maxillary teeth resembling those of the other *Euprepetes*. In a large species of Skink figured by Cuvier, the maxillary teeth have expanded crowns with a dentated margin, but the pterygoid teeth are wanting.

In a genus of Australian Scincoid lizards (*Cyclodus*), there is, Professor Owen remarks, a difference from the rest of the tribe in the subhemispherical form of the teeth, which resemble tuberules, instead of more or less pointed cones, and the species manifest a corresponding difference in their habits and the nature of their food. The dentition of *Cyclodus nigroluteus* is accurately figured by Mr. Owen, in pl. 26, fig. 7, and the details, to which we refer the reader, for the description of which he is indebted. All the teeth are, he observes, "formed after the same plan, the base and outer margin to a shallow depression on the outer side of the external alveolar parapet. The germs of the successional teeth are developed at the inner side of the base from which they excavate, undermine, and displace in the usual manner." I have not seen any specimens of this genus which had the branches of the lower jaw anchylosed at the symphasis. The pterygoid bones present a rugous surface at the place where they ordinarily support the teeth.

In the *Chameleons*, the same author states that the teeth are conical, compressed, straight or low, the summit simple or terminating in three points, arranged in the same longitudinal line; and in most species, they gradually increase in size, and become wider apart as they are situated further back upon the jaws. Professor Owen further observes that the teeth are so completely confluent with the alveolar plate, as to appear, externally, when in place, to be mere processes of the border of the jaw; but, he remarks, their true nature is evident when viewed from the inner side of the jaw. The number of teeth vary in the species.

In the *Agamomians*, or *Agamid Lizards*, forming the genera *Uromastyx*, the dentition, which at first sight seems to consist of a merely notched or dentated margin of the jaw, resembles that of the Chameleons. These notches, or processes, are however true teeth, originally developed as alveolar processes, but after they have assumed their base and a great part of the outer side, with the alveolar parapet of bone. Mr. Owen points out, in continuation, that in the young of *Uromastix* there are from two to four anterior or intermaxillary teeth, which subsequently become ankylosed together, so as to appear like one lobated tooth. In the lower jaw the crown of this complex tooth is received into a wide interspace between the two anterior teeth. The molar teeth are described as triangular or subcylindrical, with rather obtuse and subcompressed summit, approximately, and increasing in size as they pass forward.

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culata, resembles the Trachini in its dentition, with the exception, that the molar teeth behind the canines are more conical.

In the common Calotes the inferior maxillary dental series is described as commencing with four simple conical teeth, and in the upper jaw with six of these last, Professor Owen remarks that the middle and smaller ones might pass for incisors, and the external ones for canines: behind these he describes a series of molar teeth with compressed triangular and tricuspid crowns, the median cusp being much the longest of the three; these teeth increase in size towards the back of the jaw.

In the Geckolurus [Greek] the teeth are more pointed, more slender, more equable, and more numerous than in the preceding group. The Professor remarks that the summa, or highest, is simple, and is the base to which the bicuspid, or bilaterally united, unequally soldered to the inner surface of an outer alveolar parapet. The number of the teeth varies very much in the different subgenera; but none of the Geckolurus has teeth on the roof of the mouth.

The Iguanidae [Javan] are next noticed by Professor Owen as characterised, like the preceding groups, by a short contractile tongue, slightly notched at its extremity, but, as he remarks, they are distinguished for the most part by having teeth on the pterygoid bone, and also by the complete accessory crowns. Out of the several species, the typical genera, the species of which subsist chiefly on vegetable substances. In most of the family the teeth are in a common shallow oblique alveolar groove, and are solidly embedded in the bone, and surrounded by excavations on the inner surface of the outer wall of the jaw.

The following genera are enumerated by MM. Duméril and Bibron as showing the pleurodont type of dentition, and as being also furnished with pterygoid teeth, viz.:--

* Xylochrysa, Urostrepsa, Mastor, Corvopleura, Euteles, Aplodistes, Amblyophtalma, Iguana, Metoposoma, and Cyclops.

The following genera are considered as showing the typical Iguanidae, among the Acrodontes, the maxillary teeth may, Professor Owen observes, be divided into anterior, larniary, and posterior molar teeth; and he states that no Iguanid lizard has teeth on the palatine bone.

The most strictly vegetable-feeding reptiles, says the Professor, are the true Iguana and the Amblyophtalma; yet the size of the teeth, their mode of implantation, and the limited motions of the jaws permit only an imperfect comparison of the food by these instruments; and these summits are rather chipped off than ground down by use. The appearance of abrasion is greatest in the posterior teeth; especially in the Iguana cornuta, in which the enamel is thicker than in the Iguana tuberculata, and make a nearer approach to the characteristics of that remarkable form of tooth which characterises the gigantic Iguanodon.

Before proceeding to describe the teeth of this extinct lizard, I shall offer a few observations on the microscopic structure of the teeth of the existing Iguanas. In both the common and horned species the teeth consist of a body of simple compact dentine, with the crown covered externally by a thin layer of enamel, and the fang with an increase of cementum. The dentine, viewed by transmitted light in a thin horizontal section, exhibits minute calcareous tubes in a clear substance, radiating from a simple conical pulp-cavity, which is widely open at the base of the tooth, and continues in a linear form into the crown of the tooth; the calcareous tubes at the base of the tooth proceed in an irregular sinuous course, at right angles to the axis of the tooth: above this part they spread outwards in a graceful curve, with the concavity turned towards the base of the tooth, and reach the summit of the tooth; they gradually incline towards it, and those from the apex extend in a straight line at an angle of 45°; the branches rise less regularly the nearer the main tube is to its origin from the pulp cavity. The diameter of the calcareous tubes is about an inch; their interstices are equal to those of three or four of their diameters. In general they do not divide until within a short distance from the periphery of the tooth, near which they subdivide frequently. The pulp-cavity in old teeth becomes occupied by a certain coarse bone, characterised by long irregularly shaped calcareous cells, and the interstices are filled in with a gelatinous substance, and reticulated tubes. Branches of the pulp-cavity are never continued in the form of medullary canals into the substance of the dentine in the existing Iguanas. The gums of the succedaneous teeth are developed from the mucous membrane covering the base of the roots, in the teeth of the base and in the upper jaw of the beaked Iguana. The base of the dentated crown is first formed; by its pressure it excites absorption of the base of the fixed tooth, and soon undermines it, and then occupies the recess in the alveolar parapet. After the crown is completed, the rest of the tooth forms a contracted and elongated fang, which at first is hollow, then becomes consolidated by ossification of the remaining pulp, and afterwards a second time excavated by the pressure of the

Professor Owen, after quoting Dr. Mantell and Rense Cuvier, with reference to the Iguanodon, observes that subsequent discovery by the former of a portion of the lower jaw of this extinct lizard confirmed the premonition of this respectable number of his readers. The Iguanodon approximately this gigantic species to the pleurodont section of the Iguanidae; whence, he remarks, it may be inferred that the teeth were nearly all uniform in size and shape, at least not divisible into lamellae and molar, as in the other orders of Iguanids. The lower jaw alluded to, which is now in the British Museum with the rest of Dr. Mantell's noble collection, shows that the Iguanodon differed from the Ceratodus sole in the only lateral adhesion of the teeth to an alveolar parapet.

Besides the opportunity of studying this fossil and the extensive series of detached teeth in the Mantellian collection in the British Museum, Professor Owen, having examined the private collections of Dr. Mantell and Mr. Dixon of Worthing, and having observed those gentlemen with the teeth of Iguanodon, had selected those prepared for microscopic examination, with the following results:

The teeth of the Iguanodon, though resembling closely those of the Iguana, do not present an exact magnified image of them, but differ in the greater relative thickness of the crown, its more complicated external surface, and, still more essentially, in a modification of the internal tuberculated structure, which results from the variation of every other known reptile. As in the Iguana, the base of the tooth is elongated, contracted, and subkydral; the crown expanded, and smoothly convex on the outer side; when first formed, it is acuminate, compressed, and elongated; it is, however, finally calcified, and a median longitudinal ridge, and coiled by a layer of cementum; but beyond this point the description of the tooth of the Iguanodon indicates characters peculiar to that genus. In most of the teeth that have hitherto been found these longitudinal ridges traverse the outer surface of the crown, one on each side of the median primitive ridge; these are separated from each other and from the serrated margins of the crown by wide and smooth longitudinal grooves. The relative width, size, and number of these grooves varies in different teeth; sometimes they present four or five longitudinal ridges, and the sides of the crown.

The marginal serrations, which at first sight appear to be simple notches, as in Iguana, present under a low magnifying power the forms of transverse ridges, themselves notched so as to resemble the mamillated margines of the horned plates or the limb of these grooves lead from the interstices of these notches upon the sides of the marginal ridges. These ridges or dentils are not extend beyond the expanded part of the crown; the longitudinal ridges are formed from the apex extending outwards, notches of the median ones, which do not extend to the tips of the tooth begins to assume its subkydral form. The crown first increases both in breadth and thickness; it then diminishes in breadth, but its thickness goes on increasing, till the middle and fully formed tooth the fang decreases every diameter, and sometimes tapers almost to a point. A fracture of such a tooth, figured by Professor Owen, shows that the pulp was not entirely

* * *
had continued open at the thickest part of the tooth. The more worn the edges of the crown, and the more worn away the enamel, it would appear, by many specimens, that the teeth were retained until nearly the whole of the crown had yielded to the daily abrasion. In these teeth however the deep excavation of the remaining flange plainly bespeaks the progress of the wear of the tooth. The natural evidence of this is seen in the worn-out grater. At the earlier stages of abrasion a sharp edge is maintained at the external part of the tooth by means of the enamel which covers that surface of the crown; the prominent ridges upon that surface give a sinuous curvature to the tooth, and the edges of the grater are jagged by the lateral serrations. [IGUANODON, vol. xi., p. 441.] The adaptation of this admirable dental instrument to the cropping and comminution of such tough vegetable food as the Clatharites and similar plants, which were found buried with the Iguanodon, is pointed out by Dr. Buckland, with his usual felicity of illustration, in his Bridgewater Treatises, vol. i., p. 246. When the crown is worn away beyond the enamel, it presents a broad and nearly horizontal grinding surface; and now another dental substance is brought into play by this surface; this is the ossified remnant of the pulp, which, being thinner than the surrounding dentine, forms a slight transverse ridge in the middle of the grinding surface: the pulp-cavity has exchanged the function of a tooth for that of a molar, and is reserved to give the final compression or comminution to the coarse divided vegetable matters. The marginal edge of the incisive condition of the tooth, and the median ridge of the molar stage, are marked by a fissure formed by the separation of the dentine into the texture of the dentine, by which it is rendered softer than in the existing Iguanodon and other reptiles, and more easily worn away: this is effected by an arrest of the calcifying process along certain cylindrical tracts of the pulp, which is thus continued in the form of median canals, analogous to those in the soft dentine of Megatherium's grinder, from the central cavity, at pretty regular intervals, parallel with the calciferous tubes near to the surface of the tooth. The medullary canals radiate from the internoes of the pulp cavity, and the calciferous tubes come out from the dentine forming the corresponding walls of the tooth: their diameter is 20th of an inch; they are separated by pretty regular intervals equal to from six to eight of their own diameters; they sometimes divide once in their course. Each of the calciferous tubes is surrounded by a clear space to the cavity was occupied in the section described by a substance of a deeper yellow colour than the rest of the dentine. The calciferous tubes present a diameter of 20th of an inch, with interstices equal to about four of their diameters. At this point the tubes are bent in strong undulations, but afterwards proceed in slight and regular primary curves, or in nearly straight lines to the periphery of the tooth. When viewed in a longitudinal section the caliciform cavity by which the calciferous tubes come out from the dentine are turned towards the base of the tooth: the lowest tubes are inclined towards the root, the rest have a general direction at right angles to the axis of the tooth; the few caliciform tubes, which proceed vertically to the apex, are soon worn away, and can be seen only in a section of the apical part of the crown of an incompletely developed tooth. The secondary undulations of each tooth are regular and very minute. The branches, both primary and secondary, of the caliciform tubes, are sent off from the concave side of the main undulation of the caliciform cavity, and ramify at certain parts of the tooth for their luxuous ramifications, anastomoses, and dilatations into minute caliciform cells, which take place along nearly parallel lines for a limited extent of the course of the main tubes. This modification more or less, is the more developed, minor degree, in producing that inequality of texture and of density in the dentine which renders the broad and thick tooth of the Iguanodon more efficient as a triturating instrument. The enamel which invests the harder dentine forms a cap, and is itself drawn out to a narrow circular dirty brown colour when viewed by transmitted light as in most other teeth; very minute and scarcely perceptible undulating fibres, running vertically to the surface of the tooth, is the only structure I have been able to detect in it. The soft dentine of the mouth in the contracted cavity of the completely formed tooth are converted into a dense but true osseous substance, characterised by minute elliptical radiated cells, whose long axis is parallel with the plane of the concentric lamellae, which surround the few and contracted medullary canals. Such is Professor Owen's elaborate and accurate account of his microscopic examination of the teeth of this giant of the Weald, which existed long before man was created; an examination which, as the Professor remarks, contributes to the perfection of the adaptation to the offices for which their more obvious characteristics had indicated them to be destined. He further appropriately observes, that if Dr. Buckland's reflections in his Bridgewater Treatises (vol. i., p. 249) were natural and characteristic of the latter reptile, the fine calciferous teeth of the diurnal organs of the Iguanodon, their truth and beauty become more manifest as our knowledge of the subject becomes more particular and exact. That knowledge we have given in Professor Owen's own words, as the clearest that could be used. A reference to the work itself, and the accurate and highly finished engravings which illustrate it, will leave the palaeontologist nothing to wish with regard to the dentition of the Iguanodon.

Professor Owen describes the fang of the tooth of Hydroodon as subconical, and perfectly smooth; the crown as expanded, compressed, slightly incurved, and with the narrow sides straight and converging at a slightly acute angle to the apex. In all the teeth which the Professor had seen, these sloping sides showed the effects of attrition, the enamel being worn away at the apex. The fang is described as consisting of a body of dentine covered by a thick coating of clear structureless enamel, and surrounding a small central column of true bone, consisting of the pulp and bone of the roots. The three parts of the tooth are characterised by the characters of the structure of the bone in the higher reptiles. The dentine differs, like that of existing Lacerodonts, from the dentine of the Iguanodon in the entire absence of the numerous medullary canals which form so striking a characteristic of the latter reptile. The main caliciform tubes are described as characterised by the slight degree of their primary inflections, and as continued in an unusually direct course from the pulp-cavity to the outer surface of the dentine at nearly right angles with that surface, but slightly curved on reaching the surface. Professor Owen says that these are stated to be chiefly remarkable for the large relative size of their secondary branches, which diverge from the trunks in irregular and broken curves, the concavity being always turned to the pulp-cavity. In most parts of the tooth, however the number of these branches obscuring even the thinnest sections. The ossified pulp exhibited the parallel concentric layers of the ossified matter surrounding slender medullary canals, interspersed with irregular, elliptical, radiated cells. The first group of a subfamily of the typical or squamate Saurians (Pleodont Lacerodonts of MM. Duméril and Bibron) the teeth are solid, or without any internal cavity, and are described as very firmly anched by their base to the common stem of the branches; the extremity of the tooth is slightly directed outwards. In the second group, or Calodontoidea of the authors, the teeth are excavated by a sort of canal, and are less firmly fixed to the jaws, being applied vertically, like piles or butresses, against the outer alveolar parapet, but not adhering by their base. The first group includes the genera Crocodilurus, Thoricitrus, Neuticitus, Appomera, Monitor, Ametia, Cnemidophora, Dicerodon, Acrocentrurus, and Centropyx; the second, Tachydromus, Triquersausaurus, Lacerta, Urophios, Varanodon, Eremotherium, Helicocercus, Podomammosa. For the disposition and number of the teeth on the maxillary, intermaxillary, and pterygoïd bones in the different genera, we must refer the reader to the work itself.

Professor Owen observes that one gigantic extinct species of Saurian Reptile [Mosaosaurus] has been found to agree with many of the existing species in the Lacerodont, Iguanian, Anolian, and Scincoid families, in having the pterygoïd bones armed with teeth; but, he remarks, the teeth combine the pleodont with the acrocentrur characters; and the skeleton indicates a special adaptation for swimming and marine life. The dentition is described as exquisitely exhibiting the acrocentrur character; the teeth being supported on expanded conical bases anched to the summit of the alveolar ridge of the jaws: no existing Saurian, observes the Professor, exactly parallels this mode of attachment of the teeth, either in regard to the breadth of the alveolar border, or in the relative size of the ossuous
cones to the teeth which they support. A shallow socket remains where the tooth and its supporting base are shed. The form of the tooth differs likewise from that of any existing Saurian hitherto observed; for they are pyramidal with the outer side nearly plane, or slightly convex, and separated by two sharp ridges from the remaining surface of the tooth, which forms a half cone. The teeth, all of which are slightly recurved and smooth on their peripheral surface, are implanted on the intermaxillary, maxillary, and palatine bones; the sockets placed on the pterygoids are much smaller. 'The superior maxillary bone,' continues Mr. Owen, 'in the great cranium preserved in the Paris museum—the most celebrated fossil of the genus—was furnished with a branch and teeth quite different. Calculations that the intermaxillary bone may have contained three teeth; meaning probably three on each side. The premaxillary element of the lower jaw supported fourteen teeth; the number of the teeth thus approximating to that which characterizes the Varanus Niloticus. They are arranged in a pretty close and regular series. There appear to have been eight teeth on each pterygoid bone.

In the mode and place of development of the successional teeth the Mosasaurus resembles the Iguana and most other Lizards. In the case of several of these genera, gomez of new teeth in various stages of growth are lodged in hollows of corresponding degrees of depth on the inner side of the bases of the adherent teeth, and have evidently owed the curvatures of their formation to the successive movements which originally covered those supporting cones of the teeth in place. The attention of Camper was particularly arrested by the observation of this fact, which appeared the more singular to him, as this mode of dental succession, which is common in reptiles and oosseous fishes, was not then known.'

Professor Owen, after quoting the passage from Camper bearing out the last proposition, thus continues: 'The crown consists of a single dense dentine, invested with a moderately thick coat of enamel; the expanded base is composed of a more irregular mass of dentine, which, by its progressive subdivision into vertical columnar processes, assumes a structure resembling that of true bone; this part is covered with a layer of cement, which is continued as an extremely thin coat upon the enamel. The pulp-cavity generally remains open at the middle of the base of the crown of the tooth; irregular processes of the cavity extend as medullary canals into the central base of the tooth; but no processes of the pulp-cavity are continued, as in the Iguanodon, into the substance of the coronal dentine. This substance consists, as in the Crocodile, of fine and close-set calcicubous tubules, arranged according to the usual law, and much resembling the structure of the calcicubous spar of the varian bone. The varian bone is made up of the Caecatus bone of the jaw, in which the root or base of the tooth is confluent. The gradual transition from the simple structure of the compact crown to the multifid dentine of the anchyloosed base of the tooth was not known to Cuvier; otherwise he could not have supposed that the crown and base of the tooth of the Mosasaurus were formed by vital processes of so dissimilar a nature as to forbid him considering them as parts of one and the same body, and had originally described the expanded base of the tooth of the Mosasaurus as the root of the tooth; but afterwards finding that the corresponding base became anchyloosed by ossification of the remains of the pulp with the jaw, he conceived that it was formed by vital processes, and as a part of the bone, to be an inorganic product and the result of excretion. The necessity under which Cuvier felt himself compelled to regard the crown and the base of the tooth of the Mosasaurus as two distinct parts, is at once banished by the recognition of the principle that the processes of calcification are essentially the same at every part of a tooth, whether it be in situ or anchored; and that they are modified only, as I have shown in my memoir on the formation of the teeth of the shark, according to the density of the part to be produced.'

A few vertebræ found in the English chalk-formations generally are not so typically Varanoidal as the Mosasaurus of Maastricht. Dr. Mantell, in his Wonders of Geology, notes the only teeth there found (Norfolk chalk) approaching in form to that genus, as belonging to an unknown reptile or sauroid fish. Professor Owen remarks that the portion of the skull of which the teeth are attached exhibits neither regularity of attachment as to leave no doubt of their near relationship, nor does he think it by any means improbable that this fragment of jaw and teeth may belong to the same species as the above-mentioned vertebræ. He conjectures that till this conjecture be refuted, the fossil may be indicated by the name of Leidum, from the smoothness of the teeth, which are about half the size of those of Mosasaurus Bif. manni, but differ in having their outer side as convex as the inner side; their laminae being more regular and semi-circular. The teeth of Geosaurus, which appears not to be happily named, inasmuch as the large eyes defended by broad scotic plates indicate, as Professor Owen observes, that the sea was its dwelling-place, resemble those of the large Plesiosaurus. The teeth are attached by a trenchant anterior and posterior edge, which likewise presents a fine and close dentition. A very fine fragment, we believe, the best known, is in the British Museum. Scanning its conjecture that Geosaurus might be a young form of Plesiosaurus, in their more nearly held position, Professor Owen remarks, manifests its affinity to that group as the absence of pterygoid teeth, and in the number of successional tooth-germs which may be observed at the same time behind the fixed and functional teeth. Independently of these characters, the Varanians must, observes the Professor, excite our interest from exhibiting in some species a form of tooth which most nearly resembles that which characterizes Megalosaurus and other very remarkable extinct terrestrial species of gigantic squamate Saurians, together with the remarkable series of little conical teeth, socketed and felted cavities, and bone, which Professor Owen proposes the name of Raphiosaurus, the teeth were aw-shaped, about three lines in length above the alveolar border, close-set, and in their structure not unlike the varian bone, and the alveolar groove, and their outer side attached to a well-developed external alveolar wall.

For the varieties in the form of the teeth presented by the existing Varanians we must refer to the work itself, observing only that Professor Owen points out the Helioderm, Varanus Niloticus, Varanus arnemius, V. Tyriensis, V. Bengalenia V. beutitidis, V. variegatus, and V. crocodilinus as the principal species which exhibit such varieties.

Professor Owen commences the family of the Thecodonts, extinct Saurians which exhibit a mode of fixation of the teeth different from the Acrodonts and Pleurodons, with the genus Thecodontosaurus, observing that these Thecodons, which in other parts of their organisation adhere to the squamate or Lacertine division of the order, have been implanted in sockets, either loosely or confluent with the bony walls of the cavity; and to this group the most ancient Saurians belong.

The Mosasaurus discovered by Dr. Riley and Mr. Stutchbury in the dolomite conglomerate at Redland near Bristol, is, as well as their Palaeosaurus, also there found by them, allied in the form of the teeth to the typical Varanian Monitors, but Professor Owen remarks that they appear to be more nearly related to the Teeth of the Plesiosaurus and of the Kengeanceosaurus. In this condition however, he observes, the Varanians make an approach in the shallow cavities containing the base of the teeth along the bottom of the bone. But in the
antient extinct *Thecodontosaurus* the sockets are deeper, and the inner alveolar wall is nearly as high as the outer one: the teeth present a close-set series, slightly decreasing in size towards the posterior part of the jaw. The number of teeth supposed to have been contained in each ramus of the lower jaw is supposed to have been twenty-one. 'These,' says Mr. Owen, 'are conical, rather slender, compressed and acutely pointed, with an anterior and posterior finely serrated, and somewhat oblique, ventral edge that bends over the apex of the tooth; the outer surface is more convex than the inner one: the apex is slightly recurved: the base of the crown contracts a little to form the flange, which is sub-cylindrical. The pulp-cavity remains open in the base of the crown. In *Thecodontosaurus* the teeth of the *Palaeosaurus* closely correspond with that of the teeth of the *Varanus, Monitor, and Megalosaurus*. The body of the tooth consists of compact dentine, in which the calceiform tubes diverge from the open pulp-cavity at nearly right angles to the surface of the tooth; they form a slight curve at their origin, with the concavity directed towards the base of the tooth, then proceed straight, and at the periphery bend upwards in the contrary direction. The diameter of the calceiform tube is 1/6 of an inch. The crown of the tooth is invested with a simple cost of enamel.'

This examination, as Professor Owen remarks, satisfactorily establishes the distinction between the Saurian of the Bristol conglomerate and the reptiles of the new red-sandstone beds of the Jurassic system. It is the generic name of *Labyrinthodon*.[Salaman,

1. One of the two teeth of *Palaeosaurus* found by Dr. Riley and Mr. Stutchbury is compressed and pointed, with opposite traces of external and internal sutures; one is nearly double the length of the other, the latter being equal to greater than its length; this ascribe to a species which they name *Palaeosaurus platyodon*: the other they refer to a species designated by them *P. cylindrodon*. The crown of *P. platyodon* measured nine lines in length and five lines in breadth; its diameter is about one-third, its thickness one-eighth, and its mesial diameter 1/6 of an inch. The portion of the tooth of *P. cylindrodon* shows a subcompressed crown traversed by two opposite finely-serrated ridges, and is five lines long and two lines broad.

2. The genus *Cladiodon* (Owen) derives great interest from having been referred to the same red-sandstone (Keuper?) at Warwick and Leamington as contained the remains of *Labyrinthodon*. 'In their compressed form,' says Professor Owen, 'anterior and posterior serrated edges, sharp points, and microscopic structure, these teeth agree with those of the Saurian reptiles of the Bristol conglomerate. In their breadth, as compared with their length and thickness, they are intermediate between the *Thecodon-<t>osa</t>rus and the *Palaeosaurus platyodon*; they are also larger and more compact than the enamel, cement and preform characteristic of the teeth of the *Megalosaurus*. From these teeth however they differ in their greater degree of compression, and in a slight concretion of the base of the crown. I propose therefore to illustrate the genus, of which, as I have already said, the body of the tooth is composed, and for the species from the Warwickshire sandstone the name of *Cladiodon lloydii*, in testimony of the friendly aid of Dr. Lloyd of Leamington, to whose exertions I owe the materials for the description of the teeth of the present genus, and the still more remarkable ones of the British species of *Labyrinthodon*, with which the teeth of the *Cladiodon* are associated.'

Professor Owen retains the name of *Protosaurus* for the species of the *Protosaurus* found in the smaller transverse fissures, and the *P. communis* for the larger fissures in the rocks of Thuringia, which, he observes, like the dolomitic breccia near Bristol, rank as the oldest member of the new red-sandstone. Spener first described it as a sort of crocodile. ([Miscellanea Berolinensia, 1710.]) Curier, after elaborate investigations, which he published in the *Annalen der Naturwissenschaf t*, and *Tupinambis*, and Hermann von Meyer gave it the name of *Protosaurus Speneri*. The name is retained by Professor Owen, because the species in question actually differs from the existing *Monitors* and other *Lacertians* by the same characteristics. In *Thecodonosaurus* the teeth are of the implantation of the teeth in distinct sockets. 'Of these sockets, remark Mr. Owen, 'the dislocated ramus of the lower jaw in Spener's specimen exhibits fourteen, which are of a square shape, and the angles rounded off, close-set, and set at an acute angle. The teeth, of which eighteen may be counted in the upper jaw, are relatively longer, more slender, and more cylindrical than in the *Thecodon*; they are more or less broken; the most perfect of them measure three lines in length, and two-thirds of a line across the base; they are of a jet-black colour, and, being imbedded in a dark matrix, have not enabled me to determine whether the *Protosaurus*, like the equally ancient species of the Bristol conglomerate, had the teeth armed with serrated ridges. Professor Owen adds in a note, that besides the *Thecodonosaurus* type of dentition, the *Protosaurus* differs from all recent Saurians, and resembles the *Pterodactyl* in the great relative size of the tooth, the peculiarity of the structure of the bone of the apex of the spine; it differs from all reptiles, except the extinct *Rachosaurus*, in the bifurcate superior spines of the caudal vertebrae.

After observing that the compressed varian form of teeth, with transverse and finely denated margins, which characterised the ancient *Palaeosaurus* and *Cladiodon*, is continued in the comparatively more recent and gigantic *Megalosaurus*, and quoting Dr. Buckland's graphic description of the external form and removal of the teeth (Bridgewater Treatise, vol. i., p. 237), Professor Owen informs us that they consist of a central body of dentine, with an investment of enamel upon the crown, and of cement over all, but thickest upon the flange. The marginal serrations are, he states, formed almost entirely by the enamel; and when slightly magnified, are seen to be rounded and separated by slight basal grooves: the smooth and polished enamel upon the sides of the crown presents a finely wrinkled appearance, and the remains of the pulp are converted into a coarse bony tissue. The enamel of the dentine he describes as consisting of extremely fine and close-set calceiform tubes, without admixture of medullary canals, radiating from the pulp-cavity at right angles with the tooth; the external curvature corresponding with those of the calceiform tubes of the monitor's tooth, but less marked, so that the tubes appear straighter. Their diameter was found to be 1/6 of an inch, with interspaces varying between two and three lines that diameter; the number of minute secondary branches sent off into the intermediate substance is described as being very great. These secondary branches were seen to proceed at acute angles from the primary tubes, and the divisions of the same became very fine. In the structure of the dentine, the terminal branches dilating into or insinuating, with a stratum of calceiform cells which separates the dentine from the enamel. 'The highly organised nature of a tooth,' says Professor Owen, 'ascends in his observations on the teeth of this enormous extinct carnivorous interrestrial lizard, is well illustrated in this example of one of the simplest of Saurian teeth, in which, in addition to the tubular and cellular modification of the dentine, there is a marked transversal character.'

The dentition of the *Megalosaurus*, besides exemplifying on a larger scale the mechanical advantages of the varian form of tooth, exhibits an interesting transitional character between the squamato- and loricato types of Saurians, the external longitudinal strig of the crown being more developed than the internal; the exträr longitudinal strig of the crown of the tooth as being sharper and more elevated, and the enamel between the striae as roughened by irregular linear risings; whilst the teeth of the *Pterodactylus*, an extinct reptile, also of
gigantic dimensions, from the oolitic beds at Caen, has, according to the single tooth referred to that species, a more compressed crown than the teeth of *Thasmatosaurus*; the striae are also described as wider apart, and the two diametral axes as developed into ridges which extend to the apex of the tooth.

Professor Owen had not, when he published the second part of his 'Odontography,' enjoyed the opportunity of examining the microscopical structure of an undoubted tooth of a *Pterodactylus*; but the dentine has been described by Cuvier as presenting nothing equivocal, the teeth being simple, conical, and nearly alike, as in the crocodiles, the monitor, and other lizards. Professor Owen remarks that the disposition of the tooth in different species is different and that the apparent implantation in distinct sockets, are characters in which the Pterodactyls approximate to the extinct Saurian genera *Thecodon*, *Megalosaurus*, *Plesiosaurus*, and the Crocodilians. After describing the relative size of the teeth of different species, Professor Owen observes that those figured in his plate 63 A., fig. 7, are referred by Dr. Buckland to the large species of *Pterodactylus* (Pter. Macronyx) discovered by the latter at Lyme Regis; but Professor Owen remarks that though they are implanted in the same manner as the larger species, the sockets, in the breadth and shortness, lateral compression, and trenchant anterior and posterior margins of the protruded crowns, they much more closely resemble the teeth of certain Smoother fishes, which are similarly implanted in their jaws; a parallel allusion is made to the observation that the jaw of a Pterodactyl from the Isis at Banks, which he refers to the species *Macronyx*, contains the sockets of only fourteen teeth, whilst the fragment of jaw with the sphenothem of the teeth shows that the teeth themselves contained a much greater number. After noticing that some portions of the skeleton of a large Pterodactyl have been discovered by Dr. Buckland in the oolite at Stonesfield, Professor Owen goes on to state that a few teeth are in the same position on the back of Enniaskillen bear the same proportion to these bones as do the teeth of *Pter. crassinotris* to its skeleton; they are, he informs us, long, slender, conical, slightly curved, and sharp-pointed; their base is smooth, the enamelled crown is united with the root by undulation, in the upper jaw on a longitudinal line on the convex side of the tooth. These teeth vary from nine to fourteen lines in length, and are one line or one line and a half across the base.

In noticing the teeth of the *Enniskilliens*, Professor Owen says that those of the Ichthyosaurus [Ichtyosaurus] have a simple, more or less acutely conical form, with a long and usually expanded or ventricose base or implanted fan, and that they are confined to the intermaxillary, maxillary, and pterygoid bones, on which they are regularly placed in parallel close and uninterrupted series, and are nearly of equal size. They consist, he informs us, of a body of unvascular dentine, invested at the base by a thick layer of cement, and at the crown by a layer of enamel, which is itself covered by a crust; the pulp cavity is more or less occupied, in fully-formed teeth, by a coarse bone. He observes that the external surface of the tooth is marked by longitudinal impressions and ridges, but the teeth vary both as to outward sculpture and general form in the different species, for which differences, as well as their relative numbers, we refer to the work itself. The following is the result of Professor Owen's microscopic investigation of the teeth of Ichthyosaurus Platypodon and *Intermedius*:

- The dentine has the same simple compact and the teeth of extinct ichthyosaurs are numerous.

The calcareous tubers present a diameter of an inch, with interspaces of an inch. They radiate from the pulp-cavity, and from a line continued from its upper end to near the apex of the tooth, according towards the periphery of the tooth; they describe their origin a graceful curve, the concavity of which is directed towards the base of the tooth, and then proceed in straight lines at right angles to the periphery of the tooth. The striae of the tubercule are oblique and undulation, in the tubes more regular, more numerous, and more marked than in the crocodile's tooth; the tubes divide dichotomously many times during their course, and send off lateral branches obliquely into the clear intermediate substance, and principally towards the base of the tooth.

The inner striae of the teeth become less regular, appear to decussate and communicate, at their extremities, either directly with one another, by insinuating loops, or through the minute minute cells.

- The enamel is a clear dense substance, presenting thin tracces of a fibrous structure, the lines being vertical to the surface of the tooth.

- The coronal cement appears only as a line of substance more opaque than the enamel which it invests; it increases in thickness at the base of the tooth, where the radiated corpuscles or cells that characterise its structure are very numerous; the cement is immersed at each of the bases of the grooves, in the form of a short, straight, and simple vertical fold, into the substance of the dentine. The peripheral portion of the basal dentine is thus divided, to the external parts, in plate 64 B., fig. 3, into the proper thickness of the processes; they become of the pulp-cavity radiate to their bases, becoming there the centres of divergence of as many vessels of calcaceous tubes, which obey in their course the usual law of variability to the external surface of the dentine. This return can be seen again in the transverse sections of the base of the tooth; its correspondence with that of the apex of the crown of the teeth of the Labyrinthodon will be obvious on comparing fig. 3, pl. 64 B, with fig. 1, pl. 63 B. and, as has been already stated, it gave the key to the transition to the Saurophora and Anguinarium, in which the blending of dentine and cement, which was first observed in the great task of the Labyrinthodon Jaegeri.

- The remains of the pulp, after the formation of the quantity of dentine, became converted, as in the pleurosaurus, and we believe in the crocodile, into cavities in the cancellous bone and spongy bone, but it continues open at the crown after the basal part of the tooth is thus consolidated, as shown in the longitudinal section (pl. 73, fig. 8), whereas is the pulp-cavity, filled with a crystalline mass, p. 73, fig. 9; p. 73, fig. 9. The radiated calcarous corpuscles are very conspicuous in both this bone and the external cement.

The chief peculiarity of the dental system of the Ichthyosaurus is its implantation, composition of the teeth; instead of being anchored to the bottom and side of a continuous shallow groove, as in most Lacertia, or implanted in distinct sockets, as in the Thecodon, *Megalosaurus*, *Pterodactylus*, they are lodged loosely in a long and dense tunnelous furrow, and connected by slight ridges, extending between the teeth, along the sides and bottom of the furrow (pl. 73, fig. 9), and by the gum and the organous membranes continued into the groove and upon the base of the tooth.

The germs of the new teeth are developed at the inner side of the base of the old ones. Mr. Conybeare has given a figure of a transverse section across the jaw-bone (reproduced at pl. 73, fig. 7), in which the new tooth (c) has penetrated the osseous substance of the base of the old (b), and entered the remains of the pulp-cavity, which has continued open in the crown of the tooth (a).

From the circumstance of the consolidation of the base of the teeth in the Ichthyosaurus, Mr. Conybeare infers that the teeth remained longer in the mouth of the crocodiles; but the analogy of other Saurians, and the observation of the two new teeth at successive stages of formation, at the base of an old tooth, prove that the succession of new sets of teeth was repeated more than twice, though probably not so frequently as in the crocodile.

The same author describes the teeth of the *Plesiosaurus* as conical, long, slender, and sharp-pointed, appearing to retain their internal cavity, as in the teeth of a crocodile; and the same remark applies to their general form. Their summit is convex, and the tube becomes more extensive, as in the teeth of the Ichthyosaurus, the Plesiosaurus, he observes, the Professor, approaches to the crocodilian type, and the affinity, he adds, is likewise manifested in the unequal use of the teeth, and the development of some of the anterior ones into large tusks. The teeth, he concludes, are composed, like those of the Ichthyosaurus, of a body of hard and simple dentine, covered at the crown by a coat of enamel and at the base by a coat of cement; but the...
matter is relatively thinner than in *Ichthyosaurus*, and is not inflected into the substance of the dentine. The crown is characterised by well-defined, narrow, elevated longitudinal ridges, terminating abruptly at different distances from the apex, to which however Professor Owen states they are not of some of them extend. The callosigenous tubercles in their general outline differ from those of the great teeth; of the other parts of the dentition, the apices of the tubes at their origin is given by Mr. Hatch. The final stages are counted from the interproximal spaces were found to equal five or six of their diameters; the secondary undulations were relatively wider than in the *Ichthyosaurus*, and the secondary branches longitudinally divided, and divided into small sub-branches, which run through many of the series, after a slight divergence, proceeding in the same parallel line with each other and with the main stem. The finer secondary branches divided into extremely minute cells along tracts which ran parallel with the contour of the tooth itself, and occasioned the apparent alternation of opaque and clear layers observable in the section by transmitted light. The enamel presented the same fine fibrous structure as that of the *Ichthyosaurus*, but the mode of succession to the tooth, which is characteristic of the Plesiosaurus, shows that the teeth of the Plesiosaurus make in their posterior pulp-cavity, there is not more than a single successional tooth in progress of development at the base of the tooth in use at any period, and that the dentition, therefore, differs from that of the crocodile, inasmuch as the new tooth, instead of emerging from the pulp-cavity of the old tooth, or even from the same socket, protrudes its apex through a distinct foramen at the inner side of the alveolar bone of the Plesiosaurus. 

Professor Owen proposes the subgeneric name of *Plesiosauroidea* for a gigantic extinct reptile whose remains have been found in the Kimmeridge clay. The teeth are described as differing from those of *Plesiosaurus* in their greater relative thickness as compared with their length, and in the subtriangular shape of their crown. The outer side is slightly convex, somewhat more concave and flattened surface alone being smooth. The long fang of the perfect tooth at once removes it from the *Aerocodon* and allies it with the *Thecodontosaurus*, among which it approaches nearest, in the superficial markings of the crown, to *Plesiosaurus*. The teeth are so modified that the peculiarly elongated portion of this part of the crown, which characterises the typical *Plesiosaurus*, is exchanged for one that much more nearly approaches the opposite condition of the cervical region in the *Ichthyosaurus*; thus presenting the condition of the *Plesiosaurus* combined with the more crocodilian proportions of the teeth of this *Plesiosauroidea*, of which a fine specimen (*Plesiosaurus brachyderius*, Owen) from Market-Raisin is preserved in Dr. Buckland's collection at Oxford, consisting of the expanded part of the fang a narrow elliptic transverse section. In a tooth of the present species, six inches and a half in length, from the Kimmeridge clay at Shottover, the diameter of the persistent pulpar is thirty lines, three inches and a half, and the flattened surface is not concave, but marked with minute sharp wrinkled ridges, and the ridged surfaces which stood at right angles to the preceding, was traversed by eleven well-marked linear ridges, of unequal length, separated by smooth interstices. The teeth of this third surface, which formed an acute angle with the smooth outer surface, was traversed by twelve ridges. These ridges on the inner surfaces of the tooth slightly incline towards the rounded angle dividing these surfaces; they terminate abruptly; some cease half way from the apex of the crown; about ten are continued to within half an inch of the apex, which is smooth; the two ridges which divide the flat or smooth side from the ridged surfaces of the tooth are alone continued to the subapex of the tooth. The teeth of the Plesiosaurus present varieties of form as well as of size; the round off of the angle between the ridged surfaces has been already alluded to; the smooth outer surface is sometimes so convex, that the transverse sections of the tooth may resemble those of the crocodile. The teeth of the Plesiosaurus are slightly bent inwards and backwards, but the smaller posterior teeth are most recurved, and have the sharpest apex; in the crown of these teeth, also, the ordinary rounded or elliptical form of the one is retained, but the distinction of the smooth external surface and the ridged internal surfaces of the crown of the tooth is retained, and would suffice to characterise any of these teeth if found detached. The teeth of the Plesiosaurus consist, like those of the *Plesiosaurus* and *Crocodile*, of a central body of compact dentine, with a coronal investment of enamel, and a general covering of cement, of extreme tenuity upon the crown, but thicker upon the base of the tooth. The dentine consists of fine callosigenous tubercles, without admixture of medullary canals; the arrangement, division.
secondary undulations, and branches of the calcareous tubes correspond so closely with those of the teeth of the Placodonta as to render a particular description of them unnecessary.

'The germs of the successional teeth are developed at the inner side of the bases of the old teeth, but do not penetrate these teeth; the spicules of the new teeth make their appearance through the enamel of the teeth already existing, and generally at the interspace of the sockets of the old teeth. Here therefore, as perhaps also in the Placodonta, the growing teeth may be included in closed recesses of the ossous substance, and emerge through tracts distant from the sockets of their predecessors; but this is an exceptional condition of the reproduction of the teeth in Reptiles.'

For the interesting details of the dentition of the Crocodilians [Crocodyli], we must refer to the work itself—one of the most erudite and comprehensive on the natural history of this class ever written by any of the most distinguished zoologists, but by a gentleman that has not appeared; and the reader will now have before him a general review, collected therefrom, of the various modifications of the teeth in the whole of the Reptilia, which term is to be generally understood to include the orders, species, and genera of the Reptilia, and the爬虫类动物, that have been here described.

We now have to examine the other parts of the skeleton of the Saurians in the more restricted sense mentioned towards the commencement of this article. That of the Eno- liseisaurus is noticed in the articles Ichthyosaurus and Plesiosaurus. That of the Crocodyli is that of the Crocodilia; and we shall find, as in other departments of the animal kingdom, a wonderful adaptation of the organism to the progress and habits of life of the animals. In the extinct Placodonta, we have, more especially in the anterior part of the body, a modification of the bones, to enable the animal to move through the air with a true flight. In the great mass of the terrestrial Saurians, the bones of the extremities are elongated, to facilitate progression on the earth, as trees on the ground; the Gavials, smooth walled and ceilings. When we come to the aquatic groups, we have in the Crocodilians a more compact form of the bones of the hand and foot, but still adapted to occasional progression on land, till at last, in the Bailer, these bones are entirely submersible, the bodies of the extremities become more paddle-like to row the body through the water, like those of the tortoises among the Reptiles, and of the seals and whales (in the latter as far as the anterior extremities are concerned) among the Mammiferous animals.

Cuvier remarks that the study of the vertebrae of the living Saurians is highly necessary, in order to a recognition of the numerous fossil bones belonging to this family, and he has succeeded in describing those of the Monitor in a very acceptable manner:—The vertebrae of the Monitor is a ring composed of three pieces; two upper ones united to each other at the dorsal part, notched in front and behind for the nerves, and one lower piece. The anterior surface of the axis (dentata), or rather of that portion of the vertebra analogous to the ring of the atlas and fuses nearly half its breadth, leaving always, in front, a concavity for the condyle of the head. Below, on the junction of the atlas, of the odontoid, and of the body of the axis, is a triangular piece which gives off a pointed hook directed backwards. The axis is compressed; its anular part takes, above, the form of a longitudinal pointed crest; its anterior articular facets have their plane turned outwards; the posterior ones have them downwards; the body terminates in a transverse convexity of a kidney-shaped; each of its lateral surfaces is a small and slightly projecting crest, which has, towards its anterior third, a small point; below, there is a crest, under the posterior part, which is enlarged backwards. The sutures which distinguish the border of the bone, which is nearly round, are not clearly marked, and there is a small margin about the bone, the respective length and width of their apophyses. The Iguana has the spinous processes of its dorsal vertebrae less lofty, and cut, as it were, more obliquely. The bodies of its caudal vertebrae are more elongated, so that the spinous processes decrease more rapidly. The Basilisks have nearly the characters of the Iguana, but their dorsal spinous processes are high and narrow, as well as those of a part of their tail. The Agamas have also the dorsal spinous processes high and strong, and elongated, but not of the Basilisks; they have them low. In the Basilisks they are tolerably high, but directed somewhat obliquely backwards.

Cuvier considers it a very interesting fact that a great part of the caudal vertebrae of the ordinary lizards are divided in their middle vertebrae, which proceeds very
easily, even much more easily than the vertebræ at the point of their articulation, and this for the simple reason that the articulation is complicated, formed by many apophyses, and strengthened by ligaments, whilst the solution of continuity of which he speaks is only retained by the perios- tenium and the surrounding tendons. It is probably on account of this that Cuvier has spoken so easily. Cuvier further states that he has observed this pecu- liarity in *Leiurus* and the *Anodistes*, and he is of opinion that vestiges of it would probably be found in all the species which are related in a single principal point of structure. Every one knows, adds Cuvier, that the tail shoots out again after having been broken, but neither the skeleton nor its integumentæ are, in that case, the same as before the rupture. The scales of the skin are generally small, without ridges or spines, and they may vary in contrary qualities in the original tail; and internally, instead of the numerous vertebræ, with all their apparatus of apo- physeis and ligaments, there is nothing but a long cartilagi- nous cone of one piece, which only presents annular wrink- les, numerous indeed, but scarcely at all elevated.

The *rubes* of the *Saurians* are slender, round, and the an- terior ones only have the costal head slightly enlarged and compressed. Cuvier had never seen any of them with a divided outer edge, but this is all the less surprising. The anterior ribs of the *Monitors* are a little more widened in the upper part than those of other *Saurians*. Instead of those simply vertical ribs which are seen in the crocodile, many subgenera, especially in the *Polydrihri, Anoletes*, and *Chelydridæ*, only one or two ribs exist which have others which unite mutually with their corresponding ribs, and thus surround the abdomen with entire circles.

The *sternum* of the *Saurians*, taken together with their *shoulders* forms, says Cuvier, a kind of curvass for the heart and the liver, and the two are pierced by no less than five crocodiles, and formed upon a plan very different from that of the tortoises. It consists essentially of a long, narrow, compressed bone, which gives off anteriorly two branches di- rected inward, one of which, in a species of the crocodile, bears others which unite mutually with their corresponding ribs, and thus surround the abdomen with entire circles.

The *posterior part* of the *serrate* of the rib, which has no sides forward and backward, and which often shows traces of a longitudinal division into two portions. Its interior sides are continued with the edges of the anterior part of the bone, but in dιvαριατικον the right and left. They are sometimes ossi- fied, particularly their edge, which has a groove, in order to give a ligament to attach the coracoid bone. The posterior sides of the *rhomboidal cartilage* serve for the insertion of the false ribs. So far there is no great difference in this part of the organization from that of the *Turtles*. The interior part of the *viviparous* differs from the *oviparous*. The coracoid bone of the other side, *Cuvier* observes that we should remark that in this singular crossing, which is to be found even in the lowest *Batracians*, it is generally the cartilage of the right side which passes to that of the left. There is a joint which is preserved for the vessels of the neck of the bone, between its apophyses and its *serrate* cavity. The apophyses, moreover, which proceed to join the demicircle or cartilaginous disk, leave one or two oval *apertures* between them, which is the *serrate* and, as says Cuvier, all *viviparous* *cartilaginous demicircles* acquire consistence and firmness by age, though not the hardness of the other bones. It hardens by the *accumulation* of small calcareous grains, as is the case with the bones of the *viviparous* *Turtles*. It is to this, ob- serves Cuvier, that the bony piece which adheres to the *coracoid bone* of the *Orothrophycus* and *Echidna* is included in this separable body.

**Thromynchus**, vol. xvi., p. 36, has been compared; and, in fact, this piece is placed like the cartilage, and crosses with its opposite on the first bone of the sternum, which is also in the shape of a *T*; but in this apparatus the great mem- branous apertures which notch the similar development in the *Saurians* are wanting.

The *scapula*, or shoulder-blade, produces the other part of the *glenoid* face; it goes on, as ordinarily, enlaraging on the side of the thorax and towards the back; and at about a third or the middle of its length stops short, but is con- tinued on the chest wall, which is generally cartilaginous, or which, when it is ossified, which habitually happens, becomes so in a different manner, and with another texture, like the cartilage adhering to the *coracoid bone*. In the case of ossification, the *scapula* is always divided into two bones, without sutures.

The *clavicle* rests on one side against the slender bone of the sternum, or against its lateral branch, and often also it reaches to the opposite clavicle; on the other side it proceeds to rest against the anterior edge of the *scapula*, either against the osseous portion of that which remains longer cartilaginous, and which often presents a tubercle or small crest for its reception. Sometimes the bony *scapula* gives off an apophysis which goes to sustain the body of the *clavicle* and has a slight resemblance to an acromion: the tubercle of the clavicle, which is calcified, resembles that process much more. Such is the general structure among the *Saurians*; nor does it differ much from that of the *Crocodiles*, except in the presence of a clavicle, and without the two last cartilages of the ribs.

The *T-form* or arrow-shaped bone may also, in strictness, be compared to the unequal bone of the *plastron* of the *Turtles*, which sometimes takes this shape, and some think of the two first ends of the *T*. They may be compared to the representatives of the clavicles, the second, of the cartilaginous appendages of the coracoids; the third, of the rhomboid piece, which, even in the *lizards*, often presents a longitudinal division by a groove, indicative of the convulsions of the body of division; and, finally, the fourth, of the appendages, which sometimes support the two last cartilages of the ribs.

The differences observable among the various subgenera are hardly of sufficient importance to justify the occupation of space here, and we refer the reader to the *Oxenstierne* *Plesiosauriers*, from which the osteology of the skeleton here given is taken, and in which Cuvier details those differences.


The *pelvis* of the *Saurians* (Cuvier takes the *Monitor* as an example) is composed of three bones, which concur, as in the *viviparous* *Quadropods*, to compose the *cylindrical* fossa. Its upper part is formed by the *ossa iliæ*; its neck is wide and short; its spinal part, instead of being directed forwards, as in the *lizards*, runs obliquely backwards in the form of a narrow band, and has only a small point in front. The pubis and the ischiæ are each united to its opposite in the median inferior line; but the pubis is not joined to the ischiæ, and the two oval bones are only separated by a ligament. Their neck is wide, short, and flat. That of the pubis is pierced with a rather large hole, and its anterior border produces a point which is recurved downwards and outwards. Cuvier adds that the pelvis in the different subgen- eras is especially distinct by the symmetry of the pubis, which is formed by a rather wide truncature in the *Monitors*, and even slightly in the Sauvegardes; but only by a narrow point in the majority of others. The *Chame- rions* differ from all the others in the *ossa iliæ* being formed and proceed perpendicularly, in widening slightly to attach themselves to the spine. These *ossa iliæ* are still further distinguished by a triangular cartilage, analogous to that of the *shoulder-blade*. The symphysis of its pubis is formed by the truncature, and there is no lateral joint. Vertices of a *pelvis* exist in *Ophi scaurus* and the *Blindworm* (*Ovatus*), which consist of a small os ilium, with a rudiment of an ischiun, but without a symphysis. (Schlegelius, 1830.)

The *cylindrical bones* of the *Saurians* present the following characteristics:—The *pelvis* agrees very much in form with that of *Birds*. Its upper head is compressed, to answer to the hollow fossa which the *shoulder-blade* and *coracoid bone* together present to it. Its lower pulley is formed of two projecting rotatory portions, entirely rounded, the ex- ternal of which is the least developed. The internal condyle also projects more than the external, the döltid crest pre- Vol. XX—3 O
duces an angle more projecting forwards, and its posterior tuberosity is less hooked. In these two last respects it more resembles that of the crocodile; but it has, in general, all its articular surfaces much better defined. But the humerus of a Lizard has usually been distinguished from that of other Classes, because the former is not hollow, nor pierced with holes for the admission of air into its interior. The ulna of the Saurians is compressed and trenchant on its radial edge. Its sigmoid facet is oval, and its olecranon projects but little; its larger is nearly also oval and convex, but the curve is oblique; its radius is delicate; its upper head is oval and concave; its lower, which is slightly convex, presents to the first bone of the carpus a rounded tubercle and a fossa of a crescent-shape. The femur in its upper part resembles that of the crocodile much more closely than that of birds, and its reference to the direction of the foot in reptiles. Its upper head is compressed and curved in front, and has its trochanter on the tubial side placed nearer to the head of the bone than in the crocodile, much more projecting, and of a compressed form. The lower head of the femur, on the contrary, much resembles that of birds, especially in the small hollow on the peroneal side for the head of the fibula. The patella is very small, often hardly visible. The leg is always composed of two bones, of which the tibia is the longest. Its upper end is triangular, as ordinarily; its lower is transversely oblong and flat. The fibula of the Monitors is flattened and widened below, where it unites to the tarsus by a narrow line. In the Iguanids and the greater part of the other genera it is nearly cylindrical throughout, since with its upper end compressed, and its lower demi-oval and slightly oblique. The bones of the fore and hind feet in the Saurians consist of a carpus composed of nine bones, like that of the tortoises, and Cuvier remarks that its composition may equally well belong to the group of a mammal, a bird, a reptile, a fish, or a frog. In the first group it is composed of a radial bone, a cubital bone (rather large), and a piform bone fitted against the lower part of the ulna. In the lower row are five small bones, disposed in a curve and answering to the articular heads of the bones, and placed between the two large bones of the first row, and the first, second, third, and fourth of the second row. The metacarpals of the thumb and little finger are rather shorter than those of the other three fingers. The number of phalanges amounts to two for the thumb, three for the fore finger, four for the middle finger, five for the ring finger, and three for the little finger. The tarsus, like that of the crocodile, has only four bones. In the first row are two: 1, a tibial bone, which extends also partially under the fibula, and presents a fossa on its anterior surface; 2, a fibular bone, smaller and soon unifying itself into a single piece with the preceding, on the same plane with which it is united. In the second row are two: 1, a tibial bone on its anterior surface, and stouter backwards, where it articulates with the two of the first row, and supports the metatarsals of the fourth and fifth toes; the second, smaller, is perfectly oval, and completely articulating with the upper head of the third and second toes. This last also slightly touches upon the astragalus, which only supports the metatarsal of the great toe. The four first metatarsals are slender and nearly straight; they go on elongating to the fourth; the fifth is short, widened, and recurved on its upper head towards the great bone of the second row, to which it is articulated by the side. The great toe has two phalanges; the second toe; the third, four; the fourth, five. It is this, which is the longest, that gives to the foot that elongated and unequal form which distinguishes it in the Lizards. The heel bone is nearly as short as the great toe, has, like the third, four phalanges. Cuvier remarks that in the ordinary position of the hind feet of the Saurians, that is, with the toes directed backwards, the tube and great toes are at the external side of the foot, and the little toe is at the internal border. The ungual phalanges of all the feet are trenchant, arched, and pointed. This description, observes Cuvier, allowing for some differences in proportion, answers for all the subgenera of this well-developed and famous group of the Chameleons alone and some peculiarities relative to the toes in certain Geckos; and even in the Chameleon it is in the proportion of the bones of the carpus and tarsus, rather than in their number and arrangement, that the difference appears. The mode in which the bones of the feet are grouped in the chameleon in an inverse manner, that is, the great and little toes of all the feet together and directed inwards, and the three others also together and directed outwards (a peculiarity observed by Aristotle), will be seen in the cut in the article CHAMELEONS.

We have dwelt at some length upon the anatomy and osteology of the Saurians, not only because of the interest attached to this great group of animals on its own account, but in consequence of the necessity of a full understanding of this part of their organization by those who study that branch of palaeontology more particularly connected with the fossil record of the reptiles. For the most gigantic proportions and the most heterogenous shapes, that were alive countless ages ago, when as yet man was not, and were absolutely swept away from the face of the earth thousands of years before he stood upon it. Of all the fossil remains of the Saurians, those of a former world, these, from the antiquity of the strata in which they are found, present perhaps the most striking materials for illustrating the ancient history of our planet.

The other parts of the organization of the Saurians, as they are to be found in detail, where necessary, under REPTILES, need not the different articles relating to the families and genera. We shall here only observe that their heart, like that of the tortoise, is composed of two auricles and one ventricle, both of which are, as in that of the crocodile, divided into two parts by a partition which leaves a single opening; the blood is thus passed on in one circuit, with few exceptions (Zootoca, for instance), is parous, and the eggs have a more or less hard shell. In some (Chameleon, for instance) it is a true tough callosous skin, and this is its general condition. The corium is exfoliated, and the exception sometimes by means of the ribs are moveable, and can be raised or depressed for the purposes of respiration. Their lung extends more or less towards the hind part of the body, and often penetrates to the abdomen, whose transverse muscles glide under the ribs and even, sometimes, with its upper end, compressed, and its lower demi-oval and slightly oblique. The lungs come into existence in the same form which they retain through life. The toes are armed with nails, with very few exceptions, and the skin is either covered with scales more or less hard, or at least armed, or at least thick, at the base. The greatest number have four feet, some two only, and a few more rudiments not apparent externally.

FOSSIL SAURIANS.

Besides the notice of fossil Saurian forms in the course of this sketch, a detailed account of most of the extinct genres is given under their several titles in this work. SAURIN, JOSEPH, French physician, and natural philosopher, was born in 1659, in the South of France at Courtains in the principality of Orange, where his father was the minister of a Protestant congregation. The young man was educated in the prince's capital, where he was called to the ministry at Eu in Dauphiné. Possessing an ardent temperament and a bold eloquence, he soon distinguished himself as a preacher; but, in one of his sermons, he so boldly and freely the mention of Christ, as to be arrested by the government for diminishing the privileges of the Protestants, he was obliged to retire into the county of Bar, where he obtained the curacy of Bercher in the buildings of Yverdon. Certain circumstances, which have been differently related by his friends and enemies, obliged him soon afterwards to take refuge in France, where, in 1689, he abjured the doctrines of the Calvinists. His own account is, that having refused to sign the Concordat of Versailles, condemning the doctrines of the French Protestant Church, and that as was the case with the exiled authors of the Hebrew text, he was subsequently censured by a party in the church. He adds that the harsh treatment to which he was subjected on this account led him to suspect the sincerity of his new religion; and that an attentive study of the works of the celebrated Bossuet convinced him of the errors of Protestantism. On the other hand it is stated that Saurin, having been guilty of that, withdrew to France in order to avoid the prosecution which was incurred by the Society of Geese, of which Bossuet was a member. This controversy was founded on a confession which he is said to have made in a letter dated 1689, and printed in the "Mercury Suisse," and upon some documents relating to the criminal prosecution instituted on the occasion, which are to be found preserved in the Bibliothèque de Genève.

After his recantation, having, through the interest of Bossuet, obtained a pardon from the king (Louis XIV, 1863).
Saurin devoted himself to the study of the mathematical sciences; and between 1702 and 1706 he wrote several papers which were published in the 'Journal des Sçavans.' At the same time he was engaged in a controversy with Huyghens on the subject of the vortices of Descartes, and with Rolle concerning the infinitesimal calculus. He became a member of the Académie des Sciences in 1707, and between 1726 and 1727 he published 'Memories' with numerous mathematical and philosophical papers, among which are some containing profound investigations relating to the curves of swiftest descent, and dissertations, conformably to the Cartesian hypothesis, on the force of gravity.

Saurin's scientific pursuits were interrupted for a time by the imprisonment which he suffered in consequence of an accusation brought against him by J. Baptiste Rousseau, that he was the author of certain profane and defamatory verses, with the composition of which Rousseau himself had been charged. As the accusation could not be substantiated, the judgment of the court was given against the accuser, who, in consequence, was banished from France, while the accused was liberated.

Saurin died December 29, 1737, of a lethargic fever. He appears to have been a man of lofty and vigorous mind, but it is said that he was capable of using any means for obtaining the ends which he had in view; and it must be observed that the cause of his death came from Switzerland, and the abjuration of his first religious opinions, have never been satisfactorily explained.

SAURIN, JAMES, an eminent French Protestant divine, was born at Montreux, 1637. He was the son of a lawyer, of the same persuasion, who quitted France upon the reoccupation of the Edict of Nantes, and retired apparently to Geneva. At least it is known that James Saurin finished his education there, after having borne arms for a short time in the English service. In 1701 we find him pastor of the Walloon church in London, whence, after four years, he repaired to Holland, and establishing himself at the Hague, remained there in the exercise of the ministry until his death, December 50, 1759. That event is said to have been hastened by mortification at the disposal of his property, and ecclesiastical censures in which he was involved by his 'Dissertation sur le Mensonge Officeux,' on falsehoods which are expedient, a delicate subject to handle.

As a preacher he is ranked at the head of the French Protestants. 'Depot of Rought, force of argument, skilful connection of parts, strength of drawing, bursts of pathos, original turns, points which strike the imagination and move the heart, majestic and imposing simplicity like that of the Scriptures, are the characteristics of his eloquence.' Such is the criticism of a French biographer.

He published five volumes of sermons, to which seven volumes were added after his death: the first portion is reprinted the best. His other chief works are, 'On the State of Christianity in France,' and 'Discourses, his publications of a logical, and moral, on the principal events of the Old and New Testament,' 2 vols. fol. (known as Saurin's Bible), to which four volumes by other hands were added after his death. In these is contained the 'Dissertation on Falseness,' above noticed. Six volumes of his sermons have been translated into English.

Another French Protestant divine of some note is ELIAS SAURIN, brother of Joseph Saurin the mathematician, no relation apparently to James Saurin. He also settled in Holland in 1692, and died in 1703.

SAUROPHAGUS. [Skrinck.] SAUROPHIS, Fitzinger's name for a genus of Lizards belonging to the group of Chalcidon Lizards, or Ctenosaurus Sauria (Section Ptychopleurae), of MM. Dumeril and Bibron.

Generic Character. — Tongue of an arrow-shaped head, free on its anterior third, very slightly notched in front, with uniform, short, soft, thick papille. No palatal teeth. Intermaxillary teeth conical, simple. Maxillary teeth subconical, obtusely pointed. Nostrils lateral, each pierced in a large naso-rostral plate. Eyelids. A small external auricular hole. The last superciliary plates blending with the scales of the nape. Temples covered with scales like those of all the other parts of the body, or rhomboidal, carinated, and imbricated. Four very short styled feet, terminated by a single unguinated toe. No lateral furrows. Otorrhopoideos.

Example. Chamaesaura anguina, Wagm. (Lacerta anguina, Linn.).

Description. — The form may be seen in the cut. The upper part of the head, back, upper part of the neck, and upper part of the tail are brown; but those parts have their upper line traversed by a narrow band of a yellow tint: a tint which, becoming a little brighter, is spread over the sides and lower regions of the body. (Dum. and Bibr., from specimens in spirit.)

Locality. — South Africa, Cape of Good Hope.

We shall here notice another Saurian form of the same group and section — Chamaesaura.
It is interesting to trace in the Saurians the gradual deterioration and abolition of the extremities till the form becomes completely serpentine. In Heterodactylus there are still five fingers; but the first finger of the anterior foot is so very short as to be rudimentary. In Chalceus (Cophius, Fitzinger) there are five toes before, but only three, reduced to tubercles, behind. In Sauropsis the toes on each of the feet are reduced to four. In Chamaelea there is but one on each foot. In Chamayros the anterior extremities are short indeed, but five-toed; the posterior extremities are altogether absent. In Bipes the hind feet are each united by two unequal processes or toes. In Pygopus (Bipes) the anterior extremities are also lost, and the posterior extremities appear in the form of a foot in which no toe is to be seen externally; and in the Saurians in all traces of external extremities is lost, though the rudiments of posterior extremities may be seen attached to the pelvis. [Chalcides.]

SAUROTHERA. [INDICATORINZ, vol. xii., p. 459.] SAURURA/CEJ. A natural order of plants belonging to the Achiomeloidaceae group of incomplete Exogens. It consists of only a few genera, which are aquatic or marshy herbs or herbaceous plants, with perennial root-stocks, knotted stems, and simple, entire, alternate leaves, with valvate stipules. The flowers are naked, and seated upon a scale. The stamens are six in number, hypogynous; filament slender; anthers continuous with the filament, having two lobes bursting longitudinally. The ovaries are four, containing one or more ovules; style short; stigma simple. The seeds are few, with an abundant albumen, in the midst of which lies a small embryo, which is enclosed in a persistent vitellus. These plants are very near Piperaeae, from which they mostly differ in the compound nature of their ovary. This order connects Dicotyledons with Monocotyledons. Its foliage, stipules, and seeds connect it with the former; but the floating habit of some of the species, and their general character, ally them with some of the families of the latter class. They are natives of North America, China, the north of India, and the Cape of Good Hope, where they are found growing in marshes and pools of water. Their properties are not well known, but they seem to be the representatives of the peppers in colder climates; and on account of their less exposure to light, their secretions are not so strong and their properties not so active as their allies in the tropics.

SAUSSURE, HORACE-BENEDICT DE, was born at Geneva, Feb. 17, 1740. His father, Nicolas de Saus- sure, was also a native of Geneva, and is known as the author of some essays, chiefly on agricultural subjects. Young De Saussure was educated with great care, partly at the college of Geneva, and partly under the super- vision of his father and his maternal uncle, Jean Cramer. At the age of twenty-two he was appointed professor of philosophy in the college, in which situation he performed the duties of a public teacher for twenty-four years, interrupted only by his travels in search of phaenomena, and especially geological knowledge. The events of his life are consequently few, and the substance of them must be best given in his own words:

'I had a decided passion for mountains from my infancy. At the age of eighteen I had already been several times over the mountains nearest to Geneva; but these were comparatively little elevated, and by no means satisfied my curiosity. I felt an intense desire to view more closely the High Alps, which, as seen from the summits of these lower mountains, appear so majestic. At length, in 1760, alone and on foot, I visited the glacier of Chamouny, the little ascent of which was regarded, at that time, as only as difficult but dangerous. I went there again the following year; and from that time I have not allowed a single year to elapse without making considerable excursions, and even long journeys, for the purpose of studying mountains. In the course of that period I have traversed the entire chain of the Alps fourteen times by as many different routes. I have made sixteen other excursions into the central parts of the mountain mass. I have gone over the Jura, the Vosges, the mountains of Switzerland and a part of Germany, those of England, of Italy, and of Sicily; and the adjacent islands. I have visited the ancient volcans of Auvergne, a part of the Vivarais, several of the mountains of Forez, of Dauphine, and of Burgundy. All these journeys I have made with the mineralogist's hammer in my hand, with no other aim than the study of natural phenomena, clambering up to every accessible summit that promised anything of interest, and always returning with specimens of the minerals and mountains, especially such as afforded confirmations or contradictions of any theory, a order that I might examine and study them at my leisure. I also imposed upon myself the severe task of always making notes upon the spot, and, whenever it was practicable, of writing out my observations in full within the twenty-four hours.'

This sketch of Saussure's travels and labours extends from 1758 till 1779. In addition it deserves to be particularly mentioned, that in 1787 he ascended to the top of Mont Blanc, and remained there three hours and a half.
SAUVAGES, FRANÇOIS-BOISSIER DE, was born at Aisais in Lower Languedoc, in 1706. In 1722, having received a moderately good education, he commenced the study of medicine; and in 1726 he received his doctor's degree in 1726. In 1730 he went to Paris, and appears to have first to have entertained the idea of forming a classification of diseases like those usually adopted for the objects of natural history. He published a sketch of his system in a small volume in 1731, and by this, and some publications which he wrote at the same time, gained so much reputation, that in 1734 he was appointed a professor at Montpellier. The doctrines which he taught were chiefly those of Stahl, and he contributed greatly towards the removal of the materialistic theories of medicine that were prevalent. In 1740 he was elected professor of botany, and subsequently pursued that science with so much energy as that of medicine. In 1763 he published his most important work, the 'Medical Nomenclature,' in accumulating materials for which he had steadily laboured for upwards of thirty years. He died in 1767.

Of all the works of Sauvages, and they were very numerous, the 'Nomenclature' is the only one now often referred to. The system adopted in it has indeed shared the fate of all other nosologies [NOSOLOGY], but it still presents a good and complete account of all that was known of practical medicine at the time of its publication. His other writings were short monographs and essays, which were chiefly on the subject of botany. Among them are those on hydrophobia, the remedial value of electricity in paralysis, and the 'Methodus Foliorum,' an essay towards the means of determining plants by the characters of their flowers. Sauvages' Nomenclature, a natural order of plants formed by Bartling, and consisting only of the genus Sauvagesia, of which there are six or seven species. Another genus, Luxemburgia, was referred to this order by Bartling, but this has been placed by De Candolle in a separate genus, and Linley, in his 'Natural System,' makes Sauvagesia a suborder of Violaceae, from which, he observes, it is principally distinguished by the stamens being opposite the petals, by the anthers not having a membranous termination, by the presence of five staminodes, the calyx sepals being united into a sepaloid décalyeus, so that the seeds adhere to the edges and not the centre of the valves, and by the strongly ribbed and imbricate calyx. This last character gives them a relation to Hypericaceae, but from this order they are more in their parietal placenta and the presence of stipules. They are natives of the tropical parts of South America, growing in moist meadows and the vicinity of streams. The genus Sauvagesia, named after the celebrated physician Sauvages, is a small one, with three or four species. The flowers have five petals, ovate or oblong, spreading, deciduous; the intermediate ones filiform, variable in number; the interior five opposite the outer, erect, converging into a tube much smaller; calyx deeply 5-parted, and a capsule enclosed in the interior, permanent; ovules numerous, on many ovaries, and many-seeded. One of the species, S. erecta, upward Sauvagesia, is held in great repute as a medicine in South America. It is very mucilaginous, and has a bitter taste. It is used in Brazil in diseases of the eye, and in Peru and the West Indies it is employed in slight inflammatory affections of the mucous membranes of the bladder and intestines.

SAUVAGEARDE, the name by which the monitory lizards of the New World are known; Salamator of M. Duméril and Bibron, Podinauma and Ctenodon of Wagler, Podinauma of the Prince of Canino, Testa of Mr. J. E. Gray.

Generic Character.—Tongue with a sheathing base, very large, very extensible, divided at its extremity into two slender smooth filaments, with rhomboidal papules. Palate edentulous. Intermillitary teeth slightly flattened from before backwards, with two or three notches at their summits. First maxillary teeth straight, compressed, triangular, smooth, small angular smooth, non-imbricate scales, disposed in transverse bands. Ventral plates flat, smooth, quadrilateral, oblong, and quin...
Head of Sauvagelle.

MM. Duméril and Bibron give the following synoptical table of the Sauvagelles:

<table>
<thead>
<tr>
<th>Naso-frenal Two plates.</th>
<th>1. Salvador Merianae.</th>
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<tr>
<td></td>
<td>2. Salvador nigruncatus.</td>
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Geographical Distribution. Habits, &c.—The warm countries of America are the native places of these Lizards, which arrive at a considerable size, often measuring as much as four or five feet in length. MM. Duméril and Bibron state that they ordinarily inhabit the fields and the borders of woods, although they never climb trees; but they also appear to frequent sandy, and, consequently, arid tracts where they are said to excavate burrows, in which they lay themselves up for the winter. When, in their flight to avoid pursuit, they come upon a lake, pond, or river, they plunge in, according to D'Azara, to escape from the danger which menaces them, and do not leave the water till all fear of danger is past. These Lizards, observe MM. Duméril and Bibron, have not, indeed, webbed feet; but their long and slightly compressed tail becomes, without doubt, under such circumstances, a sort of oar, of which they well avail themselves. D'Azara states that they feed on fruits and insects, and that they also eat serpents, toads, young chicks, and eggs. He also relates that they are fond of honey; and that in order to procure it without fear of the bees, they come forward at intervals, and, as they run away each time, give the hive a blow with their tail, till by repeated attacks they wear out the industrious insects, and drive them from their home. MM. Duméril and Bibron remark that they have been unable to assure themselves that the Sauvagelles are frugivorous; but they are certain that they feed on insects, because they found remains of them in the stomachs of all the individuals which they opened. Once only among the fragments of Coleoptera and the remains of caterpillars they found portions of skin and bones which had certainly belonged to those insects. MM. Duméril and Bibron think that to Salvador should be referred Kaup's genus Eryxmenes, which, vague as are its characters, seems to them to have for its type one of the two species noted above in the synoptical table. These two Sauvagelles, they observe, though very easily distinguished when the true characters proper to each are well apprehended, bear, nevertheless, so great a resemblance to each other, especially in colour, that it is by no means surprising that they have been confounded together; for, in fact, it was not till after the publication of the work of Spix on the animals of Brazil that these species were mentioned as different.

Example, Salvador Merianae. Dum. & Bibr. Description.—Intermaxillary teeth ten in number; from thirteen to fifteen maxillary teeth on each side of the upper jaw, the four or five first of which are simple, and augment gradually in length; but the three or four following ones, though equally simple, are shorter, and all the others have a tricuspidate or tuberculatus summit, according to the age of the individual. Each of the sides of the lower jaw is armed with from fifteen to eighteen teeth, like those above. The rostral plate, although having five sides, appears triangular, and it is the same with the two naso-rostral plates, which touch each other by a very small n. In the inter-naso-rostral plate is large; it has six facets (pons), of which two only, the greatest, are enclosed in the two naso-rostral plates. The fronto-nasal plates are very much developed, pentagonal, oblong, and nearly as wide as behind. The frontal plate, equally well dilated, is hexagonal, and generally narrowed at its posterior extremity. The frontal nasal plates are oblong, broader than before, and more than double, nearly to twice, the size of those in the first plate. The parietal plates are cyclo-polygonal, and bound on each side the interparietal plate, the form of which is very variable. The two first superciliar plates are always a little larger than the two last. The frontal plate has nearly a trapezoidal figure; its anterior edge is more acute than before. There are eight or nine superior labial plates; the first is oblong-pentagonal; the second trapezoidal; the third tetragonolenticular; the fourth is the same as the preceding ones; with the exception of the last, whose posterior border is lower than the anterior one. The chin-plate is simple, triangular in appearance, although it really has four sides. There are eight or nine lower labial plates, all more or less regularly rounded. Behind the chin-plate is sometimes found one, sometimes there are found two, which are followed to the right and left by from seven to nine plates, occupying the lower surface of each submaxillary branch. Each of these rows of submaxillary plates is equal to one of the superior labial plates by another suite of plates not less developed than those. The temple is furnished with smooth white smooth plates in juxtaposition; its upper border has five or six, a little larger than the others. When laid along the length of the neck, the smooth plates reach the shoulder. The posterior plates, placed along the sides, do not extend beyond the origin of the arm. They form two thirds of the total length of the animal. The upper part of the neck and the back are furnished with smooth white smooth plates, some more or less round; others with more or less rounded angles, disposed in transverse rows. They are oval, it seems, in young subjects. The throat and lower part of the neck have hexagonal, smooth white, close-set scales; the sides, and sides of the neck, are furnished with intermaxillary scales, distant and small, that of the cervical and dorsal regions. On the breast are three or four transverse rows of hexagonal scales, like those on the lower surface of the neck, whose folds present very small oval or circular scales, some more or less rounded angles. Then come, to cover the rest of the breast and all the sub-atrial region, from twenty-eight to thirty other transverse rows of small quadrilateral oblong plates with a smooth surface, and in juxtaposition. Each of these series is composed of from five to eight transverse rows; these premaxillary scutellate are more or less regularly hexagonal, and with age they become rather thick, and put on a porous aspect. The anterior side of the upper part of the tail is furnished with smooth white, close-set scales; and the same side of the fore arm presents some which are equally smooth and close-set, but of a square form. The upper side of the toes is covered with a row of quadrilateral imbricate scutellae, with rounded angles and very much dilated edges. The under side of the anterior foot is entirely clothed with very small, oval, smooth white, round scales, rather distant, and surrounded with granules; these scales extend even upon the palm, where they become more or less dilated and rounded. Under the outer row of quadrilateral, imbricate, very wide scutellae, with rounded angles: and on each side are one or two series of scales of a tubercular aspect. The front of the thigh is protected by rather large tetragonal or hexagonal, smooth white, irregularly imbricate scales. The posterior part is covered with very small rhomboide-convex scales surrounded by granules. The toes, which are slightly compressed, have their external side delimited by a series of great scutellae like those on the upper part of the anterior toes, and their internal border is invested with four or five rows of small, thick, convex plates, more or less irregularly quadrilateral. Below, but not reaching the outer edge of the lower surface of the fingers of the hand, is a band of tetragonal scutellae imbricate and very much extended.
transversely. The soles of the feet have the same scaly covering as the palms of the hands. Under each thigh are from fifteen to twenty pores; they are very small and pierced on the re-entering border of a node made in one scale for the reception of another smaller one. The caudal squamules are so disposed that they form a succession of entire verticillations, each alternating with a demi-verticillation placed on the upper part of the tail. All these scales are quadrangular, much longer than they are wide, and strongly ridged; those of the upper surface are at least double the size of those below and at the sides.

The colour is very variable above: the ground-colour is always black, sometimes very deep; on this is spread a beautiful yellow in the form of spots, sometimes very small and irregularly disseminated, sometimes on the contrary, rather large and disposed in transverse bands, and very frequently in two rays, which extend one to the right and the other to the left, from the angle of the occiput to the root of the tail, and are continued along the upper part of the side of the neck and the lateral part of the trunk. The upper part of the head and limbs are more or less sprinkled with small yellow drops, which are also seen on the tail: this last is ringed with yellow and black for the two posterior thirds of its extent. All the lower parts are yellow, marked across with black bands more or less narrow, sometimes well defined, and sometimes interrupted and feebly indicated. Some young individuals have been seen with wide and well-defined black bands on a ground of uniform brown applied transversely throughout the length of the neck and the back. The length, according to travellers, is sometimes four and even five feet; but MM. Duméril and Bibron never saw an individual of such dimensions.

Locality.—Nearly the whole of South America and the Antilles. (Dum. and Bibr.)

This is the Lacerta Teguixin of Linnaeus; Seps armatus of Laurenti; Lacerta Monitor of Latreille; Teguixinia Monitor of Daudin; Monitor Merianae of De Blainville, Van Hasselt and Kuhl, &c.; Teguix Monitor, Merr. &c.; Monitor Teguixin, Fitzing.; Podinema Teguixin, Wagl., Wieg.; Teguixin Monitor, Gray; Monitor Teguixin, Eichw.; Teguixin Monitor, Schinz; Le grand Sauvage, Cou. Farge, and Liard, Shaw; Great American Sauvage, Griffith's Cuvier.

SAUVIER, JOSEPH, a French mathematician, distinguished by the improvements which he made in the branch of science called acoustics, was born March 34, 1635, at Plaisir, near Paris, of father a notary. Till he was seven years old he was quite dumb, and his organ of voice was never completely developed. He appears to have been born however with a taste for the mechanical arts, and even in childhood he is said to have constructed siphons, fountains, and models of mills. He was sent to a school of the Jesuits, but his taste for calculations caused him to be so much diverted from rhetoric and theology, that he made little progress in these studies; and happening to obtain a superficial treatise on arithmetic, he made himself master of, without any assistance, of its contents. In 1670 Sauvier travelled on foot to Paris; and one of his uncles having promised to make him a small allowance for his support on condition that he would qualify himself for the ecclesiastical profession, he resumed for a time his theological studies, but a copy of Euclid's Elements which fell in his way, and the lectures of Rohault, soon determined him to abandon this pursuit. Being thrown upon his own re-

sources, for his uncle immediately withdrew the promised allowance, he sought to obtain a subsistence by teaching the mathematics, and in this he appears to have succeeded. At twenty-three years of age, he had the good fortune to attract the notice of Prince Eugene, who received from him some instruction in the sciences; and a foreigner of distinction wishing to be taught the geometry of Descartes, Sauvier, who then had no knowledge of the works of that philosopher, instructed himself with such facility in the subject that in eight days he was able to give the required instruction. From 1678 to 1680 he was occupied with the study of problems relating to the application of the theory of probabilities to games of chance, and in the latter year he was made mathematical assistant to the Prince. After Dumont's death he was appointed, with Mariotte, to go to Chantilly in order to make some hydraulic experiments at that place; and it was there probably that he was introduced to the Prince of Condé, with whom he subsequently had the honour of corresponding. The conversation of the prince appears to have inspired Sauvier with a desire to make himself master of the art of fortification; and in order that he might join practice to theory, he went in 1681 to the siege of Mons, where he was detailed in the train. At the termination of the siege, he visited the fortified places in Flanders, and at the same time he applied himself to the study of military tactics in all its details. At the recommendation of Vauban, he was appointed examiner of the engineers, and was allowed a pension till his death.

After his return to Paris, he was appointed, in 1686, to the chair of mathematics in the Royal College; and in ten years afterwards he was made a member of the Académie des Sciences. During the remainder of his life he was employed constantly in improving the mathematics and the art of sound; and we learn, not without surprise, that the man who discovered by theory and experiment the velocity of the vibrations of musical strings under various circumstances had not even a violin, much less a piano; and in fact it appears that he was obliged to avail himself of the aid of practical musicians in order to appreciate the musical intervals and concords.

This mathematician may be said to have almost invented the science which has since been so much extended by Dr. Brook Taylor, by Daniel Bernoulli, D'Alembert, Euler, and Claudio. Theoretical music had been the subject of part of his lectures at the Royal College in 1697; but the first published details respecting his researches in acoustics were the results of kind disposition and great uniformity of temper. It appears that the few persons who, in France, cultivated the sciences in that age were nearly excluded from general society; for J. J. Rousseau, in his 'Confessions,' compares himself to a pariah and a leper, and says that they endeavoured perpetually to approach, without being able to come in contact with, the rest of the world. The observation does not however apply to the subject of this article, who, probably from the sobriety of his manners, seems to have been surrounded by a numerous and agreeable circle of friends.

SA'VACOU. [Boat-Bill.]

SAYAGE, RICHARD, was born January 10, 1697-8. His mother, the countess of Macelsey, made a private avowal of her infidelity to her husband, who, in consequence, obtained an act of parliament by which their marriage was annulled, and the offspring rendered illegitimate. Lord Rivers, who was declared by the father to be the father of the young lady, recognised him as to become his godfather, and to allow him to be called by his name; but he afterwards abandoned him to the care of his mother. The countess divorced her unhappy child, leaving him to pass his infancy and boyhood under the care of the semi-savages who were said to have lived there for many years, the object of which was not for the charitable intervention of her mother, Lady Mason, the destiny of Savage would probably have been as obscure as the most unnatural parent could have wished. By the kindness of Lady Maclesfield, the child was sent to a small day-school near St. Albans, and afterwards placed by his mother with a shoemaker in London. Soon after this, by the accidental discovery of some papers, he became acquainted with the circumstances of his
birth, which had been studiously concealed from him; and he made many efforts to obtain an interview with his mother, who however resolutely refused to see him. While very young, Savage commenced his career as an author by taking part in the Bangorion controversy, on which he wrote an unsuccessful poem, afterwards suppressed by himself. At the age of eighteen he published a comedy called ‘Woman’s a Riddle,’ and two years afterwards another, ‘The Bearer of a Letter to a Spanish Lady,’ which, if these were failures, he thereby obtained the notice of Sir Richard Steele and Mr. Wilks, an actor. He became better known as an author by his tragedy of ‘Sir Thomas Overbury,’ in which he himself acted the part of Sir Thomas Overbury; but the piece was the cause of a misunderstanding between him and the tragedian, who at the time, produced a sum which appeared considerable to one so necessitous. In the year 1727 his irregular habits of life led him into one of the tavern broils then very common, which he unfortunately killed a man, and was tried and condemned to death. The circumstances of the affair, and the doubtful character of the witnesses who appeared against him, becoming generally known after his sentence, intercession was made for him with the queen of George II. by the countess of Harrington, and the royal pardon was granted to him, in spite of the efforts of his mother, who on this occasion spread a report that he had once attempted her own life.

The popularity of his event was succeeded by an extraordinary eulogium of public opinion in his favour: he was courted by all ranks, the fashions of the day were ruled by his opinions, and he was enabled to maintain an appearance in society above his station by means of an annuity of 200l. a year which was voted to him by his friends, under the threat that he would expose her cruelty by lampoons, if she refused to support him. At this time he published his longest poem, the ‘Wanderer,’ which was much admired at the time. His popularity made more apparent that fickleness of character which led him into extravagance and alienated his friends from him. His fair prospects were soon for ever clouded by a quarrel with his patron Lord Tyrconnell, who accused him of ingratitude, and banned him from his house. The consequence subsequently deserted him, and he sank into obscure poverty as suddenly as he had emerged from it. The remainder of his life was passed in disgraceful efforts to regain his position in society by alternately flattering and satirising all from whom he had anything to hope or fear. In despair of ever conciliating his mother, he published ‘The Bastard,’ the severity of which drew down upon her much public indignation, though it does not seem to have reawakened sympathy in favour of the author. At length, on attempting to obtain a license to print his laureate, Savage received from the queen a pension of 50l. a year as a reward for a poem in honour of her birthday, which his gratitude renewed annually from this time until his death, which took place at Haworth, near Harrow, from which he had shortly before rented it. Having no provision for such a contingency, he was obliged, from his necessities, to leave London in the year 1739, retiring first to Bristol and then to Swansea, where he lived for about a year, receiving an allowance raised by subscription among his friends. In January, 1749-3, on his return to Bristol, he was arrested for a debt of 8l., and sent to prison in that city, where he died, July 31, 1743.

The name of Savage has become better known than his merits deserve, from the singularity of his early events; and more from which Johnson, the companion of his distresses, has inserted in his ‘Lives of the Poets.’ This memoir is interesting not only as a most faithful picture of the adventurous career of Savage and of the manners of his age, but because it exhibits the extent of the errors in the criticism of the author as a biographer and a critic. In the judgment which he pronounces upon the poems of his friend he is more swayed by prejudice than in his estimation of his master’s works, and he ratifies the defects of the character in his character. The carefulness and want of system in his gravier compositions, the frivolity in the choice and treatment of lighter subjects, his unsteadfast style, feebility in its vehemence, illustrate the strength of feeling and passion, to which he is naturally inclined, the concentration of his attention and want of settled principles of conduct, which made the actions of Savage as inconsistent as his fortune was obscure.

In his ‘Wanderer,’ he declaims without the moral dignity of a didactic writer, his versification is harsh, his descriptions tedious, and the whole poem ill arranged and throughwith confused imagery. His perversions betray the want of a real adventure, deficient both in self-sentiment and in tact. His praise is unskilful, his compliments (as has been well observed by Johnson) are constrained and violent, hampers together without the grace of order or decency of introduction.

He made enemies as readily as friends, and he testified his resentment by satires full of coarse personal invective.

From this general censure of the works of Savage ‘The Bastard’ is in a great measure to be excepted. Stricken with natural feelings, gougled by the peevishness of unmeasured wrong, a refinement of sarcasm, and an exalted tone of thought, of which there are only faint traces in his other writings.

Of the person of Savage Johnson has left this description:—‘He was of medium stature, of thin habit, with a long visage, coarse features, and melancholy aspect; of a grave and manly deportment, a solemn dignity of men, but which upon a nearer acquaintance softened into an engaging easiness of manners. His walk was slow, and his voice melo- mous and mournful. He was easily excited to anger, but very seldom provoked to laughter.’

SAYANNA. [PLAINS].

SAYANNA, Town and River. [GEORGIA].

SAYEN, born at Vitré in Brittany, France. Having completed his studies at the college of Rennes, he went to Paris, where he resided for some time. He had early conceived a desire of travel, and in 1776 he landed in Egypt, where he remained till 1781. He fixed his residence chiefly at Cairo, making occasional excursions in the neighbourhood, and to Damietta and other places in Lower Egypt. He re-embarked at Alexandria in September, 1779, and travelled during two or three years among the islands of the Red Sea. He is probable that he returned to France about the middle of 1781.

The first work which Savary published after his return was the translation of the Koran, a grand work which had been attempted in Egypt by Corentin de L’Arbret, accompanied de Notes, et présenté d’un Abrégé de la Vie et Mahomet, Paris, 1783, 2 vols. 8vo. This is the best translation of the Koran which the French possess. The materials for the Life of Mahomet have been drawn chiefly from Abul Feda and the ‘Sunnah,’ a collection of traditions considered authentic by the Arabians. Savary next published a series of extracts from ‘Le Coran, under the title of ‘Mémoire de Mahomet, ou Recueil des plus purs Maximes du Grand Mahometan.’

In 1784 Savary published the first volume of his ‘Lettres sur l’Egypte.’ The other two volumes were published in 1785, together with a new edition of the first volume. Paris, 1786, 3 vols. 8vo. This work had at first an extraordinary reception. The interest, especially of the young, in the subject; the novelty of the publication, coupled with the remarkable character of the writer, were in union to secure success. Savary himself was in the highest expectations of his success, and the decline of his reputation, is said to have affected his health, which was naturally delicate. He died at Paris, February 4, 1788, at the age of 38.

A few months after Savary’s death, his ‘Lettres sur l’Egypte’ were republished in a more imposing form during his illness, was published at Paris, 8vo. It is incomplete, the author having worked up only a part of his materials at the time of his death. ‘A tale translated from the Arabic, ‘Les Amours d’ Amas Eloujondt et de Ouard,’ was published
In 1789, Savary had composed while in Egypt a "Lettre de l'Abeille au Labeur, pour le bonheur des Arabes" in which he had presented to the French government in 1784, and it was ordered to be printed, but for want of Arabic type it lay in the royal printing-office till it was claimed on behalf of Savary's brother, by whom it was again presented to the government, and was printed in 1786, but the publication however was not completed till 1813 (Paris, 4to.), and in the mean time the Arabic grammar of D’Herbin and Silvestre de Sacy had already appeared. It is in French and Latin, and contains only forty-four pages, which in some degree compensate for the brevity of the syntax. This grammar however will not bear comparison with that of Du Sacy. Savary was also engaged upon an Arabic Dictionary, but none of it has ever been printed.

(Société Universelle)

SAVY, River. [AUSTRIA]

SAVERDUN, a town in France, in the department of Ariège, eight or nine miles north of Pamiers. It was anciently one of the chief towns and strongest fortresses in the county of Foix: it resisted the attack of Simon de Montfort in the crusade against the Albigois, and was, in the fifteenth century, one of the strongholds of the Huguenots. The fortifications have been destroyed. It is divided into the upper and lower town, and has a market and several churches.

SAVERNE, [Rhin, Bas-Rhin, Alsace.]

SAVIGNIUM. Dr. Leach's name for a genus of Sesile Cichlids, with four valves soldered together, and a bivalve operculum, the ventral and posterior valve on each side being soldered together. In other points the names Pseudopharens Pfefferi and P. transversus Pfefferi are synonymous.

SAVILE, SIR HENRY, an eminent scholar and mathematician, born at Over Bradley, near Halifax, in Yorkshire, November 30, 1549. He was admitted a student at Merton College, Oxford, in 1565, where he proceeded to the degree of B.A., and was chosen fellow of the college. He took the degree of M.A. in 1570, about which time his fondness for the mathematices induced him voluntarily to read public lectures in the University on Euclid, Prolemy, and other writers. He also served as proctor for two years, and in 1578 he made a tour through the Continent, and at his return had the distinguished honour of being chosen tutor in the Greek language to Queen Elizabeth, who, it is said, had a great esteem for him. He was appointed warden of St. John's College in 1585, in which office he continued for thirty-six years, and greatly benefited that society by his exertions. During this time he enriched the literature of his country with several classical and historical books, and the college with many valuable books and manuscripts. He died at Eton College, in 1596, and on the accession of King James he was knighted. He died at Eton College, on the 19th of February, 1622, in the seventy-third year of his age, and was buried in the chapel there. On this occasion the University of Oxford paid the greatest honours to his memory, by having a public speec and verses made in his praise, which were published under the title of "Ultima Linea Savilli." He was indeed a manifold benefactor to the University of Oxford, in which, besides various other donations, he founded, in 1618, two professorships of astronomy, the other of astronomy, which are still maintained. His library, consisting of a very curious and valuable collection of scientific books and manuscripts, he left to the University, and it is now preserved in the Bodleian Library, the two Savilian professorships being the only persons who have immediate access to it. His name principally rests on a magnificent edition of all the works of St. Chrysostom, which was published in 1613, in 8 vols. folio, in the present state of which it has been reduced no less than 8,000s., and on his collection of our best historians, published in 1596, under the title of "Rerum Anglicarum Scriptores post Bedam." As a mathematician, he is known principally by his "Lectures in the Art of Euclid" (2 vols. 8vo.), published in 1621, but several MS. collections of his on the history of the sciences are preserved in his library at Oxford.

SAVILE, GEORGE, MARQUIS OF HALIFAX, was the son of Sir William Savile, a Yorkshire baronet, of ancient family, and of Anne, daughter of the lord keeper P. C., No. 1299.

Coventry. Being hereditaryally attached to the Stuarts, ambitious, and endowed with brilliant talents, he proved an active and a successful part in the intriguing reigns of Charles II. and James II. In 1668 he was raised to the peerage, by the titles of Lord Savile of Eland and Viscount Halifax; he was created earl in 1679, and marquis in 1682. He died in 1696, and the succession of James, the relaxation of the tests enacted against the papists. He opposed the scheme for excluding the Duke of York from the succession, preferring to limit his authority when the crown should devolve on him. He declined to partake in bringing over the Prince of Orange; but was president of the convention parliament, and strongly supported the motion for declaring the throne vacant. On the accession of William and Mary he was made privy seal; but he soon retired from the administration, upon his son-in-law being made to be made as to the authors of the prosecutions of Lord Russell, Sidney, &c., in which he, as a member of the then existing government, had concurred; and he continued in opposition theencoreful till his death.

He was, as Bentzel, "a man of great and ready wit, full of life, and very pleasant, much turned to satire. He was punctual in his payments and just in all private dealings; but with relation to the public, he went backward and forward, and changed sides so often, that in the opinion of no side trusted him; he seemed full of commonwealth notions, yet he went into the worst part of King Charles's reign. The liveliness of his imagination was always too hard for his judgment. His severe jest was poison to him, and he was continually arguing with every person in council, for whom after much discourse a point was settled, if he could find a new jest, where he could make that which was digested by himself seem ridiculous, he could not hold, but would study to raise the credit of his wit, though it made others call his judgment into question," &c.

His works are lively and elegant. The chief of them are these: 'Character of a Trimmer,' 'Anatomy of an Equiva- lence,' "Letter to a Dissenter, on the Subject of State." He left two manuscript copies of his memoirs, both of which were destroyed unpublished, one by the Earl of Nottingham, the other by his granddaughter Lady Burlington. Horace Walpole says that this was done at the request of a certain old man, who was suspected of being in an unfavourable light. The loss is to be regretted, considering the strong satirical talent and position of the author.

SVIN. [Juniperus.]

SAVINGS' BANKS. [BANKS FOR SAVINGS.]

SAVONIA, the name of a province and town of the Sardinian States, in the western Riviera of Genoa. The province of Savona is bounded on the north-east by the province of Genoa Proper, on the south-west by that of Albenga, south-east by the Mediterranean Sea, and north-west by the Apennines, which separate it from the province of Mondovì in Piedmont. The soil partakes of the general character of the Riviera, and produces abundance of fruit, and the country is so well adapted to wine and vine, than at San Remo and other places further west, because it is more open to the northern winds. The Apennines near Savona are lower than the rest of the Ligurian Apennines, being only 1,500 feet above the sea, and on the other side they are considerably in the duchy of Genoa, after the capital. (Berto- lotti.) The streets are narrow, though well paved, and the interior aspect of the town is gloomy. It carries on a considerable trade; the harbour, which is once good, was partly filled up by the Genoese in 1584–86, through commercial jealousy; it is still very safe, but only fit for vessels of 200 tons. Savona is the residence of many nobles and Vol. XX.—3 P
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other substantial proprietors of the surrounding country; it contains some good palaces and several fine churches, among others the new cathedral built in the seventeenth century, the former cathedral, which had been raised by Julius II. when bishop of Savona, having been destroyed to make room for the cathedral. The present cathedral is adorned with valuable paintings and sculptures. The sanctuary of La Madonna di Savona, situated five miles north-west of the town, in the Apennines, and on the road which leads from Pieve, and which has some good paintings, besides numerous votive offerings. Savona is the birth-place of Chiabrera, one of the best Italian lyric poets. 2. Albuola, a pretty town on the sea-shore, has 3,500 inhabitants. 3. Rabiatu, the seat of the hospital. 4. Noli, a small town in a picturesque situation near the sea. 4. Cairo, in the Apennines, has 3,400 inhabitants. Near Cairo is the village of Milestino, famous in the history of Bonaparte's first Italian campaign, in 1796. In the neighbouring old castle of Cosseria, 1,500 Piedmontese grenadiers withstood for thirty-six hours all the attacks of the French, in which two French generals were killed and Joubert was wounded. At last they were obliged to surrender from want of provisions.

SAVONAROLA, GIROLAMO, a Dominican monk, a native of Ferrara, made himself known by his eloquent preaching at Florence, where he was living in the convenl of San Marco, and became a benefactor of the city in the latter part of the fifteenth century. In his sermons he used at times to assume the tone of a prophet, foretelling public calamities as a punishment for the sins of the people. Florence was then enjoying peace and prosperity under the admi of the Chiarugi family, who were propertied and generous. The city was gay and prosperous, and yet Savonarola startled his hearers by foretelling the approaching irruption of fierce foreign hosts, which would bring bloodshed and desolation over the land. A few years after his prophecy was fulfilled by the invasion of Charles V. of France, and his ruthless bands, and an age of calamities began for Italy. Before this however Savonarola was wont to inculcate democratic doctrines; he recommended a return to the former popular system of government, which had been introduced by the Medici; he even decried the revival of the Papacy itself. Lorenzo took little notice of this; and when his friends urged him to check the monk's audacity, he replied, that as long as the preacher exerted himself to reform the morals of the citizens of Florence, he should willingly excuse his incivility to himself. When Lorenzo fell ill, in the spring of 1492, and his life was despaired of, Savonarola appeared by his bed-side, some say at Lorenzo's own request. The conversation that followed was variously related. Poliziano, and others, say that Lorenzo, when he saw that the monk would be firm in the Catholic faith, to which the sick man assented. The monk then asked Lorenzo whether, in case he recovered, he purposed to live a virtuous and well-regulated life, to which the dying man said he was also disposed, and told Lorenzo that he ought to bear his death with resignation, if such be the will of God. 'With cheerfulness,' replied Lorenzo. Savonarola was then going to quit the room, when Lorenzo called him back, and requested his benefice, which the monk readily gave in the solemn form of the liturgy, Lorenzo pronouncing the usual responses with a firm and collected voice.

Such is the account of Poliziano, written soon after the event, but a different one came into circulation a long time after and is recorded in the 'Storia di Firenze' written by Gianfrancesco Pico of Mirandola, nephew of the celebrated Giovanni Pico, the friend of Lorenzo. The story is, that Savonarola was sent for to hear Lorenzo's confession, and that among other injunctions to which Lorenzo submitted himself, the monk told him that if he should recover, he would restore the republic to its former state of popular freedom, and as Lorenzo made no reply to this, Savonarola left him without giving him absolute assurance that if he told of that party spirit which broke out some time after Lorenzo's death, and which led to the expulsion of Piero de' Medici, Lorenzo's son, in 1494. Savonarola acted a conspicuous part in the disturbances which followed. He became the leader of the democratic party, the Pagnoni or laquemmeso party, because, in imitation of their leader, they were continually denouncing and bewailing the sins and corruption of their fellow-citizens. The opposite or aristocratic party, that wished to place the government in a few hands, were styled Compagnone, and Arrabbiati, or 'eared. The Pagnoni assembled a general legis about thirty years of age, and who were called the specchio,' that is to say, inscribed in the public bosom having always paid their taxes regularly. A vast hall was constructed for their meetings in the town palace. Savonarola, as the leader of the party, was summoned by his party as a kind of prophet and supreme judge. Grave citizens mixed with friars, and children in the public places crying 'Viva Cristo,' singing hymns composed for the occasion, and dancing with florin guerdons. But it was the turn of the Savonarola. Savona as an impostor, and they accused him of being a Tyler at Rome. Pope Alexander VI. (Borgia) summoned him to appear before him, in default of which he excommunicated him. Savonarola, being charged with the corruption of the clergy, did not deny the act of the church, whom he styled a usurper, and he wrote several princes urging them to assemble a general council, before which he made sure of proving that Alexander was only a legitimation, but was a usurper in person. In the year 1497, Piero de' Medici made an attempt to re-enter, Florence by surprise, at the head of a strong party, but the plot was discovered, and several of its leaders within the town were arrested, five of them were committed to the fortress of the Arno. The rest escaped from their sentence to the great comfort of the citizens, but Savonarola and his party urged the immediate execution of the sentence, and the five were beheaded. Thus enraged the aristocratic party, which, joined to the sect of Alberti, had been provoked by the arrest of two Franciscan monks to preach against him. Savonarola was thus assailed, called to his aid a brother Dominico, of the mendicant order de' Pescia, and both retorted from the pulpit against the Franciscans. The controversy was kept up for some time with mutual accusations and vituperation. Francesco Filmeno, excited beyond reason, proposed to prove the superiority and sanctity of his master by walking through flames, and, strange to say, one of the Franciscans undertook to do the same on the part of his brother order. The trial was arranged by the magnates; a mass of combustibles was laid in the square, and a walk was made across through which the champions were to pass while the flames were blazing. On the appointed day, 17th April, 1498, Savonarola and his champion, attended by a numerous procession, made their appearance, giving out the psalm 'Exsuscitatus est' the Church and dissimulans inimici ejus.' His opponent Fr. Girolamo Rondinelli, attended by some Franciscan monks, was silently and steadily to the place of trial; the flames were kept up by hot sand and iron, and the champion, without the least communicant, was put to death, and the flames were extinguished. This proposal shocked the whole state, and the multitudes. Lastly, Savonarola was excommunicated and ordered as a profession, and as a tempting of God himself. Domenico however refused to proceed without the kiss, and the trial was given up. This business ruined the credit of Savonarola; on his return to his convent of San Marco he was taunted by the populace, and soon after party of his enemies entered the convent by force, and dragged him, with Domenico and another monk, to prison.

He was tried before a mixed lay and ecclesiastical commis appointed by Alexander VII. His eloquence at firstOffsets the charges of the party of Savonarola; he was produced, the truth of Savonarola's father in him, and he acknowledged the falsehood of his pretensions to supernatural powers. He was condemned to death, and he and his two associates, being led to the spot prepared for the trial. On the first attempt to conduct their bodies thrown into the flames, on the 23rd of May, 1498.

Savonarola left several works, both in Italian and Latin, one of which, entitled 'Triumphus Cruces,' is a demonstration of the truths of Christianity. His sermons, however, of which some remain, are not remarkable of his productions. He was eminently a popular orator, and profoundly versed in the art of exciting the feelings. His memory has found several apologists, among the rest, Machiavel in his 'Natiue of Ferrara.'

SAVOY (Savofs in Italian), Savoy in French, a country with the title of duchy, up to the Sardinia
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monarchy. It forms part of the highlands of the Alps and is geographically united to South-western Switzerland, being bordered in the basin of the Rhône. Savoy extends from 45° 48' of Carinthia, and the boundaries of Savoy are: on the east, the great chain of the Graian and Pennine Alps, which divide it from Piedmont and the Valais; on the north, the Leman lake; on the west, the Rhône, which divides it from France; and on the south, an chain of the Celanian Alps, which separates the Rhône valley from the group of Mont Cenis, divides the valley of Maurienne, the southernmost part of Savoy, from Dauphiné. This offshoot ends at the valley of the Isère, which forms a natural opening on the south-west, between Savoy and France, which is bounded on the Rhône, forming a natural barrier to Savoy on that side. This ridge has been cut through at the place called Les Echelles, to make the high road from Chambéry to Lyon.

Savoy consists of several valleys formed by offshoots of the Alps. It is divided into three basins: the northern basin, the waters of which flow northwards into the Leman lake; the central basin, the waters of which flow by means of the Arve, the Fier, and the lake Bourget westward into the Rhône; and the southern basin which is drained by the Isère and its affluents. The Isère runs southwards into France.

The administrative division of Savoy corresponds to the geographical configuration of its surface and its principal valleys. Savoy is divided into three provinces: Chablais, which comprises the southern coast of the Leman lake and the numerous valleys which slope towards it. The Dranse, which rises in the mountains near the borders of the Valais, and enters the lake half-way between the towns of Lens and Aix-les-Bains, from the Dranse and the principal valley of Faucigny, south of Chablais, consists chiefly of the long valley of the Arve, from its source in the Col de Balme to a few miles below Bonneville, where the river enters the province of Carouge. The well known valley of Chambéry begins here, drained formerly from its head, or Aosta, according to the treaty of St. Julien in 1815. St. Julien is now the chief town of the province. The small river Les Usses, which enters the Rhône at Sers, is the principal outlet of the waters of the Châtelard. 6. Roche, the principal慧点 of the valley of the Arve, is the principal affluent of the Rhône, which from north to south, 6, Tarantasia or Tarentaise south of Haute Savoie, consists of the long valley of the Isère, running from east to west, from its source near the summit of the Mont Cenis, to the point where this province takes its name, were ceded by the treaty of Paris

7. St. Julien is now the chief town of the province. The small river Les Usses, which enters the Rhône at Sers, is the principal outlet of the waters of the Châtelard. 6. Roche, the principal慧点 of the valley of the Arve, is the principal affluent of the Rhône, which from north to south, 6, Tarantasia or Tarentaise south of Haute Savoie, consists of the long valley of the Isère, running from east to west, from its source near the summit of the Mont Cenis, to the point where this province takes its name, were ceded by the treaty of Paris. The Isère is next to Faucigny, the most Alpine part of Savoy, and the most interesting to mountain tourists. 7, Maurienne, south of Tarantasia, consists of the valley of the Arc, which has its source at the foot of Mont Cenis, and joins the Isère above Montbrillant. The high road to Italy leads through the whole length of Maurienne. 8, Savoy Proper, the most level and most fertile part of Savoy, lies west of Maurienne and Tarentaise, and south of Geneva. It is divided on the west from France by the department of Vaud, on the east by the Leisse and other streams which run westward into the lake of Bourget, which lake enters the Rhône by a canal called the Théoule. The whole of Bourges lies on the plain formed by the Isère; it is ten miles long and three wide, and the surface is 760 feet above the sea.

The principal towns of Savoy are—1, Chambéry, the capital of the whole duchy. 2, Annecy, the head town of the province. 3, Thonon, the head town of Chablais, situated on an eminence which commands a splendid view of the Leman lake. The country around Thonon is very fertile. Thonon has a handsome town-house and some other good buildings, and 4000 inhabitants. A few miles north-east of Thonon are the remains of the convenet of Ripaille, built by Amadée VIII. Being sold by the French at the time of the Revolution, it was stripped of all its ornaments, and it has since been converted into a farm. Some of the towers remain; the church and the library have been transformed into barns. 4, Aix-les-Bains, a spa, 18 miles from Laon, is on considerably

8. The town of St. Jean, the chief place in the province of Maurienne, has 5000 inhabitants, and a very old cathedral, in which lie buried the remains of the bishops of Savoy. The other towns of Maurienne, Modane, St. Michel, Lanslebourg, and Aiguebelle, do not reckon 2000 inhabitants each. Maurienne has mines of iron, copper, and lead, the aggregate produce of which amounts to 6000 francs yearly.

The late king Charles Felix began the embankment of the three principal rivers of Savoy, the Arve, the Isère, and
The saw, by which means large tracts of fertile land have been reclaimed.

The population of the duchy of Savoy is 501,000, 129,000 of whom inhabit the province of Savoy Proper. A great part of the country is rocky and barren, and the male inhabitants are obliged to leave their homes in order to get a sustenance. Cats and sheep, coming to the face of the Alps and districts. Savoy does not produce corn enough for its consumption. Wine is made in most parts, and some of it is very good. Silk worms are reared in Savoy Proper, and fruit-trees are abundant. The people of Savoy have an old established reputation for honesty, loyalty, and bravery. Savoy has produced many distinguished men of learning, among others, St. Rca, Vaugelas, Gerdl, Berthollet, Ducis, Brogny, Berger, &c.

The popular language of Savoy is a Romance dialect, like those of Western Switzerland, but the people of the towns speak good French.

The statistics of the administration, education, &c. of Savoy are given under SARDINIAN STATES.

SAVOY, HOUSE OF. [SARDINIAN STATES.] SAW, an instrument for cutting timber or other hard substances, usually formed of a plate of steel with a notched or serrated edge. The action of a saw is different from that of a knife or sharp-edged tool; the latter being used simply to separate the fibres, while the former is made, by a rapid motion in the direction of its length, to cut or tear away a portion of wood equal to the thickness of the blade.

The division of wood by riving or splitting was probably the most ancient method of reducing it to pieces of convenient size and shape. Then came the saw, among these saws, the most important not only in the deserts of the desert. The frame-saw is a blade from five to seven feet long, stretching tightly in a frame of timber, the plane of the saw being at right angles with that of the frame. It is used in a similar manner to the adze, but the wood is cut through, owing to its irregular direction. From this circumstance split timber is preferred for the staves of barrels, sieve-hoops, and a variety of other purposes for which great strength and elasticity are required. For a notice of machines for cutting wood by means of knives or knife-like instruments, see Wood-Cutting Machinery.

Saws were used by the antient Egyptians. The annexed cut represents a saw that was discovered, with several other carpenters' tools, in a private tomb at Thebes, and which is now preserved in the British Museum.

The blade, which appears to be of brass, is ten inches and a half long, and one inch and a quarter broad at the middle part. The teeth are irregular, and appear to have been formed by striking a blunt-edged instrument against the edge of the plate; the burr, or rough shoulder, thus produced, not being removed. The following cut, from a painting copied in Roslin's work on Egyptian antiquities, represents a man using a similar saw; the piece of wood which he is cutting being held between two upright posts. In other re

Saw presentations the timber is bound with ropes to a single post; and in one, also copied from Roslin, the workmen are each holding the rope, having left the saw, standing in the cut. In an engraving given in the third volume of Wilkinson's 'Manners and Customs of the Antient Egyptians,' a saw is represented of much larger dimensions than the back-bone of a fish. There is a very curious picture among the remains discovered in the ruins of Herculaneum, representing the interior of a carpenter's workshop, with two goni cutting a piece of wood with a frame-saw; and an inscription on the capital of a column that forms the perfect representation of a bow-saw, exactly resembling, in the form of the frame, and the twisted cord for tightening it, those used by modern carpenters. (Muses, Capitolium, vol. iv., plate 15.) From these remains it is evident that the saws of the instrument were known to the ancients.

Saws are of various forms and sizes, according to the purposes to which they are to be applied. Those used by carpenters and other artificers in wood are the most usual. The frame-saw, or frame-console, or back-saw, for dividing logs transversely, two persons being employed to pull the saw alternately backwards and forwards, and the teeth being so formed as to cut equally in each direction. The pit-saw, a long blade of steel with large teeth, and a true cross-bar, is used for cutting planks or timbers into planks or scantlings; the piece of wood to be cut being laid over a saw-pit, or excavation six or seven feet deep. One man stands on the log, and the other on the side and back of the saw, pulling the saw alternately up and down, a nearly vertical direction, cutting it in its densest only. The frame-saw is a blade from five to seven feet long, stretching tightly in a frame of timber, the plane of the saw being at right angles with that of the frame. It is used in a similar manner to the adze, but the wood is cut through, owing to its irregular direction. Such saws vary in length from about six to ten feet, the teeth being from one-eighth to one-tenth of an inch. Tenon-saws, tenon-saws, dovetail-saws, dovetail-saws made of very thin blades of steel, of equal thickness, and stiffened with steel or brass fixed on their back edge, for cutting across the grain, as in the shoulders of mortise joints, &c., and for many other purposes where a clean cut is required, but where it is not a whole width of the saw-blade that is wanted. Such saws vary in length from about six to ten feet, the teeth from one-eighth to one-tenth of an inch, commonly thicker at the edge than at the back, and the teeth may move freely in a curved kerf, and the blade is mounted in a long handle, having a slit to receive the blade, and a screw to fix it in any required place, so that it may be made to project more or less as required. The frame-saw and bow-saw, in which very thin narrow blades are tightly stretched, are occasionally used for cutting back and metal. Saws are made for cutting bone, horn, brass, and many other hard substances, and there are several varieties used by the carpenter besides what have been enumerated; but it is unnecessary here to detail them. At some minute account of the progress of manufacturing as practised at Sheff'ield, whence, it is observed, 'there are considerable of the inhabitants of the globe are supplied with these useful instruments, is given in Herba Engineer's 'Mechanic's Encyclopaedia,' to which we are indebted for the following particulars. The very common kinds of saws are made of iron-plates, hammer-harden, and planished upon an anvil, to give them some degree of stiffness and elasticity; instruments, though spurned by workmen, are, in their present condition, the most being very trifling.
The pitch and resin are to be melted together, and then added to the other ingredients, the whole being heated in an iron vessel until the aqueous vapour is driven off, and the oil of the pine tree is the only constituent of its surface; the flame being extinguished by putting on the cover of the vessel. The liquid mixture thus prepared is put into a vessel of suitable form, and, when cold, the saw-plates, which are heated to a cherry-red, are precipitated aperginate into it. When sufficient adhesive mass has been taken up by the saw-plates, the latter are ground upon large grindstones. The circular face of the saw-plate is ground by a grindstone, against which the grinders press with force, in order to grind it as evenly as possible. He places on these, stretching over the stone, which revolves with great velocity; his hands, arms, breast, and knees being supported by a basket placed between the grindstones, and his body being covered with the sludge formed by the process of grinding, which adheres to the surface of the stone. His elbow rests in the socket, and his hand is supported by the guide-pin, the handle being firmly held in the required position, and the elastic action is restored by striking them on the rock against the edge of the stone.
ous operation; a good workman not being able to cut more than twenty-five or thirty square feet of Portland stone in a day; and, as commonly practised, it involves considerable waste of material, owing to the tendency of the saw to swerve from the right direction when the stone is not uniform in hardness. The defects of the common process have been partially remedied, of late years, by the use of stone-sawing machinery, worked by steam or water power, in which the effect is so much increased by greater pressure upon the saws, that, according to the 'Encyclopaedia Metropolitana,' one saw performs as much work in seventy hours as a man in six weeks, and with such accuracy that the surface scarcely requires any dressing. As in saw-mills for wood, any number of saws may be worked together, so adjusted as to cut a block of stone into slabs of not required thickness. Curved forms may be cut in stone by means of straight saws; but a patent was obtained in 1810, by Mr. Murdock, for cutting columns, stone pipes, &c. by means of a cylindrical saw, so mounted as to receive rotary motion alternately in each direction; such a motion being found more suitable for cutting stone than a continued rotation in one direction.

SAW-FISH, a fish belonging to the fixed-gilled Chondropterygians, nearly related on the one hand to the Sharks (Squalidae), and on the other to the Rays (Squalidae).

SAW-MILL. In this article will be embrased not only such points in the mechanism of saw-mills, strictly so called, as appear to require notice, but also some other contrivances in which saws are used in connection with machinery, and not simply as tools impelled and guided by the hand. Saws, considered merely as tools, have been described under Saw, where an account of their manufacture will also be found.

Although saw-mills have not been very generally introduced till within a few years, they are by no means of recent origin. Saws worked by machinery were known on the Continent at least as early as the fifteenth century, though the improvement of having several saws in the same frame, so as to cut a log into many planks by one operation, is supposed not to have been tried prior to the sixteenth century. Notwithstanding their successful use in Germany, Holland, Norway, and other places, the introduction of saw-mills in England was much opposed. One was erected near London in 1665, by a Dutchman; but it was soon abandoned. In No. 419 of Houghton's 'Collection for Improvement of Husbandry and Trade,' published August 2, 1700, the adoption of saw-mills in this country is strongly recommended, although some opposition from the populace is mentioned as not improbable. About the year 1767 or 1768 a saw-mill was established at Limehouse, under the auspices of the Society for the Encouragement of Arts, Manufactures, and Commerce. It was driven by wind, and some intended by a person who had become acquainted with the use of saw-mills on the Continent. This mill was destroyed by a violent mob; but the ring-leaders being seized, and the damage repaired by the society, was again set up, and soon followed by others, particularly after the improvement of the steam-engine made it available as a moving power. A similar mill is said to have existed a few years previous at Leith. Many of the earlier saw-mills were driven by water, and those of North America are generally worked by water power.

The earliest kind of sawing-machinery was, in its essential features, the same as that still used for sawing logs of timber into planks. In this machine the saws are arranged in a frame which slides up and down on vertical guides the reciprocating motion being imparted to the frame by a crank upon an axle turned by a connection with the water-wheel or other prime mover. The log is supported on a carriage resting upon rollers, and is made to advance a little at each stroke of the saws, which cut during the descent only. Figs. 1 and 2 represent the common reciprocating saw-mill, the same letters in both referring to corresponding parts. The machinery, in the form here represented, occupies two stories; the cast-iron framing being securely bolted down to the basement floor, and reaching through the upper floor, which is shown in sections in the view. An horizontal axle, revolving in bearings attached to the lower part of the framing, is driven by teeth cut on a branch saw-toothed wheel from the axle immediately impelled by the steam-engine, or water-wheel, or other moving power. Two drums or sprockets are used, that marked a being fixed on the axle while the other, revolving with the driving strap-belt is shifted to this loose rigger when it is desired to stop the machine without stopping the engine that propels it. In one of the earlier saw-mills the motion was communicated to the train of cogs wheels; but straps are preferable, as occasion less friction, and, in case of any accidental obstruction to the machinery, will give way without injury, ung cog-wheels would be broken to pieces. It may be observed here, that important advantages have been derived from the recent introduction of straps or bands of caoutchouc, for driving machinery; as these are much more effective and durable than cog-wheels, and obviate the inconvenience of slipping to which the common bands are liable without a suitable covering. The use of the caoutchouc also makes the slipping motion to the saw-frame &c., by means of the &c.

The vertical motion of the saw-frame is ensured by its sliding up and down upon smooth pillars or guide-rods attached to the frame-work of the machine; these being usually made square, that the parts sliding upon them may be screwed up so as to fit accurately when reduced by wear. In some machines friction-rollers are used instead of mere slides for guiding the saw-frame. The saws (of which eight are represented in Fig. 2, although a smaller number
In the saw-mills erected at Woolwich by Brunel, to which allusion has been made before, a contrivance is added to allow the saw-frame to retreat backwards a little in its ascent, that the teeth may not touch the wood when not cutting. An American inventor, in a patent obtained about 1836, proposes to sharpen the back of about every third tooth of the saws to a knife-edge; the cutting-edges being alternately towards each side of the saw. By this means, during their ascent, shave or as it were plane the cut surfaces, and leave them much smoother than when of the ordinary kind.

As in all reciprocating machinery, much power is lost in the apparatus just described, in consequence of the alternating motion. This circumstance also limits the speed of the saws, while the rapidity with which the work is performed is further retarded by the saws cutting in one direction only, one-half of the time being occupied in the ascent of the saw-frame to bring it into the position for making an effective stroke. These circumstances have therefore been very extensively applied to the more delicate kinds of sawing within the last thirty or forty years, although it does not appear to be known by whom they were first applied to the cutting of saws. It is evident that circular saws require less power, and will run at twice the speed as reciprocating saws; while their continuous action not only expedites the operation of sawing, but also makes the motion of the machinery more uniform.

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number of plates about twenty inches long, and from six to ten inches wide, secured by screws to another set of plates that are firmly attached to the flange or foundation, which is of cast-iron, very thick in the centre, and tapering to a thin edge. The outer side of the flange, or that along which the log to be cut has to pass, is made either quite flat or slightly concave. When the saw is very large, the lower part, as shown in the diagrams, passes through the floor of the room. The saw is mounted on one end of an axle, revolving in firmly secured bearings. A is a rigger fixed on the axle, to receive motion, by means of a brake or engine, to the machine. The grip, which is the strap is shifted when it is necessary to stop the saw. As the mere cessation of the moving power would not stop the machine as quickly as is desirable, a wooden wheel $\theta$ is added, to the periphery of which the iron strap may be pressed by a lever so as to arrest its revolution, and bring the machine to a stand. The log to be cut, which is marked $\theta$, is fixed to a carriage $g$, which slides on a kind of railway elevated on a substantial framework. The under side of the carriage is suppled with a rack, working into a pinion at $\eta$, to which motion is imparted by a train of wheels, partly under the floor, and turned by a strap from the rigger $d$, on the axis of the saw; $e$ is a wheel with several grooves of different diameters, by a band from which an axle is turned, shown in the cut, which is moved for increasing the velocity with which the carriage is propelled. By means of screws turned by a handle attached to the carriage, the log is made to project beyond the plane of the saw in a trifling degree; and then the attendant throwing through the gear, the carriage, with its log, and it is steadily moved along its railway, while the thin and flexible veneer separated by the saw slides along the convex side of the saw-flange at $i$. When the carriage has traversed the whole length of log, the detached veneer is removed, and the carriage brought back to its original situation by reversing the motion of the pinion; a process readily effected by means of a clutch-box beneath the floor, with a handle brought to a conclusion for the purpose. The apparatus which imparts a transverse motion to the log is then again moved, so as to project the log sufficiently beyond the plane of the saw to allow another veneer to be cut off, and the same process is again gone through.

A stationary shield of thin boards was used to cover the saw on the convex side, at the point where the veneer turns out of the straight course to pass the flange; and, when the wood is very brittle, another shield is used, pressing the outer side of the veneer, both to diminish the risk of its breakages on the first hits that may be detached, and to flying off against the face of the person attending the machine. Several minor contrivances, which it is unnecessary here to detail, are added for various purposes of convenience and safety. The rigger, with its riggers, &c., are enclosed by boxes, and a boarded channel is made to pass under the veneer. In some machines the veneer passes beneath the axle, and in others in a curved channel by its side, in which case it is not necessary to place the log either above or below the level of the axle. When large logs are to be operated on, they are secured to the carriage by iron clamps, or dogs; but when they are reduced to a thin slice, or fish, they are glued to a wooden frame attached to the carriage, by which arrangement the saw will cut as long as there remains sufficient thickness of wood to be divided; and, by softening the glue with hot water, the thin slice remaining on the frame may be detached. When the saw-plates are worn down by repeated sharpening, they are moved further from the centre of the flange, different rows of saw-plates being provided for that purpose. By a judicious arrangement of these holes, the plates may be used until one row is filed away, and they are reduced to about an inch and a half in width.

In the principal room for cutting veneers at the City Saw- Mill are three light saws, varying from eight to seventeen feet diameter, and revolving from seventy to ninety times in a minute. In erecting the mills the greatest possible care was taken to ensure solidity of base for the machinery; each saw was separately founded on an iron foundation. The necessity for such precaution may be readily conceived when the size of the saws is considered, and it is remembered that they are to cut from ten to fourteen veneers out of an inch of wood, and so completely has the desired solidity and steadiness been attained, that when the eye is brought into the plane of the largest saw while it is revolving, its mark can scarcely be discerned. Logs of about five feet diameter have been cut by this apparatus. The writer was present during the conversion, or cutting up, of the largest log that had been placed on the carriage in one piece.—It was Hondurian mahogany, eighteen feet long and three inches square; from which sheets were taken at the rate of about ten an inch, and so beautifully as to require scarcely any dressing.

A patent was obtained by Mr. Craig, in 1831, for the contrivances for cutting veneers, in one of which a ball plug was used to engage an engine, to which the roller, which the log, the whole of which wood is converted into a continuous spiral veneer, rolling those produced by the celebrated veneer-cutting machinery used in Russia, on which a knifed edge is used as a cutter. [Wood-Cutting Machinery.]

As before explained, large circular saws are only suitable for cutting very thin slices or boards; they are never for cutting off a greater thickness than half an inch, rarely so much. When, therefore, the piece cut off is a thick to be diverted from the straight line to pass the face of the saw, a saw of much smaller size, and formed of a single plate of steel, is used. Such a saw is usually made in a bench or table, under which the axle passes, having a slit or opening through which the upper part of the saw projects. The saw is kept steady by means of thick plates or flanges of iron, about one-third its diameter, one of which is screwed tightly up to each side of the saw, the other being fixed by a screw, the whole being held for by means of adjusting screws inserted in the bench, such a manner as to confine the saw-plate very near the periphery. The piece of wood to be cut is laid on the surface of the table, and pushed towards the saw head; its motion is directed to the right, and a guide is screwed to the table, and capable of adjustable distance from the saw, but always remaining by inclining the surface of the table, or the cross piece of the wood, to suit the purpose. The apparatus which imparts a transverse motion to the log is then again moved, so as to project the log sufficiently beyond the plane of the saw to allow another veneer to be cut off, and the same process is again gone through.

Circular bench-saws are occasionally used for cutting a foot diameter, though they are generally much smaller owing to the projection of their flanges, they will pass through a piece of wood of about one-third its thickness. Among the surface of the table, and pushed towards the saw head; its motion is directed to the right, and a guide is screwed to the table, and capable of adjustable distance from the saw, but always remaining by inclining the surface of the table, or the cross piece of the wood, to suit the purpose. The apparatus which imparts a transverse motion to the log is then again moved, so as to project the log sufficiently beyond the plane of the saw to allow another veneer to be cut off, and the same process is again gone through.

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The saw was patented in 1824, by Messrs. Baynes and Son; by which timbers of large size may be cut into saws, each cutting, as represented in Fig.

![Fig. 5](attachment://fig5.png)
usual way, not through the log, but from the circumference to the centre; so that the cuts form the radii of a circle, and the planks or boards produced are thicker at the outer than the inner edge. c, Fig. 7, is an end view of the log showing a few cuts of the saw. It is laid on a carriage which moves it towards the saw, and is so fixed that at the conclusion of one cut it turns a little upon its axis to prepare it for the next. To make the outer edges of the planks smooth and uniform, a pair of teeth called sappers (marked $b$, $b$ in the cut) are screwed to the side of the saw; and these remove one or two inches of the sap or soft outer wood from each plank. When the log is of sufficient size, a second set of cuts may be made, after removing the planks formed by the first operation. The boards cut by this machinery are much used for covering buildings, for which their feather-edged form especially adapts them; and they are found to withstand the influence of the weather far better than others; a circumstance readily accounted for by the fact, which may be observed in a stick of timber that has been exposed to the weather, that all cracks caused by shrinkage tend towards the centre of the tree, or in the direction in which these boards are cut.

All the varieties of apparatus that have been described are for the purpose of making straight cuts; but it is sometimes desirable to produce curves or half circles, for which purpose there are several ingenious contrivances. In 1806 the Society of Arts rewarded Mr. Trotter for the invention of a concave circular saw, resembling a watch glass in form, which was mounted in a bench like the common bench-saw, and to which the wood was directed by a lever. Many useful forms are cut by a saw consisting of a cylinder of steel, toothed on the edge, as represented in Fig. 8. Such saws, which are called crown or curvilinear saws, or, from their resemblance to the saws used in the operation of trepanning, trepan saws, are used for cutting circular pieces of wood to form the sheaves of blocks; and, when of larger dimensions, for cutting chair-backs, fellos of wheels, curved brush-handles, &c. For these purposes they are sometimes used as much as the wood is directed by a lever. In the cut, patented by Mr. Dodds, in 1835, an arrangement resembling the common reciprocating saw-mill is applied to curvilinear sawing, by causing the carriage on which the timber is supported to deviate from the straight course, and follow the curvatures of a model of the required form; while the saws, being attached to the frame by pivots, are capable of adapting their position to the curve. This machine is applicable in many cases in which neither of the preceding would be available; and, by using several saws, many pieces of wood may be cut together.

SAXE, MARSHAL MAURICE, COUNT OF SAXONY, was the natural son of Augustus II., king of Poland and elector of Saxony, and of the Countess of Konigsmarck, a Swedish lady of high rank. Maurice was born at Dresden, October 12, 1696. In 1708, when only twelve years old, he served in the army of the allies under the count of Schulembourg before Lisse; and in 1709 he had a brilliant shot under him at the siege of Tournay, and he was at the battle of Malplaquet in the same year. His father soon afterwards gave him a regiment of cavalry, with which he fought against Sweden, and was at the taking of Stralsund. When he was only fifteen years of age his mother got up a marriage between him and the heiress of the counts of Loben, a German lady, who was about the same age.

When Prince Eugene of Savoy betrothed Beulgrave he was joined by Maurice of Saxony, who, when the campaign was terminated, returned to Dresden, and after a short stay repaired to Paris (1720), where he was introduced to the duke of Orleans, then regent, who received him in the most flattering manner, and conferred on him the title of Marshall-

**Fig. 6.**

**Fig. 7.**

**Fig. 8.**
de-Camp. On his return to Dresden to ask his father's permission to accept the duchy, he contrived to separate himself from his wife by procuring a divorce. No blame is imputed to her except jealousy, for which there was no doubt sufficient cause, constancy in his attachments to the other sex being by no means one of the characteristics of his disposition. In June 1726, he returned to France, and took the command of a regiment, which he managed according to a plan of his own, and for which he received the praise of Polastron. He continued for a considerable time to study military science and the art of attacking fortified places under that skilful tactician.

In the year 1726 Maurice of Saxony set out for the north, in the hope of being elected duke of Courland through the interest of his father. By the exertions of Anna Ivanovna, daughter and widow of the Tsar Peter the Great (Frederic-William, who died in 1711), who had conceived an attachment to him, his election was carried, though there were other candidates, and he was opposed by the czarina Catharina I, who sent Menzinskoff to seize him in Mstoa; but he defended himself in the palace, and the Russians retired. The Russian influence was then used in the Polish diet, which, in virtue of its right of a susseignomy, summoned him to appear before them, but he refused to do so, and the diet in consequence signed his proscription. He attempted to defend himself in his territory, but the Russians forced him to flee, and he escaped to France with nothing but his diploma of election. In 1728, after the death of Catharina I, the duchess of Courland, and the detachment of his territory, he attempted to return, which he did, and there is little doubt that she would have made him her partner on the throne of the Carls, to which she was elected in 1730, if she had not previously discovered a glowing inscription of his innocence, and immediately dismissed him. He then returned to Paris, and afterwards repaired to Dresden. His father, Augustus II, died in 1733.

War having been declared between France and Austria in 1733, Maurice of Saxony repaired to the court of Versailles to solicit employment, and he was sent to the army of the Rhine, commanded by the duke of Berwick. He distinguished himself at the siege of Philipsburg, and was appointed lieutenant-general at the peace of 1738. He returned to Dresden for the purpose of prosecuting his claim to the dukedom of Courland, but failing in that attempt, he went again to Paris, and devoted himself to the study of the art of war and to the completion of a work on which he had employed himself for some time, and which he called 'Mes Réservées.'

On the death of the emperor Charles VI. in 1740, a general war broke out. Louis XV. sent an army into Bohemia under the marquis of Saint-Furcy, by which a small duchy was conquered to the Count of Saxony, who was charged with the investment of Prague (1741), which he took by assault in a few days, and with equal rapidity the fortress of Egra. He was afterwards appointed to the command of the army in Italy, and displayed such great courage and skill as to be considered as a model of soldiery. He was also employed in the defence of Alsace, when he was suddenly summoned by Louis XV. to assist in placing Prince Edward the Pretender on the throne of his ancestors, but he had scarcely reached Dunkirk when a tempest destroyed a part of his squadron, and the rest was blockaded by an English fleet. Maurice returned to Versailles, and Louis bestowed on him the staff of a Marshal of France (March, 1743).

In 1743 Louis XV. invited the French with an army of 80,000 men, the left wing being under the command of Marshal Saxe, who was appointed to cover the sieges which were to be undertaken by Marshal Noailles under the immediate inspection of the king. Menil, Ypres, and Furnes were quickly gained, when news was brought that Prince Charles had entered Alsace. The king and Marshal Noailles hastened to its defence with the greatest part of the troops, leaving Marshal Saxe alone in Flanders to act on the defense of the army three leagues of his own; he maintained his position however with consummate skill, keeping the allies continually in check, and retaining the conquests which had been made at the beginning of the campaign.

In 1745 Louis XV. returned to Flanders with a large additional force, amounting, with that already in Flanders, to 100,000 men, of which Marshal Saxe was now appointed general-in-chief. Marshal Noailles consenting to act under him. On the 22nd of April, 1746, the campaign was opened by the siege of Tournay. The allies advanced as near with 45,000 men, English, Hanoverians, and Dutch. Marshal Saxe was suffering under dray, and undertook the action of tapping on the 16th. Notwithstanding, he was able to oppose the allies with a force not exceeding them; his oblige to his men was to pull a hair, and by the 9th of May he was attacked near the village of Fontenoy, to which he had put himself in position. The English and Hanoverians advanced to the attack of his redoubt in a column, and for while bore everything before them.** The Dutch kept off an enveloping attack of the allies, and the interrupted fire of the French infantry with a determined attack, which seemed to make victory certain. But the presence of Marshal Saxe at length prevailed; the Dutch kept off the enveloping attack, the allies fell upon the English column, it was at length composed of a way, and defeat followed. The French victory was of the most memorable of the eighteenth century, one of the most memorable of the eighteenth century, was soon followed by the conquest of all Britain. Conquest of Fontenoy was presented by Louis XV. to the château of Chambord, and 100,000 francs of revenue arising from the estate. Tournay, Ghent, Bruges, Oudenarde, Ostend, Brussels, Mons, Charleroi, and were all taken between May 25, 1745, and Sept. 15.

In the campaign of 1747 Marshal Saxe took Ladesis, a hard-fought battle (July 2), which he followed up by a conquest of Bergen-op-Zoom, and in 1748 by that of York, in which the allies made a very good impression on the Dutch, but the allies made a very good impression on the Dutch, and were not taken by the allies. Marshal Saxe survived about two years to perform honours which were lavishly showered upon him. November 30, 1750.

's Manoeuvres,' was published in 1757, 5 vol. 4to. It is a work on military affairs, and is said to contain a good deal of valuable matter mixed up with many assertions which cannot be relied on. It was translated into English by Sir William Wentworth, The Rev. Mr. Manners, and 'to the Art of Campaign of Marshal Saxe,' translated from the French,' 1757, 4to.

Marshal Saxe was a soldier, and a ripe and good judge of nothing more. When at the height of his powers, the Academy declared him a member, which he had the good sense to decline, as he had great knowledge of his art and all matters connected with it, his literary acquirements would have been of no honour to that learned body: if we may judge from the following specimen of his philosophy given in the 'Biographie Universelle': 'Il veuille me faire de la Caragne, mais corne une bague au main.' The Marshal, man of large size and extraordinary physical strength, was the left arm of the left arm; and a man of very considerable stature.Marshal Saxe-Altenburg, the eastern frontiers of the Thuringian Forest, consists of two pror divisions: the eastern along the banks of the Pleisse, the western, which is traversed by the Saale. The province is separated on the left, the Saxon, which is the western, the eastern is bounded on the northeast and southeast by kingdom of Saxony, on the southwest by Weimar, on the west by Reuss, and on the southeast by Prince Saxe, on the east by Reuss, on the southeast by Weimar, and on the southwest by Coburg and Bautzen. The duchy lies between 51° and 53° latitude and 13° longitude. The area is 343 square miles. The climate is cold and unhealthy in the mountains and fertile. It is also favourably situated for commerce on the whole it is one of the most flourishing and best visited of the German states. The hills in the eastern division are gentle undulations, and covered with forest; those in the western chiefly with meadows. The best pasturage is near Kilia, and the Buchberg, where over not above 1000 feet high. Insulated branches of the Thuringian Forest run north as far as the duchy of Saxe-Coburg and Gotha, and as numerous as those in the hills of the duchy. The rivers, which are very considerable, and all tributaries of the Elbe, are the Saale, with the Orla and Roda, and the Pleisse, which is the principal river of the country, with its small tributary streams of Sprortz and Gerstenberg. There are also small springs, the most celebrated of which is at Ronneburg. The soil is highly favourable to the cultivation of corn (particularly rye and wheat), pulse, potatoes, rape, 500 and hemp. The nature of Allemani,
excel the other Saxons in agriculture, and are considered inferior only to the farmers of Holstein and Belgium. They also pay much attention to the rearing of cattle; their sheep are of a superior breed, and the horses of a remarkably strong type. The cattle breed is also well valued. Fruit is very plentiful, and much improved since the establishment of an agricultural society. There are but few mineral resources. Attempts are now making to work the iron-mines in the vicinity of Ronneburg; the extensive peat-fields near Altenburg yield immense quantities of fuel. Very few porcelain earth is also found in the neighbourhood of Altenburg, which supplies the famous porcelain manufactury at Gotha. Manufacturing industry is chiefly confined to woolen cloths, straw hats, and tobacco. There are considerable manufactories at Altenburg, Kahla, Eisenberg, and Lucka. The articles of export are corn, cattle, wool, butter, and timber.

The duchy contained, in 1838, a population of 121,599, of whom 71,519 were Wends, who are distinguished by their peculiar costume and manners. The inhabitants profess the Protestant religion, and the number of Roman Catholics does not exceed 200. The duchy contains 8 towns, 2 market- towns, 458 villages, and 19,586 houses. With regard to education, Jena is the common university of Altenburg and the other Saxon duchies.

There is a gymnasium at Altenburg, a lyceum at Eisenberg, six town schools, besides several preparatory and Sunday schools, a seminary for schoolmasters, a school of design, another for artists and mechanics, a seminary for noble ladies, and some scientific associations.

The duchy of Saxo-Altenburg is a member of the German Confederation, and has one vote. By the new constitution of 29th April, 1831, the States, which assemble every four years, elect the two chambers, which are elected under a president nominated by the duchy, form one only chamber.

Altenburg, like all the country between the Saale and the Mulde, forms part of the ancient Osterland, and appears from a very early period to have been under the dominions of Meissen. After numerous changes of masters, it was formed into a separate principality in 1635, when duke John of Weimar, grandson of John Frederick, the unfortunate Saxon, succeeded to the throne, a son of his deceased brother, Frederic William I., to whom he gave Altenburg, while he himself retained Weimar. On the extinction of the house of Altenburg in 1675, the larger portion reverted to Ernest the Pious, duke of Gotha. From this period the principality of Altenburg was governed by the family of Saxe-Gotha, till it expired in the person of Frederic IV., in February, 1832.

By the territorial compact among the three junior branches of the house of Saxe, that of Gotha, Coburg, and Altenburg, the dukedom of Altenburg, created in 1675, by the extinction of the house of Altenburg, after the death of Ernest the Pious, was restored to the Elector of Coburg, who was its seventh son John Joseph. This principality consists of nine districts, viz.: 1. Altenburg, which has 13,763 inhabitants. 2. Ronneburg, a walled town, containing a ducal palace, two churches, and above 5000 inhabitants, who subsist by agriculture, mechanical trades, manufactures of woolen cloths, pottery, porcelain, and leather. Near the town there is a mineral spring which is much frequented. Black chalk for drawing is found in the neighbourhood. 3. Eisenberg, which is situated on a considerable eminence. It is surrounded with walls, has four gates, and is considered the most ancient residence of the ducal-duchess. It has three churches, an observatory, a town-hall, a poorhouse, and a tolerably large population.

SAXE-COBURG-GOTHIA, a duchy in the southern part of Thuringia, is composed of two large and various smaller detached portions, which are surrounded by the walls of the Elector of Hesse, Meiningen, and Bavaria. The principality of Coburg lies between 50° 8' and 50° 23' N. lat., and between 10° 49' and 11° 1' E. long., and that of Gotha between 10° 14' and 11° 2' E. long. The area of Coburg is about 200 square miles; that of Gotha about 590; making a total of about 790 square miles. The country, though occasionally level, especially in the south of Coburg, is on the whole of a mountainous character, more particularly in the south part of Gotha, which is traversed by a large portion of the Thuringian range, of which the loftiest points are, the Schneekopf, 3113 feet, the Inselberg, 2947 feet, and others of nearly equal elevation. This chain, extending in a south-easterly direction from Eisenach through Gotha to the frontier of Bavaria, has caused the fertile lands of the plains of the lower Rhine, and the upper and middle Rhine, the fertile lands of the hunting grounds of Coburg, and there are some rich pasture-lands. This mountain-chain contains gold, silver, copper, and a large quantity of iron, lead, arsenic, and cobalt.

The rivers are tributaries of the Main, the Werra, and the Saale. The rivers of Coburg are the Inn, the Saale, the Hassach, and Ruhnach; those of Gotha, the Hirschel, with the Ense, Ruh, and Nesa, the Unstrut, Gera, and Apfelstedt.

Agriculture is the principal occupation of the inhabitants, especially in the low lands, which yield abundance of corn, hops, vegetables, carrots for the making of sugar, flax, anise, caraway, poppy, and canary seed, and excellent fruit. The forests yield timber, potash, and pitch.

The rearing of cattle is prosecuted with much activity; the sheep are generally of the Merino breed, and the horses strong and of a good make; swine and poultry, particularly geese, are plentiful. Iron is found near Friederichstadt; there are also coals, sandstone, millstones, marble, alabaster, pitch-slate, limestone, clay, potters' clay, and gravel.

There is considerable manufacturing industry in Gotha, but little in the other districts; the chief articles are linen- yarn, ticking, twills, woollens, and cottons; tar and lamp-black; also manufactories of iron, steel, starch, tobacco, soap, paper, porcelain, copper and iron utensils, and glass.

The exports are—from Gotha, timber, pine and other wood-seeds, wool, coriander and anise seed, and oil, pitch, lampblack, pest, linen and cotton goods, metal and wooden wares; from Coburg, cattle, butter, linen, and wool. In addition to the exports, the duchy has a considerable transit trade, as the high road from Leipzig to Frankfort passes through it.

The population of Coburg is 41,000, and that of Gotha 96,658; making a total of 137,658, of whom 134,220 are Lutheran Protestants, 2238 Roman Catholics, and 1200 Jews. It contains 9 towns, 10 market-towns, 429 villages, and 23,550 houses.

Saxe-Coburg participates in the joint proprietorship of the University of Jena, and has 4 gymnasia, 2 institutions for schoolmasters, 1 for commerce, 4 for design and mechanics, besides several hundreds of town, village, and Sunday schools.

The principality of Coburg has had a representative constitution since 1821, composed of 17 delegates; Gotha has had its chamber of representatives from an early period, which differs in its nature and arrangement from that of Coburg.

Coburg formerly belonged to the counts of Henneberg, but came by marriage into the Ernestine branch of the house of Saxon. On the death of the unfortunate elector John Frederick, his territories were divided between his sons, and after the extinction of his house it reverted first to the princes of Altenburg, and upon their dissolution to Ernest the Pious, duke of Gotha, whose second son Albert inherited the principality of Coburg, while his seventh son John Joseph inherited the principality of Altenburg and Saalfeld, became the founder of the line of Coburg-Saalfeld, after very long and severe contests among the different ducal branches of the house of Gotha. His two sons, who resigned jointly, removed the second government to Coburg, and it was governed by their descendants till 1806, when Napoleon took possession of it, because Duke Ernest, who had just succeeded his father, was absent in the Russian service. He was restored in 1815 by the Congress of Vienna, for the active share he had taken in the liberation of Germany, he received, in 1816, a considerable accession of territory in the principality of Lichtenberg, with 20,000 inhabitants, which he however sold to Prussia in 1834, in exchange for the annual rental of 80,000 dollars. On the territorial division of the duchy of Gotha-Altenburg, in 1835, Coburg resigned its possession on the left bank of the Steinsch in exchange for the principality of Gotha, with the exception of a few small districts: it also obtained Königsberg and Böingen from A 3 0
Hildburghausen, and Kahlenberg and Gauernstadt from Meiningen.

The house of Gotha, properly so called, commenced in 1640. Upon the defeat of the famous elector John Frederic (who was of the Ernestine line) by Charles V. at the Battle of Parnawa, in 1547, the electoral dignity was transferred to the Albertine branch, and John Frederic afterwards received a compensation various districts in Southern Thuringia. His son fixed his residence at Gotha, and his grandsons became the founders of the four houses of Hildburghausen, Altenburg, Weimar, and Kahlenberg, above 1000 cattle are annually sent by the Werra to bed, sheep, horned cattle, tobacco, wool, leather, yarn, pitch, pitch, potash, tar, Sonnenburg toys, in which the is a great deal of grain, yet in bad seasons its quantity may, Eichsfeld, one school for teachers, one for forest economy above 200 town and village schools.

The population of the duchy and its dependencies is 299,229 souls, and extends itself to 140,000,000 acres of land. The religion, 394 of the Reformed, 450 Roman Catholos, 1030 Jews. It contains 23 towns, 17 towns having 4,000 inhabitants, 343 villages. The principal towns are—Meine with 6000 inhabitants, Saalfeld, 4300; Hildburghausen, 3500; Fosneck, 3500; Sonneberg, 3400; and Eichsfeld.

The duchy of Saxo-Meiningen formerly consisted of the domains of the counts of Henneberg, and the possessions of Pius, duke of Gotha. On the division of his estates among his seven sons, Bernhard, the third son, became the founder of the line of Meiningen in 1650, and the son of his brother, the introduction of the primogeniture in 1690. He succeeded in 1863 by his infant son Duke Bernhard, who, under the guardianship of his mother, joined the German Confederation in 1866, and the annexation of the Duchy of Meiningen to the German empire by the Duke Bernhard has introduced many salutary reforms in civil and judicial administration. On the extinction of the house of Saxe-Gotha-Altenburg, in 1826, Meine occupied a considerable accession of territory in the principality of Hildburghausen and Saalfeld, seven villages of Neustadt, also Theil, Femern, Römhild, Kammer, Eichsfeld, and Kranichfeld, with the exception of some new districts, giving up at the same time Kahlenberg and Gauernstadt.

Hildburghausen was founded by Ernest, sixth son: Ernest the Pious, in whose family it continued until 1216, when, by a family compact among the junior ducal branch, the reigning duke Frederic exchanged it for the duchy of Altenburg; since this fief has merged into the later Meiningen, with the exception of a few districts still vested in Coburg.

SAXE-WIELMAR-EISENACH, a grand-duchy on the northern territories of the Thuringian Forest, consists of the principal territories of Weimar, Coburg, and Eisenach, given by Saxe-Gotha, and of the insular district of Neustadt besides various detached portions. Weimar lies along the banks of the Saale, and Eisenach on those of the Werra near the other on the Thuringian and Rhine rivers. There is a large district of about 1000 square miles of which Weimar occupies about 966 and Eisenach 445, and is bounded on the north and north-east by Prussian Saxony, east and south by Altenberg and Reusa, and south and west by districts of Schwarzburg, Coburg, Meiningen, Mecklenburg, and Electoral Hesse.

Except in the district of Neustadt, the soil is rich in arable land, and yielding, where the cold climate allows; hills do not rise into mountain-ranges, but the northern point, the Giekelbahn near Illmenau, does not attain a height of more than 2700 feet. The climate of the mountain region is very bleak, but the valleys and the level districts are mild and agreeable.

The principal rivers are,—the Saale, Ilm, Elbe Oria, Unstrut, and Gera, in Weimar, and the Werra, Hövel, Ness, Ulster, and Felda in Eisenach, which are all tributaries of the Oder, Elbe, and Weser. There are mineral springs near Berka and Rohls. There is a considerable diversity in the three districts of Weimar, Eisenach, and Neustadt. Weimar is entirely agricultural, and in favourable years raises more than ordinary crops. There is a very good deal of grain, yet in bad seasons its quantity may, Eisenach, which is extremely mountainous, for food either upon the other districts or abundant crops of potatoes.
The chief productions are wool, which is the staple article of commerce, grain of all kinds, vegetables, fruit, flax, hemp, raps, hops, a small quantity of wine, pitch, tar, and lampblack. The mineral productions, which are very sparingly wrought, are manganese, slate, feldspar, porcelain and potters' clay, basalt, sandstone and freestone, iron, and salt. Peat is also dug in some parts of the country.

The rearing of cattle forms an important branch of industry; the number of cattle are mostly reared in Neustadt; and sheep form an important product.

Manufactures make little progress; Eisenach possesses the greatest number, such as woolens, coarse linens, and stockings; there are a few potteries, porcelain manufactories in Pippach, and woodcarving in Rheda. The woolens, linen and cotton goods, stockings, hats, pottery, potash, ironware, dried fruits, juniper berries, and game.

The population of Saxe-Weimar-Eisenach in 1538, was 242,972, of whom 227,388 belonged to the established Lutheran church, 6,779 to the Reformed, 10,380 to the Roman Catholic, and 1406 to the Jewish persuasion. It is now 248,489, of whom 174,937 live in the country, and 73,551 in the 33 towns, the principal of which are Weimar, with 11,485 inhabitants; Eisenach, with 9340; Jena, with 6004; and Apolda, with 4236 inhabitants. There is a university at Jena with 433 students, two asphaltum, three upper schools, and above 500 town and village schools; two schools for training schoolmasters, one blind and one deaf and dumb, and the schools established under the denominations of schools of industry, &c., besides many literary and scientific institutions. The court of Weimar has long been celebrated for its liberal encouragement of the fine arts, which has diffused itself at Nuremberg and Strasburg, and attracted the most eminent literary characters of Germany, among whom were Herder, Wieland, Schiller, Götze, and others.

The frequent subdivisions of the Ernestine ducal Saxon houses render their history extremely intricate. Like all its cognate branches, the line of Weimar boasts its descent from the illustrious John Frederic of Saxony, who, on being deprived by Charles V. of his electoral dignity and domains by the imperial edict of 1530, took the great step of settling in Weimar. The founder of the house of Weimar is John, who was born in 1570, and whose original patrimony has been considerably augmented by purchase and the extinction of some of the collateral branches. His sons took a very prominent part in the Thirty Years' War, and the name of Bernhard of Weimar is inseparably interwoven with its history. Duke Ernest Augustus, in order to secure the integrity of his dominions, introduced the law of primogeniture, which was long enough to have detached the Electorate of Hesse-Hanau from the House of Hesse; he fortified Eisenach and Jena, on the death of Duke William Henry of Saxe-Eisenach without male issue. He died in 1748, leaving his son a minor. This son, dying in 1758, left an infant son Charles Augustus under the guardianship of his mother. The delicacy of the queen was such as to disqualify her for the education of her son; she engaged distinguished talents, which she devoted to the advancement of the general interests of her states, and laid the foundations of the literary celebrity of Weimar. Charles Augustus, following the example of his mother, made his dominions the centre of German arts and sciences. He took an active share in the wars of Prussia against France, but after the unfortunate battle of Jena was compelled to join the Confederation of the Rhine in 1806; on the victory of Leipzig however he united himself to the allies in 1741 took the command of an army in the Netherlands. At the Congress of Vienna, he received an accession of territory with 77,000 subjects, and the dignity of grand-duke, which gives him a place among the most eminent princes of Europe. He has been for some years his people a representative constitution, and secured their affection by his paternal administration. He was succeeded in 1828 by his son Charles Frederic. [Apolda; Eisenach; Jena; Weimar; BERNHARD, DUKE OF, born at Weimar, Aug. 16, 1600, was the fourth of the seven sons of John, duke of Saxe-Weimar. As all the important circumstances of his life are connected with the Thirty Years' War, and the history of the period is so closely and clearly understood when viewed in connection with the other leading events of that great contest. [THIRTY YEARS' WAR.] We shall only give here a brief statement of the leading facts of his career, with the addition of the sketch of his family.

After the battle of Praga, Nov. 3, 1620, Bernhard served in the army raised by the margrave of Baden-Durlach for the purpose of assisting Frederick V., king of Bohemia and elector palatine, to support himself after the loss sustained in that disastrous affair. In 1623 he commanded a regiment of infantry in the Dutch army under Ulrich von Brunswick; and in 1625, and again in 1627, he was placed at the head of a regiment of cavalry in the Danish army raised by Christian IV. in support of the Protestant union. After the alliance between Louis XIII. and Gustavus Adolphus, Aug. 13, 1631, he joined the northern army, whose bishops of Bamberg and Würzburg, with the title of duke of Francolmg. Bernhard distinguished himself at the siege of Würzburg, in forcing the passage of Oppenheim, and in the battle of Nordermärk, 7 June 1632, but from the repeated successes of Gustavus he was forced to retreat, and all his posts in that quarter. Gustavus afterwards appointed him to the command of an army designed for the conquest of Bavaria, with which he advanced as far as the mountains of the Tyrol, obtained possession of the territory of the three fortresses of Ehrenburg, the keys of that country, and put the emperor in fear for his Italian states. Gustavus however recalled Bernhard to assist him against Wallenstein, and shortly afterwards they fought together at the battle of Lützen, Nov. 16, 1632; and when Gustavus fell, the duke of Weimar took the command, and forced the enemy to retreat, and shortly afterwards drove the Imperial army out of Saxon. The Swedish army was afterwards divided into two parts by the chancellor Oxenstierna, and under the command of Prince Charles and Duke of Riga, Prince of Pommern, and of Bernhard of Weimar. Bernhard besieged and took Ratisbon, which however was afterwards retaken by the Imperial army, July 29, 1634, and Bernhard and Horn were afterwards in possession of Pressburg. The emperor, however, in his impatience of the duke of Weimar to give battle without waiting for the arrival of reinforcements. On the 6th of October, 1635, Bernhard concluded a treaty of alliance and subsidy with the king of France. He was occupied for a considerable time in the affairs of his kingdom, in and out of which assisted the German armies by procuring, through the agency of Oxenstierna, a portion of least of the arrears of pay. On the 3rd of March, 1638, he allied himself to the forces of Rhenish Mark, and afterwards in session of the terrier on the 22nd of March. He afterwards besieged Alt Breisach, then considered one of the strongest places in Europe, which capitulated Dec. 19, 1638. He died suddenly at Neuburg on the Rhine, a pestilential fever, July 18, 1639.

'The duke of Weimar imitated,' says Schiller, 'the lofty example of Gustavus Adolphus, in whose school he was trained, and only required a longer life to have reached it, perhaps to have surpassed it. To the personal hero and the soldier he joined the cool and steady eye of the general; to the courageous endurance of manhood, the rapid decision of youth; to the fiery impetuosity of the warrior, the dignity of the prince, the moderation of the wise man, and the courage of the soldier. When fortune, sprung up after the most severe blow with undiminished promptitude and energy. No impediment could check his daring spirit, no failure could damp his invincible courage. His aims were lofty, perhaps higher than he could have reached; but men of his character are not subject to the ordinary laws of prudence by which the mass of mankind is governed. Capable of accomplishing more than others, their minds are raised to a bold, less bordering audacity. Bernhard of Weimar stands in modern history as a fine specimen of those vigorous times when personal greatness was the highest title to honour, when valour won kingdoms, and the virtues of a hero raised a German knight to the imperial throne.

[Biographie Universelle; Schiller's Geschichte des Dreysigjahrigen Kriegs.] [GUSTAVUS ADOLPHUS; OXENSTIEN] WALLENSTEIN.] [XAC'YCA. [LITHOPHAGIDE, VOL. IV., P. 50.] SxAX/COLA, the scientific generic name for the Stonechats. [WARRIERS.] SxaxiOLLNA. [WARRIERS.] Sxaxifraga (from saxum and frageo, in allusion to its habitat in rocks and crevices of mountains, a genus of plants, the type of the natural order Saxifragaceae. It is characterised by possessing a calyx, either free or partly united to the ovary, and divided into 5 segments; a corolla consisting of petals 10 stamens with anthers, many stigmas; pods usually two styles with obtuse stigmas; a capsule with 2 beads, 2-celled, many-seeded, opening by
tween the banks; the seeds upon a receptacle attached to the disseipement.

The species of this genus have been a source of as much difficulty to botanists, as those of Rosa, Rubus, and Salix; and for a long time has been the subject of much discussion. The definition of species and varieties, much yet remains to be effected. De Candolle enumerates 150 species, whilst D. Don, who has paid great attention to this genus, and has written a valuable monograph on it, published in the 13th volume of his "Flora Indo-Malaccensis," gives 110 species, of which these 24 are British. They are mostly inhabitants of alpine and subalpine regions of the colder and temperate parts of the northern zone. They are most of them true rock plants, and spread northwards from the north extremity of rocks on which they grow, by which means they loosen fragments of the rock, and in this way their name applies to them much better than to their supposed influence over calculus in the human system. Many of these species are well known as ornamental plants in our gardens, for which their hardy habits and beautiful flowers well adapt them. The numerous species are grouped by most botanists in various sections, whilst some have split the genus Saxifraga into many independent genera. In this place we shall only give a few examples of the species.

**Saxifraga umbrosa**, London-pride, or None-so-prettily calyx reflexed; leaves undivided, olive with sharp cartilaginous teeth, tapering gradually into a broad-stalk which is 8 inches long; escutcheon 1 inch long, white, pubescent, red and hairy, with a few scattered entire bracts; flowers numerous, with obtuse petals, white or flesh-coloured, beautifully spotted with yellow near the base; stamens 6; style 1; capsule subglobose, purplish. This plant was found by Tournouer on the hills of Spain, and is a native of Great Britain and Ireland. It is one of the most popular of garden flowers, blooming in April and June, and attaining perfection even amidst the smoke of London. In Ireland it is known by the name of St. Patrick's cabbage.

**S. Genu**, Kidney-leaved Saxifrage, calyx reflexed; leaves undivided, roundish, kidney-shaped, sharply toothed, mostly less hairy; flowers single; capsules round, hairy; petals two; this species is found on mountains in the South of Ireland, and is considered by some botanists as only a variety of the former.

There is another species, the **S. hirsuta**, Hairless oval-leaved Saxifrage, with characters between the other two; the leaves are oval and heart-shaped, and the whole plant is hairy. With the two last, it is found in Ireland, on the Pyrenees, and the Southern Alps of Germany and Switzerland. **S. Gropulata**, White Grass-moss Saxifrage, in meadow land, kidney-shaped, on long footstalks, obscurely lobed, of the upper part of the stem nearly sessile, acutely lobed; stem pubescent, root consisting of numerous small clustered tubers. This plant is found in Bohemia, and, though uncommon, is abundant on gravelly soils. The roots of this species, forming as they do little granular masses, were at one time sold in the shops under the name of saxifrage seed. It was formerly used extensively in nephritic and urinary diseases, but as its use arose out of the exploded doctrine of signatures, by which it was supposed that every plant by the form or character of some part indicated the disease for which it might be employed, and as its power of relieving disease has never been satisfactorily observed, it is now deservedly falling into disuse. The purpose which these little knobs seem to serve in the economy of the plant is that of supplying nutrient to the stem and other parts during seasons of drought; and this is rendered more probable by the fact of these bodies being found larger at the commencement of a dry season. Several varieties of this pretty saxifrage are frequently found in gardens.

**S. Azizin**, Azizin or Margined Saxifrage; leaves undivided, ovate, margin reflexed, tods; sheathed, with sharp cartilaginous serrations; flowers corymbose; calyx naked and smooth, with acute segments; petals nearly orbicular. This plant is a native of Alpine situations in Austria, Switzerland, and most countries of the continent of Europe. It is most abundant in mountainous, cream-coloured petal and red dots, opening in June and July. It is perennial and perfectly hardy.

**S. rotyleon**, Pyramidal Saxifrage: leaves ligulate, obtuse, crenatamente serrate; calyx densely beset with glands; with thin, lanceolate, obtuse segments; petals oblong, three-ribbed, of a pure white without any spot; is a native of the mountains of Lapland, Norway, Iceland, Greenland, and the Pyrenees. It is commonly cultivated, and is well known for the profusion of beautiful white flowers: this plant is most abundant towards the mountains, and several varieties of this plant found in gardens, which are remarkable for their pyramid of snow-white blossoms. These will continue for some time, provided the plants are kept in the shade, and well screened from the influence of the wind. It bears about 110 species, of which the following are named:

**S. hypnidii**, Mossy Saxifrage, or Ladies' Cushion; calyx spreading; leaves lobed, radical ones three or five-ribbed; those of the procumbent stem undivided or three-ribbed; flowers in a dense corymbose head; capsule sessile, with or without lateral veins. This is a frequent plant in mountainous situations of Great Britain, especially amongst limestone rocks. It is also found on the mountains of Norway and on the Pyrenees. It is also found in gardens, where it thrives on shady walls and amongst rockwork. Several varieties of this species have been described, some of which have been classified as separate species. An excellent example of the varities of this and other British species will be found in Hooker's "Botanic Flora." In planting this species is easily increased, by means of its trailing branches, which being placed in most soil in a shady situation in autumn, will put forth shoots in the following spring.

**S. crasifolia**, Thick-leaved Saxifrage; leaves undivided, coriaceous, roundish-oval, abrupt, stalked, serrated, scapate; scape naked; panicle dense, cymose. This plant, although not native of Great Britain, is common in the mountains of Siberia. It is said to have been first introduced into this country in 1755, by Dr. Bolander. It flowers in March and April, and the great size of the plant and thick large coriaceous leaves distinguish it from the other species. The flowers are white in colour. This plant may be easily propagated in gardens by parting the roots, and planting them out separate, in the spring or autumn, in open ground, or in pots.

**S. adstrenum**, Saxifrage; leaves undivided, roundish, toothed, hairy; petals two; of two species. This species is a native of China and Japan, and is frequently found growing on rock-work and in shady places in our gardens. It is remarkable for its trailing stems which it spreads round like a young sweetwort in light, when taking root in the ground, produces young plants in abundance. The irregularity of the flower of this species has induced some botanists to place it in a new genus, but it is still most generally referred to its original name. It may be raised from seed, which can be sown in any good soil which may be planted in pots, and placed in the green house, although in mild winters they will grow in the open air in sheltered situations.

**S. SAGITARIA**, or "Pendula," is a natural order of plants belonging to the poecarpous group of polygamous Rosaceseae. It consists of shrubs and herbaceous plants with single alternate leaves without stipules. The calyx consists of five sepals or less united at the base. The petals are equal in size to the lobes of the calyx, and alternate with the stamens, which are purple, 5-10 in number; anthers five-celled. They have an hypogynous or perigynous disk. The ovary is inferior, or nearly superior, consisting of two carpels, which cohere more or less by their face at the base, but diverge at the apex; one or two-celled, with a parietal central placenta. They have no styles, and the stigma sessile on the top of the lobes of the ovary. The seeds are numerous, very minute; the embryo is taper, lying in the axis of fleshy albumen. The genus Parnassia belonging to this order differs in having four parietal placentae, while opposite the lobes of the stigma. The genus Heuchera has irregular flowers and stipules. This gives rise to Rosaceseae, but it also gives rise to Saxifragaceae, which is its many-seeded partially united carpels, its albuminous seeds, and in its not possessing stipules. The habitat of Saxifragaceae allies them to Caryophyllacea, but they differ in the character of their placenta, the size of the ovary, in bearing the flower of a fleshy albumen. The genus Parnassia belongs to this order differs in having four parietal placentae, while opposite the lobes of the stigma. The genus Heuchera has irregular flowers and stipules.
SAX

Taylor's graminea.

acceasive plural: and in our modern English these three cases are all represented by the monosyllabic oath. Again, in the Anglo-Saxon, *æce* was the dative singular, and *æce* the genitive plural; in the Old English, *othe* represented both dative singular and genitive plural; and our present dialect, having lost the first of the three, had no means left of distinguishing these cases from the nominative oath. The third person singular of *æce* was *ælith*, and the first, second, and third persons plural *ælfithi*; in the Old English, *loeth* represented both numbers, and *lot/loeth* is the third person singular of the word in the spoken language of the present time.

We say 'spoken language,' because our grammarians make *o* the ending of the third person singular. But in Somersetshire, west of the Parrett, where the southern dialect still lingers, they uniformly say *he loth*, *he readith, he see* _ith*, etc. (Jennings, *Obs. on the West*, p. 115.) We have very satisfactory evidence, that in the sixteenth and seventeenth centuries this dialect was general throughout the south of England, and we find numerous traces of its peculiarities in the literature of that period. Dolman wrote the following passage, in the sixteenth century:

> So, mide the vale, the greyhound seeing sterk
> His lirist for parre 3, before sho serteth.
> And where shaw 3/3, he turneth for three to bear.
> The one prey pritcheth, the other satteris forme.

_Mirr., for Mag._ Hastings.

Spenser has *mel/i* and *hal/ith*, and Sackville *leap/i*.

It is probable, that the infixion used by the translators of the Bible, and which is now lost, was merely an old form, taken from the language of books, and adopted chiefly with the view of raising the style.

The same observation will apply to _est_, the infixion of the second person singular, and to some other endings of verbs, which are still preserved entire in our grammars, though they have lost their vowel in the spoken language, for the last two centuries.

It is obvious, that either of the changes above noticed must have brought with it a new language. When, in the twelfth century, the vowels of the final syllables were confounded, there was at the same time a confusion of case and number, of tense and person,—in short, of those grammatical forms to which the language owes its present beauty. The words were formerly in their conjugation and inflexions is still preserved in our grammars, though they have lost their vowel in the spoken language, for the last two centuries. It exhibits the most striking analogies with the contemporary dialects of Germany and the Netherlands, and the further changes which converted it into our modern English were rapidly working a like revolution in these sister-tongues, when the invention of printing doubled the influence of their written language, and thus preserved them from further corruption. Unfortunately, at the time of this discovery, the vowel of our final syllables had already given way; the infixions of our noun were gradually reduced to the miserable remnant which our grammars still recognize; our adjectives, singular and plural, definite and indefinite, were all confounded; the past tense in _ed_ should not be distinguished from the participle in _ed_, and our modern English was the result,—a language, according to some critics, flexible yet precise, copious yet methodical, enriched from all languages, yet possessing a noble simplicity and elegance. According to others, broken and inconsistent, vague and fluctuating, neither possessing a sufficiency of terms, nor provided with laws and analogies by which they can be invented.

In tracing the causes which melted down the Anglo-Saxon into the Old English, we have alluded to the influences supposed to have been exercised by the French language. The popular notions on this subject are, we believe, most erroneous. Hal Harold been the conqueror at Hastings, the Anglo-Saxon must have perished, just as the Old-German perished in Germany, and the Old-
Norse in Denmark. The victory of William merely hastened by a few years an event that was inevitable. The use of Norman-Romance as the court language of England retarded the fashion to a north of a letter s, already too weak stem those changes to which the language of a busy adventu- rous people is peculiarly liable; and thus far the Norman con- quest may be considered as having assisted in the destruction of the Anglo-Saxon. But the vulgar notion, that it produced a new language, is wholly groundless. The Latin of the early English Church; the s, half of French, is wholly at variance with the MS. literature of that period. The Ormulum, in which all the peculiar features of the Old-English are developed, and not a trace of the Anglo-Saxon literature is found, is almost free from Gai- ciemens as any of our MSS. written before the Norman-French existed. The same may be said of most of the Old-English MSS. of the thirteenth century, and it is not till we approach the latter half of the fourteenth century that we find the Gothic words and a trace of the Anglo-Saxon. The language of, of which Skinner complains so loudly. We must reluctantly agree with this writer, in charging upon Chaucer much of the mischief resulting from these importations, not that he first introduced, but that his authority chiefly sanctioned them. The learned but pedantic writers of the Elizabethan era, and, at a later period, Johnson, followed his example. They have ‘enriched’ our language with the spoils of the foreigner, till its vitality has been almost extinguished —in the learning of the day is speaking the same language; but a comparison of the Anglo-Saxon with the Meso-Gothic, as well as the ana- logy of other languages, may convince us that even thus early there were dialects, and these dialects have now been sorted among the Danish islands merely by a narrow arm of the sea. We might then expect that in the counties colonised by the English we should find many peculiarities of the Northern languages, and in the counties colonised by the Saxons much that remained of the English or Dutch; but the true extent of the English language, the Saxons of north have been at all times distinguished by such peculiarities, but so few early records have come down to us in the pure dialect of our northern counties, that we are left only to judge by comparison in the second or Old-En- glish stage of their progress that we can form any just notion of their distinguishing features. Perhaps these are best seen in the conjugation of the verb. The following table will show how closely the inflections which distinguish our northern dialect agree with those of a Swedish conjugation:—

<table>
<thead>
<tr>
<th>South Dialect</th>
<th>North Dialect</th>
<th>Swedish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freo, Ich hoppe</td>
<td>I hoppe</td>
<td>hoppe-s</td>
</tr>
<tr>
<td>thu hoppe</td>
<td>thu hoppe</td>
<td>hoppe-s</td>
</tr>
<tr>
<td>he hoppe-eth</td>
<td>he hoppe-eth</td>
<td>hoppe-as</td>
</tr>
<tr>
<td>we hoppe-eth</td>
<td>we hoppe-eth</td>
<td>hoppe-as</td>
</tr>
<tr>
<td>ye hoppe-eth</td>
<td>ye hoppe-eth</td>
<td>hoppe-as</td>
</tr>
<tr>
<td>they hoppe-eth</td>
<td>they hoppe-eth</td>
<td>hoppe-as</td>
</tr>
<tr>
<td>Perf, thu hoppe-est</td>
<td>thu hoppe-est</td>
<td>hoppe-as</td>
</tr>
<tr>
<td>Impat, hoppe-est</td>
<td>hoppe-est</td>
<td>hoppe-as</td>
</tr>
<tr>
<td>Infin, to hoppe</td>
<td>to hoppe</td>
<td>hoppe-as</td>
</tr>
</tbody>
</table>

The inflections in s are generally used in the Northern languages, while in the South there are many traces of their having been used in our Northern dialect for the same purpose.

Another peculiarity of our Northern dialect is the fre- quently occurring of a substantive ending (in which it again resembles the languages of North-Eastern Europe), as seen in one of his earlier published volumes. He states however that Aurey as a native of Worcestershire, and that is in the county of Stafford. It has misread Aurey Regis for Over-Aurey.
The origin of the Midland dialect may admit of the following explanation. Neither natural obstacles nor political divisions ever separated the Northern and the Southern dialects. During the heptarchy, Gloucestershire and Oxfordshire belonged to Mercia, and not to the kindred race of the West Saxons; and when the Danes began their occupation of the north of England, the shires of Warwick and Northampton, and generally that of Leicester also, were united in the closest ties with the southern counties. This fellowship seems to have led to the use of the Northern dialect, which would naturally be encouraged by the vast numbers that flocked from all parts of the country to the universities. The 'Reve's Tale' affords us a specimen of the rude style which attached to the forms of Northern speech, in which each branch of the language was treated with just as little ceremony in the north of England.

(See Townley Mysteries, Secunda Past.) Hence we may understand the progress made by the intermediate dialect, and are prepared for the conclusion, to be led by an examination of our Old English manuscripts, no less than by the express declaration of a contemporary philologist. Higden, who lived in the fourteenth century, ranges our provincial dialects under three heads, the Northcotes, the Border, and the Southern; and this division seems to have been generally recognised by our antiquaries, for in our catalogues we find some manuscripts noticed as belonging to our Southern dialect, others as belonging to the Northern, while many of them, exhibiting the marked peculiarity of neither dialect, are passed over without remark.

The change which gradually produced the Midland dialect most probably first showed itself in the counties of Northampton, Warwick, and Leicester; but before it became finally established throughout the country by adopting the peculiarities of Southern speech, as by giving greater prominence to such parts of the native dialect as were common to the South. The Southern conjunctions must at all times have been familiar, at least in use in that region; but other conjunctions were popularly used, and in the gradual disuse of these and other forms peculiar to the North the change consisted. We have many MSS. written in the Midland counties, in which all trace of the Northern dialect seems to have disappeared. A Dutchman who has lately come to this country may be found some verbal inflexion in es, or some other popular form, quite sufficient to betray the writer. These counties were long considered as belonging to the north of England. When the feuds between the two races at Cambridge and Oxford produced the act, it was generally at Stamford or Northampton that the Northern men fixed the seat of their new University.

The Northern dialect was still broadly spoken, within the last twenty years, in the counties of Lincoln, Rutland, Derby, and Stafford; but it has been gradually giving way before a language so much more widely understood, till it is now to be found only in scattered localities amid the mountains of the North of England or in the Midland counties of the south of England. It is probable that this dialect may be held up to a later period. It was certainly spoken at the beginning of the seventeenth century in all the counties round London;* and Milton, when he issued forth

To breathe Among the pleasant villages and farms,*

must have heard a dialect around him in all essential particulars the same as the Somersetshire. Like the Northern dialect, it gradually retreated before its formidable rival; it lingered for a century in Wiltshire and Hampshire, and has now taken up a doubtful stand behind the Puritans. Before this position, our eyes were opened; the schoolmaster will probably have driven it from this its last place of refuge.

We will now take a rapid survey of the literature which belongs to the language whose history and peculiarities we have been endeavouring to trace. As the language of the lion of all the living tongues, we find that all its earlier specimens are metrical. We will therefore first call the reader's attention to our Anglo-Saxon poems; and to define more clearly the range of our present inquiry, we will first notice the commonwealth, at that early period, distinguished verse from prose.

An Anglo-Saxon verse is made up of two sections, which together may contain four, five, six, or even more accented

* For specimens of the Middle-English dialect see also Jocelyn's 'Tale of a Cuckoo,' 1396, and Chaucer's 'Rutland Fastelavels'; andראה one hal of 'Gammer Gurnet's Needle' is written in the dialect of Essex.

syllables. These sections are bound together by the law of alliteration, or, in other words, each verse must have at least two accented syllables (one in each section) beginning with the same consonant or with vowels. Sometimes, and in particular cases, there are extensions to such alliterative syllables in the first section, as in the verse

me[od of birth] nol [meed]

It is very incorrect to call this alliteration the 'essence' or the 'groundwork' of Anglo-Saxon verse. It is certainly an important part, but still a mere adjunct. The purposes it served are similar to those which are provided for by the final rhyme of our modern versification. The essence of Anglo-Saxon verse consisted in its system of rhythm. As the accents generally varied from four to six, it may be thought that the rhythm was too vague and uncertain to be of much value; but, on the other hand, it is obvious that the system is sufficiently definite; and there are some of its rules which certainly give it a more scientific character than belongs to the system that has superseded it. For example, no sentence, nor any important member of a sentence, could end otherwise than at the close of a section. In our modern poets we often find a sentence ending in the midst of a section, or even immediately before the last syllable of the verse:

'the Pope Has found [I'm tall] its [try] of high tree [son.] Much [He spoke and leeredly for life.] &c.

but such a verse would not have been tolerated in an Anglo-Saxon poem. We may indeed find scores of such verses in the printed editions of these poems; but we will not, for example, and we speak advisedly, in any Anglo-Saxon MS.

The 'Gleaner's Song' is the oldest specimen extant of Anglo-Saxon literature. It is found in one MS., one of the books left by Bishop Leofric to his cathedral, about the middle of the eleventh century. Of the Gleaner himself we know nothing, save what can be learned from the poem; but from certain passages in it we may gather that he was born among the Anglo-Saxons, and dwelt on the marches that separated the Engle from the Swene in the fourth century. In early youth, he attended a Mirging princes named Ethelred to the court of Eormancie, the celebrated king of the East-Goten, and who has figure so often in Roman history under the name of Ermenricus.* His professional skill appears to have gained him the favour of this monarch, and of the great lords who frequented the court, and whom he visited in their respective governments. He afterwards accompanied a Mirging writing into Italy, probably during the inroad of Alaric, A.D. 401; and as Gothic leaders were now rapidly gaining a footing in the empire, he seems to have seized the opportunity of wandering through its provinces. On his return, he was received with the highest honours by the Alisia (Attila) and the East-Goten; and as Alisia's accession dates only in 433, and Eormanie died in 375, he must have been more than seventy when he wrote the poem.

The 'Gleaner's Song,' like many other Anglo-Saxon poems, has a short verse in which, appears to be of almost equal antiquity with the poem. It may be literally translated as follows:—

Wide travel had him, his word-stone unlocked
Hie, who more marres, over each
And nations visitted. Off in hall he gaz
Memorable things. Him from among the Myrings
Nobles rear'd he, with Ethelred
(Least artificer of love) in his first journey
Tought the home of the fierce king
East from Ongle—the home of Eormanie
Wetthel trew glucose be the number tell
Many men I word of. &e.

Here follows a list of celebrated kings, from which the Gleaner selects for special notice Aleximaries, who appears to be Alexander of Macedon, and Wala, who has no doubt, and a member of the Visigoths at Toulouse, A.D. 417. With the exception of Alexander, all of them appear to have been the Gleaner's contemporaries. After this enumeration he proceeds:

*For specimens of the Middle-English dialect see Jocelyn's 'Tale of a Cuckoo,' 1396, and Chaucer's 'Rutland Fastelavels'; and 'Gammer Gurnet's Needle' is written in the dialect of Essex.

P. C. No. 1292.
Therefore may I sing, and story tell,
Relate how the croft, in mead-hall,
How our man was high-born with large lance.
I was with the Huns,* &c.

We have then the names of nations and of countries visited by him, which appear to be strung together in the order best suited to the alliteration. There are also certain notices of the great people by whose bounty he had benefited, which will not be lost at the Gleesman seeing only a liberal patron in the same monarch whom the author of the preface denounces as 'a wrathful treachour.' The whole concludes with a short eulogy on the dignity and privileges of his craft.

The great value of this poem lies chiefly in that string of names, which we have omitted as being so little interesting to the general reader. We do not stop to examine the question, whether any or how many of these notices have been interpolated during the four centuries which elapsed between the composition of the poem and the writing of the MS. Our knowledge of early Saxon history is so scanty, that all such speculations must be hazardous. But we may observe, that the Scriptures had been translated into a Gothic dialect long before the Gleesman began his wanderings, and we know from Roman history that during the fourth century nearly one-half of the Gothic tribes were Christians. We need not therefore necessarily feel suspicion, when we read of the Assyrians and the Persians, the Jews and the Roman emperors; they may have been as well known to the Gleesman as to the Saxon monk who transcribed the MS. The chief interest however attaches to the mention of the various Gothic, Slavish, and Finnish races in their history, the Gleesman's Song is the great link which connects the knowledge gained from Latin sources with the information gleaned from the Middle-Age chronicle. In many instances it furnishes the only means of penetrating the mystery which surrounds these races. There are tribes, still to be found between the Volga and the Vistula, which we can identify with others named by the Gleesman, and thereby prove to have had a political existence fourteen hundred years ago, of whom hardly another trustworthy memorial can be found, till within the last two or three years the heaps which give promise that a web of Gothic fiction are also at least as valuable, and may, if rightly taken advantage of, save us from much of that speculation in which German scholars have indulged so largely. To write a full and satisfactory exposition of this web would require a volume, but till it be laid open the history of modern Europe must remain incomplete.

There are other poems, which must have been composed before the Anglo-Saxons left the Continent, the 'Battle of Finsburg' being the 'Battle of the Tale of Beowulf.' The first of these is a mere fragment, and appears to have belonged to one of those historical songs which Tacitus (Germ. 2) represents as the only literature of the ancient Germans. The other is chiefly taken up with the relation of two of Beowulf's adventures: the third relates the 'Grendel,' the second against a terrific 'worm,' or 'earthdrake.' The poem has come down to us in a modernised form, and the mixture of Christian and heathen notions is sometimes singularly curious. For the most part, the nature of the subject, and the marked change that takes place in the rhythm, enables us to lay our finger on the very line where the interpolation begins. The following is one of the attempts to reconcile the old superstitions and the new creed:

* The grim stranger was Grendel highly
Margry in the month of March; who the moons,
Fees and gaveness—land of the Fii-clin.
The bresses man long had kept it,
Stolen his Maker him he had done.
On Go's him the stocker avenged
The eternal loaved, for that he drew;—
For joy he in that food, but him outside
His chin, and his chin, the man, far from manhood.
Thence evil births all pro-applied.
Ryans, and Elder and this now,
So to the dastis, that with God fought
A long three—for he paid them meed.

The Goths seem to have peopled every solitude with a race of adventurers called the Fii-clin. The sea, the moor, the forest—their country—were inhabited by these. The territory of every Gothic tribe, were their dwelling-place. The battle, by which Ofta settled the marches between the Glees and the Swede, was fought at Fii-door (so 'Glee

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We have the 'Battle of Finsburg,' 4 an historical poem: another poem of the same class was written on the death of Byrhtnoth, 5 who bravely fell in resisting one of the Danish bands, A.D. 993. (Hume, Hist. i. 3.) Works, now lost, were written in the tenth century. Hereford's champion, in the early part of the eleventh century, and the songs commemorative of Hereward's exploits, which Ingulf tells us we were in his day so popular, were probably composed on the same hand. There are many of the Old-English romances, as 'Horn,' 6 'Havelok,' 7 'Bevis of Southampton,' 8 'Guy of Warwick,' &c., are more

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* Text published by Haynes in a MS. now lost.
† Text and translation by Thorpe in (1818), by Kemble (1827).
‡ Text published by Jancius in a MS. now lost.
§ Text published by Thorpe.
adaptations of Anglo-Saxon poems. Occasionally the sub-
text was taken from foreign sources, of which the 'Tale of
Judith' is probably the best-known. This afforded a
splendid example. The 'Tale of Apollonius of Tyre' is
in prose, and a mere translation from the Latin.

There are other songs preserved in our chronicles, and
closely allied to those last mentioned, but which are
much shorter, and partake in some respects of the
sounding and solemnity of the former. Among them may
be enumerated the Brunanburh war-
song, 2 Edgar's coronation song, 3 the two songs which
commemorate the death of this monarch, 4 and the elegy
written on the death of the Confessor. 5 The first and last of
these are probably the part of Anglo-Saxon poetry.

A great deal of Anglo-Saxon verse was written during the
eleventh century. One of the writers seems to have been
called Deor. His name occurs in a poem 6 which
exhibits many characteristics of the Confessor's work, and
the authorship of some of the best-sounding
blunders of transcription; but it may be gathered that he
was 7 a poet or minstrel to the Danish princes who succeeded
Knut, and he appears to have lost his place at court when
the Confessor mounted the throne of England. The name
of Cynewulf has been given to this poet 8 from certain poems
found in the Exeter and Vercelli MSS. It was hid in
a kind of riddle, similar in character to our modern anec-
dotes. He was probably the compiler of the two MSS.,
and may have been the author of much of the poetry which they
contain.

But the noblest relic of this period is the Psalter published
some five years back by the University of Oxford, from a
MS. preserved in the 'Bibliothèque du Roi.' In the first
part of this psalter, there is a somewhat defective Anglo-Saxon translation in prose;
and also a preface giving the account of the
ms. and its scope, and tendency. The translation often paraphrases the Latin, so as to show more clearly its doctrinal or
prophetic meaning; but from the 50th Psalm, the translation is
in verse, which perished in the original, exhibits many
cases of glaring misconstruction. The preface also dis-
pers, and the whole seems to be the work of a man very
slovenly provided even with the rudiments of learning.
This deficiency however may now be considered as
in part compensated. The various MSS. containing this
psalter exhibit much diversity of text. Some of the psalms are translated with a terseness and also an
elegance, which place the translation far above any of our
modern versions, and there is occasionally a Mittonic sweep
of language, that has not often been surpassed even in the
choicest specimens of our sacred poetry 9 from certain poems
found in the Exeter and Vercelli MSS. It was hid in
a kind of riddle, similar in character to our modern anec-
dotes. He was probably the compiler of the two MSS.,
and may have been the author of much of the poetry which they
contain.

A note in the MS. informs us that a priest named Wulf-
win Cada 'wrote it with his own hand' (manu sua con-
scriptus). We think it extremely probable that Wulfwin
copied the manuscript as soon as it was
went, and then drew on his own resources. There are
numberless instances of transcribers altering and continuing
the work they were copying. Most of our MSs.
chronicles were transcribed up to a certain date, and were then
continued by other hands. The very nature of the
work shows it was a compilation; and if Wulfwin had before
him a metrical translation, he would hardly, with that
passion for stately language so common among his country-
men, have postponed it to the prose version. To Wulfwin
Cada we think may fairly be ascribed both the faults and
the merits of the metrical translation.

Among the most important prose works of our SAX
literature must be the Anglo-Saxon Chronicle. This is
commonly called (as if it had been constituted by one
work) the 'Saxon Chronicle.' The earliest copy of a
Saxon Chronicle now extant is the Piegemund Manuscript, in
the library of Corpus Christi College, Cambridge. It is
written, as Wanley observes, in the same hand to the year 911,
and in hands equally antient to the year 924. After that
date it seems to have been continued and interpolated by
various transcribers, whose notices of Christ Church, Can-
terbury, leave little doubt that the volume was once the
property of that cathedral. As Piegemund was consecrated
archbishop of York in 1096, it has been thought that the
original text was compiled by his order, and continued
from time to time under his direction. The internal evi-
dence favours this supposition. The notices which it con-
tains respecting the operations of Alfred and his immediate
associates are so minute that they could not have been
furnished by any but those who were present at them, and who
were able to supply the want of information which had passed between the
prelates and the king.

The next copy, in point of time, is the Dunstan MS.
in the British Museum. This is also a Canterbury
manuscript, and appears to have belonged to St. Austin's
Abbey. It is written throughout in the same hand, and ends in the year
977. As Dunstan was then archbishop, and as the hand-
writing resembles that of other manuscripts ascribed to
him, it is reasonable to conclude that he was the
transcriber. However this be, it must have been written
by a man of scholarlike attainment. We have only to
compare the passages which relate to the period after
Dunstan's death, and to the original in the Christ Church
manuscript, to see at once its superiority.

This is particularly striking in the poetical portions. The
noble ode on the battle of Brunanburh would have
remained for ever mutilated, and in parts unintelligible, but
for the copy preserved in the Dunstan Chronicle.

Besides these two chronicles, we have a Worcester,
an Abingdon, another Canterbury Chronicle, and a
fourth which appears to have been written at Peterborough.

It has been inferred (chiefly for reasons connected with the
writing which was completed respectively in the years
1016, 1048, 1058, and 1125. We have also divers
transcripts and collations made by Lambard, Josselyn,
and other antiquaries of the sixteenth and seven-
teenth centuries, some of whom were attached to
manuscript authorities no longer extant. Josselyn appears
to have had in his possession a second Peterborough Chroni-
cole; and Lambard's transcript in Trinity College, Dublin,
is thought to have been made from an antient manuscript
which perished in the fire that destroyed so many of
our Cottonian treasures.

The Piegemund, the Dunstan, the Abingdon, and the
antient chronicle transcribed by Lambard, all began with
Cassin's invasion. The Worcester, Peterborough, and
Canterbury manuscripts begin with a description of
Britain, extracted chiefly from Bede and Orosius. Then
follow (with variations in the different manuscripts) the
accessions of the Roman emperors, with the deaths of the
aunts and of various popes to the year 464. At this year
inserted an account of the arrival of Hengist and Horsa,
which is somewhat difficult to trace to its proper source;
but the four entries which follow, we have no hesitation in
classing among the 'writings of the antients' mentioned by
Nennius:

* An. 455. Now Hengest and Horsa fought with Wyrt-
georn the king, in the place which is called Aegles-ford,
and slew the Britis there, and after that Hengist took to
the kingdom and Aesc his son.

* An. 457. Now Hengest and Aesc his son fought with
the Britis in the place that is called Crecen-ford, and there
slew they four thousand men, and the Britis then
forsook the land and with much fear fled to Lundenbury.

* An. 465. Now Hengest and Aesc fought with
the Weals nigh Wippesfled, and there twelve Weals
aldermen they slew, and of their own men a thame was there
slain, whose name was Wippes.

* An. 472. Now Hengest and Aesc fought with the Weals
and took untold booty, and the Weals fled the Engle, as
it were fire.

If the reader be startled at finding the name of Engle in
what must have been a Ynian Chronicle, he must recol-
lect that Ida, when laying down his laws for West Saxe,
recognises only two races, the Welsh and the Engles.
None of the invading tribes, or 'kins,' as they were termed,
seem to have refused the name of Englishmen, and in
some of the chronicles the very names of many are not
speaking are termed the Eng-lin. We see no reason
why two of these entries may not even belong to the period
when the fearful struggle they commemorate was yet in progress.

The antiques of the sixteenth and seventeenth cen-
turies seem to have assumed that the Anglo-Saxon monas-
teries kept a regular record of contemporary events; and
there are certainly grounds for believing that registers of a certain
kind were really kept by them. Bede's 'History' (iv. 14)
has been referred to in proof of this. He tells us, that in

"Text published by Thorpe, in his 'Ancestor.'"

1 Translated by Price, in his 'Edition of Warton's Hist.,' i. 97; and

2 'Hist. of Engl. Rhythm.' ii. 355.

3 'Archaeologia,' xvii. 19.
of the king, he adds the prayer, 'may the Almighty God 
a to his soul's mercy, and grant him of his sins 
not feel that the moral qualities of the writer were
eminent as the opportunities enjoyed or the talents
involved were not.

Among Anglo-Saxon prose writers, we must not for
the name of Alfred. His chief works are translations
the Latin, and of these the most remarkable are
of Emperor Orosius, (Gregory, Runcie), the
last-named author he has also paraphrased in verse.
Among what may be termed his original works, are
accounts of the voyages of the two Northmen Wulfsitan,
Othere, which were inserted in Hild's collection, as
he believed a land of heathenism, and as he
translated from Worcester to York in 1002, and
weakened, distinguished from the Saint Wulfsitan
mentioned. A still more celebrated divine was Elfric,
great champion who led the English church in its
resistance to the Romish innovations of the eleventh
century. As much as has been expected, his authority was
appreciated, and with powerful effect, by the friends of the
Reformation. One of Archbishop Parker's works is entitled
Testimony of Antiquity, showing the ancient Faith of
Church of England, &c., being a Sermon translated into
Latin into English by Elfric, abbot of St. Albans, &c.

Archbishop Wulfsitan, better known by the name
Lupus, was a voluminous writer of homilies. He
translated from Worcester to York in 1002, and
the monks of St. Alban's and Bolestow, the
founders of Landfranc and Anselm to keep under the principles so deeply sown by Elfric.

We will close this notice of Saxonic literature by observing
that in the school of Godfroy and Bede, of which
Bede's reputation, in the year one, between him and Edwine.

Here we find, within a century after Ida landed at Bam-
borough, a register kept of the Northumbrian kings,
and general interest excited as to the entries made in it. From
details mentioned by Bede, and which could only have
been supplied by written documents, it is clear that these historical
notices reached to the times of paganism. They must have
been originally written in English, and with Runes, those
ancient letters which were employed only by the Teutonic
Christians to introduce the literature of Rome, and which
occasionally make their appearance in our MSS. to the
end of the eleventh century. A too literal translation of these
venerable words, no doubt produced those
 Anglicisms to be found in the works of Bede, and even of the Wulfstan Nennius and Assor.
On this ground only can we account for the intrusion into the pages of scholars like the first and last of these writers, of such phrases as
With these materials at hand, we may readily understand the course followed in the compilation of our early chronicles.
Who were the parties that continued and undil-
uted these chronicles, is a question very difficult to answer satisfactorily. Archbishop Elfric, Saint Wulfsitan, Hugh
White the monk of Peterborough, and others have been named, with more or less of confidence, by different critics.
For our own part, we could never resist a feeling, almost amounting to conviction, that the character of William was
the work of the venerable Wulfsitan. It begins thus:

'An. 1057.'--If any wish to know what manner
of man was, or what state he held, when he was
he lord, then will we of him write, as he him knew,
that we have waited on him (the him umloodon), and other
whiles in his court have wonned,' &c.

There were some English churchmen at the close of
Wulfsitan's time who doubtless endeavored to
secure this claim to the con
idence of their reader, and still fewer that could have drawn
William's character with the freedom and at the same
time with the Christian feeling that distinguishes the whole of this
noblemen's composition. Wulfsitan was at that time the only English
bishop; and when, after describing the cruelty and sternness

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the year 681, a boy, who was an inmate of Selsey Abbey, was
seized with the plague, which was then desolating the country. As the poor lad was lying on his bed, he
was accosted by two angel-visitants, who bade him tell the
monk's monks that the devil had been expelled by the prayers of Oswald, of whose
death that very day was the anniversary. 'Let them,' said
Saint Peter, for no less a person is the speaker, 'search in their
books (in suis codicibus) in which are recorded the
deeds of holy persons (defunctorum deposito), and they
will find that on this day he was taken,' &c. The abbot,
we are told, believed the boy's words, and straightway went
and searched in his chronicle (in Annali suo), and found that
on that very day King Oswald had been
removed, and the registers made to some public register of
the convent; and this register, or the earlier MS. it was copied from, seems to have furnished materials for the Peter-
borough Chronicle.

'An. 642. Now was Oswald, king of the Northumbre,
slain,' &c., 'upon the Messy-field, on the day called the nones
of August,' &c.

The mention of the day on which an event occurred, is
rare in our chronicles; it is therefore probable that we have
here the very passage which the worthy monk was sent in
search of.

That there were also public (or perhaps we might say
notable) registers, in which were recorded the accensions,
&c., is also gathered from the same venerable
historian. We are told (Hut., iii. 4), such was the horror
excited by the cruelties of the Welshman Cadwalla, and the
apostacy of the Northumbrian kings, that it was
resolved upon by all who had reached the chronology
that 'the Zacharias temporum computus' that the memory
of the faithless kings should be blotted out, and the year
assigned to the reign of the king next following,' &c.; and
he elsewhere adds, with studied phraseology, 'unanimo
omnia suscepta est,' Hut., iii. 9. In the Chrono-
cleric we have the entry--

'An. 634.—And Oswald also took to the kingdom of
the Northumbre, and he reigned ix. winters. They
assigned him the nineth, on account of the heathenism
which the heathenized who reigned the one year between
him and Edwine.'

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noblemen's composition. Wulfsitan was at that time the only English
bishop; and when, after describing the cruelty and sternness
mements in this island. The Angles however seem to have prevailed in numbers or influence, for it was they that gave the name to their new country, Angeland, Anglia (England), though it was sometimes called Saxonia Transmarina. The name Anglo Saxons, which comprises both Angles and Saxons, was invested by the historians of the time of convenience. The history of the Saxons who settled in England, and here, together with the Angles, became the origin of a new population, henceforth forms part of the history of England. [Angles : England.]

Between his two sons, Albert and Ernest, who were the founders of the Albertine and Ernestine houses, of the former of which the Elector still reigns in the kingdom of Saxony, and the latter is divided into the four branches of Saxe-Altenburg, Coburg-Gotha, Meiningen, and Weimar. The electoral dignity which was given to the line of Frederick the Wise, who founded, in 1509, the university of Wittenberg, where Luther and Melanchthon commenced the Reformation; and though Frederick did not openly espouse the cause of Luther, yet it was probably owing to his personal influence with the emperor Maximilian, Charles V., and to his able and prudent conduct, that the great reformer did not experience the fate of John Huss. Frederick was succeeded, in 1525, by his brother John the Constant, who died in 1532, and was succeeded by his son Albert Frederick I., who died in 1576. Albert Frederick the Wise, who founded, in 1509, the university of Wittenberg, where Luther and Melanchthon commenced the Reformation; and though Frederick did not openly espouse the cause of Luther, yet it was probably owing to his personal influence with the emperor Maximilian, Charles V., and to his able and prudent conduct, that the great reformer did not experience the fate of John Huss. Frederick was succeeded, in 1525, by his brother John the Constant, who died in 1532, and was succeeded by his son Albert Frederick I., who died in 1576.

Towards the close of the seventh century we find the Saxons divided into three great tribes, viz. the Ostfali on the western border of the country, the Westfali in the country between the Rhine, Lippe, and Ems, and the Engeri in the centre, between the two former tribes, that is, on both banks of the Weser. Their hostile feeling towards the Franks was kindled into a war under Charles Martel, who conquered some of their cities, and made their inhabitants tributary. This however was only a prelude to the great and bloody wars which, with several interruptions, were carried on by Charlemagne from 773 to 800. During the course of these wars the Saxons fell in battle, and thousands were put to death because they refused to adopt Christianity. But they held out to the last, even after their chief Wittewind had submitted and become a Christian. The treaty of Sclis on the Weser between Wittewind and the Saxons agreed to become Christians, and were put on a footing of equality with the Franks. Henceforth their history forms a part of that of the Carolingian empire. To diffuse a knowledge of Christianity through their land, and to establish the new religion more firmly, Charlemagne founded seven bishoprics, and from the places he appointed as the seats for these new ecclesiastical dignities, we may see the extent of country which they then occupied. The seats of the bishops were Osnabrück, Verden, Bremen, Paderborn, Minden, Hildesheim, and Münster.

SAXONY. Taken in its most extensive sense, the name of Saxony formerly designated a very large tract in Northern Germany, extending from the Weser on the west to the River Elbe on the east. Under the title of Saxony on the east, no term in geography has been used with greater latitude of signification, and no states have been subject to more frequent territorial changes than those comprehended under this general name. It was not till the reign of Frederick the Great that the state of Saxony became more firmly established. The Saxons adopted Christianity, and were divided into three circles, those of Westphalia, Lower Saxony, and Upper Saxony. The last of these, which might more properly have been called East Saxony, comprised the electorate of Brandenburg and Saxony, the duchy of Pomerania, and several small principalities.

The Kingdom of Saxony was formed of the electorate of Saxony, the duchy of Saxony, to which the ecclesiastical dignity and the office of hereditary marshal of the empire were attached, was however no part of the ancient German duchy of that name (which was composed of Lauenburg and a tract on the other side of the Elbe), but Wend and Vandal provinces which Albert the Bear, margrave of Salzwedel, of the house of Ascania, had conquered, and left to his son Bernhard. This Bernhard received from the emperor Frederick Barbarossa (after Henry the Lion had been in 1180 by the Emperor Frederick Barbarossa to the title of Duke of Saxony, to which he was attached a part of Engern and Westphalia, extending from the Weser, which separated it from Eastphalia, westwards to the Rhine. But Bernhard not being powerful enough to maintain the rights attached to the title, he was interested by later historians for the purposes of the dynasty to him in Westphalia, most of the Saxon alodial proprietors became immediate estates of the empire, by which the duchy was dissolved, and its name transferred to the country inhe-
May 1815, the king signed a treaty of peace with Prussia, by which he gave up more than a fifth of the dominions in parts of Saxon, or the half of the population, or a territory of 7500 square miles, with 845,218 inhabitants.

Inhabitants.—The population, according to the census of 1837, was 1,652,114, of whom 1,517,892 were Germans, 33,099 were of Slavonian, and 94,123 were Saxtones. The Saxtones are the original inhabitants, and their subjection was effected in the tenth century by King Henry I. They are now known under the name of Wends, and live apart from the Germans: they do not intermarry with them, though they have lived among them for centuries. Thus they have preserved their language and several peculiar customs. They are only found in that part of Saxony which is east of the Elbe, especially in Bautzen and in the vicinity of that town.

South-eastern.—The river Elbe, traversing the kingdom from south-east to north-west, divides it into two unequal portions, between which a considerable difference exists in wealth and productive powers.

The eastern and smaller portion, which comprehends the south-western part of the country, formerly called Lusatia, is less favoured by nature. The most elevated part of the country lies contiguous to the boundary of Bohemia, and is known by the name of the Mountains of Lusatia. It does not form the continuation of the mountain chain near Schweidnitz, but is a flat, which towards the south descends into Bohemia with a rather rapid slope, but towards the north forms extensive plains, which are nearly level, lowering with an almost imperceptible slope. On these plains there are vast tracts of small table-lands, and in some places there are numerous small conical hills. The base of the rocks is granite or gneiss, but the more elevated parts consist of basalt. The most elevated summits, proceeding from east to west, are Mount Ohbin and the Hochwald near Zittau, which rise respectively to 1650 and 2520 feet; Mount Lasche, which attains 2637 feet; and the Schlossberg near Stolpen, which is 1146 feet high; the Grand Winterberg on the right bank of the river Elbe, which is 1536 feet; the Lilienthal near Sonnenberg, and the Rammelsberg near Schönberg, which is 1338 feet high; Mount Catta near Pirna, which attains 1176 feet, and the Porschberg near Pillnitz, which has an elevation of 1182 feet above the sea-level. The western declivity of this region is intersected by numerous depressions, ravines, and valleys, and, on account of its picturesque beauties, is frequently resorted to by travelers. It is known by the name of the Saxon Switzerland, and extends along the Elbe from Pirna to the Winterberg, and from 6 to 34 miles from the river. The northern boundary-line of this region may be indicated with tolerable exactness by a line drawn from Dresden eastward to Bautzen. It is in general a poor country, partly covered with woods and partly devoted to agriculture, but not so fertile as the northern part, though there are tracts which make good sheep-walks. The sheep are noted for the quality of their wool, which is well known under the name of Saxon wool, and fetches the highest price in the market. Agriculture is very limited; potatoes are esteemed best, and corn next. There is however a large tract of superior fertility, which occupies the most eastern part of the kingdom, on both sides of the upper course of the river Neisse, and constitutes a wide depression in the elevated region. The surface is hilly, but in general it produces all kinds of grain, and nearly as much as is required for the consumption of the large and populous manufacturing villages which surround the town of Zittau on the east, north, and west. The plains of the fertile lands along the elevated region, is still more fertile, and supplies corn for the consumption of the manufacturing districts. The mineral wealth of this region is far from being considerable. Some coal and iron are found, especially in the neighbourhood of Zittau; and along the river Elbe there are numerous quarries of sandstone, the produce of which is exported.

The country, which extends from the base of this region northwards to the boundary-line of Prussia is a plain, on which there are isolated hills and small mountains. Leubenberg, near the town of Königreich, attains the height of 1362 feet above the sea. The soil of this plain is sandy or gravelly, and mostly unfit for cultivation: about half the surface is covered with woods, consisting almost entirely of spruce and fir. The general aspect is coarse and desolate, and exported. In the cultivable tracts potatoes, oats, buckwheat, and millet, with some rye, are grown. The sheep-walks are extensive, but of inferior quality. Cattle, horses, and pigs are numerous.

The western or larger portion of Saxony, which is situated west of the river Elbe, is naturally divided into three regions, the mountainous, the hilly, and the plain. The mountain-region lies within the Erzgebirge, which extends over the northern and south-western part of the kingdom, and is bounded on the south by Bohemia. The northern boundary-line of this region runs from Pirna on the banks of the Elbe, westward to Tharandt, and thence to the south-west through Freiberg, Oederen, and Zschopau to Pirna, where it runs along the banks of the Saale in the principality of Reuss. The whole of this region is occupied with mountain-masses, with rather steep declivities, which are bowelled in a direction from south to north by wide and open valleys. In other directions, however, the range of mountains occur on or near the boundary of Bohemia. The most elevated summit is the Fichtelberg, near 1557 feet long, which attains an elevation of 3566 feet above the sea-level. Nearly north of it, near Annaberg, is the Fastenberg, 2706 feet high, and farther west, near Georgenthal, the Lustglen, 2934 feet; and near Altenberg, the Kahlenberg and the Geisingsberg, which are respectively 2924 and 2730 feet above the sea-level. West of the Fichtelberg is the Cluensberg near Elbigenalp, 2258 feet high, the Rammelsberg and the Schneeberg, respectively 3165 and 2866 feet high. A large portion of this region cannot be cultivated on account of the steepest slopes of the mountains, but the soil in some parts is superior to the mountain-lands. The hills, therefore, are covered with beech-forests, whilst others are covered with excel lent pine-trees. These forests supply fuel for the numerous mines of this district. [Eiszeitberge]. In the valley of this region, whose mean elevation is stated to be from 1600 and 1600 feet above the sea, the cultivation is limited to flax, potatoes, and oats, other grains not succeeding on account of the rigour of the climate. As these valleys are rather thickly inhabited, the population is chiefly supplied with grain from the mountain region lying further north, and when the rains fail in these parts fail, the inhabitants of the mountain-region suffer from dearth.

The hilly region, which extends along the northern base of the mountains, reaches northward to a line drawn from Meissen on the Elbe westward to Elbigenalp, Kolditz, and Mulda, and Borna. This region exhibits an agreeable alternation of hills, vales, and plains of moderate extent. Its fertility in general is not great, though there are some productive tracts, among which the plains near Chemnitz and Zwickau are distinguished. But the whole region is cultivated with great care, as its agricultural produce finds a ready sale in the populous towns and villages of the mountain-region. Its mean elevation above the sea-level is stated to be nearly 1200 feet, and the soil, between the hills and through the vales, is of the most fertile kind. It is remarkable to observe how severe in most parts, they are not severe enough to prevent the cultivation of the common kinds of grain. Some parts, especially those along the river Elbe, which are much lower, are noted for their orchards, and in the vicinity of Dresden and in the vicinity of Zwickau, sheep, cattle, and horses are abundant in these parts.

The northern portion of Saxony west of the Elbe is a plain, and constitutes the most southern part of the great plain of Germany. This region contains however more hills than occur farther north. The hills are isolated, and generally low, except the Calenberg, west of Oschatz, which attains an elevation of 1134 feet above the sea-level. The general level of the country near the hill region is at 600 feet. The north slope of the Great Plains on Prussia it varies between 290 and 360 feet. It is the most fertile portion of Saxony, and though it contains several tracts covered with heath, some extensive districts are cultivated. There are a number of towns and villages in this region on the plains of Lommatzsch, not far from the banks of the Elbe, and contiguous to it is that of Meißen, which is not much inferior. The plain of Leisnig, on the Freyberger Mulda, the country surrounding the town of Leipzig, and the valley of the River Elbe, with its large lake, are the most fertile parts of Northern Germany. Agriculture is the
wholly extirpated; wild-boars are less numerous than formerly; foxes, badgers, and hares are found in great abundance; lynxes and wild cats are rare; birds of prey, with the exception of eagles, which are seldom seen, are everywhere met with. There are also bustards, storks, heathcocks, pheasants, partridges, and wild geese, ducks, and swans. The breeding of bees, formerly of great importance, has now declined. But of all the productions of the animal kingdom the most important is the breed of merino sheep introduced in 1765 by prince Xavier, regent of the kingdom, who applied to the court of Madrid for some Spanish sheep and received as a present 300 merinos, with six shepherds and six dogs. Subsequent importations have been from Spain, so that at present there are above 2,000,000 sheep of the improved breed, and Saxony, or Electoral wool, as it is called, is preferred in England even to the Spanish; mays, merinos have even been sent from Saxony to Spain, because the breed has suffered much in that country from the long wars.

Minerals are extremely productive, though not so much as formerly, because the mines, being worked to a greater depth, require more labour and expense. The number of workmen employed in the mines is about 9,000, and the annual value of the minerals 1,800,000 dollars; these are, some gold, copper 615 cwt., iron 80,000 cwt., lead 15,000 cwt., tin 2,500 cwt., cobalt 9,000 cwt., arsenic 9,000 cwt., vitriol 20,000 cwt., lime 20,000 cwt., quicksilver, calamine, rock crystal, amethyst, corundum, garnets, diamonds, jasper, chalcedony, Labrador stone, good potters' earth, the finest porcelain clay in Europe, basalt, serpentine, granite, marble, alabaster, fluorspar, carbon, stone, limestones, quartz, flints, jasper, jasperite, flint, stone, alum, saltpetre, and coals. All the salt springs are in the part of the kingdom ceded to Prussia, from which all the salt is imported.

Manufactures. — Next to England and the Netherlands, Saxony has, in proportion to its population, the most extensive manufactures. That of linen has declined, but still employs 60,000 persons. The most important branch is that of damask table-linen at Groß-Schönau (a thousand looms). Primed lace of exceptional beauty is made at Bautzen, Oberzerzig and the Voigtländ. The annual value of the linen manufactures is 3,000,000 dollars. Woolen manufactures are very extensive, and those of cotton have rapidly increased within the last fifty years. There are silk manufactures on a small scale; sixty paper-manufactories; and tanneries, breweries, and distilleries in almost all the towns. The manufactures connected with the mines are of great importance, especially at Freiburg, which is the central point of the kind of trade, as also of amethyst and beryll, and for separating the more valuable metals from the ore. Cobalt is made into smalts, and some places are noted for the manufacture of verdigris. The manufacture of straw bonnets, mats, &c., employs 15,000 hands.

Commerce. — The chief foreign trade of Saxony is by rail. The capital of the country is Leipzig. The inland trade amounts to 12,000,000 dollars, of which 8,000,000 pass through the hands of the merchants of Leipzig, and 2,000,000 through those of Jewish merchants. The whole foreign and domestic trade of Leipzig at three years amounts to 18,000,000 dollars. The book trade is likewise to the amount of some millions. The principal exports are, fine woollen manufactures to England, Spain, Turkey, and Russia, 400,000 dollars. Linen, lace, &c., to Italy, England, and France, 350,000 dollars; thread, wool, worsted, smalts, porcelain, straw manufactures, wood, tannery manufactures, glass, fruit, timber, and mineral products. The imports are salt, cotton, silk, flax, hemp, colonial produce, salt and dried fish, fancy goods, &c. The value of the exports is said to exceed that of the imports by 3,000,000 dollars.

Religion. — There is no state religion; the great majority of the inhabitants are Lutherans, but the royal family having embraced the Roman Catholic religion, that of the empire is now in full exercise. Of other timber-trees the most common are the beech and the birch; the maple, the elm, and the ash are less common, and the oak very rare.

Animals. — The cattle has been very much improved within the last century. The horses are good, but there is no distinguished race, and the best are still imported from Mecklenburg, Moldavia, and Bessarabia. There are swine and goats in many parts of the country, and domestic poultry abounds. Bears and wolves are

The climate is extremely dry and cold in the winter, and warm in the summer, excepting in the northern parts, where the climate is more moderate. The annual temperature in the interior is about 50°, and in the mountains 35°.
and booksellers greatly exceeds that in any other country of equal extent. There have been eminent Saxion writers in all branches of learning; and with respect to particular branches, but rather referring to the accounts of Dresden, Leipzig, and other cities, we will mention in general the number of such institutions in the whole kingdom: — University of Leipzig, 15; high schools, 11; seminaries for schoolmasters, 4; Mining Academy, 1; institution for teaching the management of forests, 1; military schools, 2; deaf and dumb school, 1; agricultural school, 1; Sunday schools and schools for industrial education, 21; Roman Catholic schools, 5; those in Upper Lusatia, 15; Academy of Arts at Dresden, 1; besides free schools for the poor in all the principal towns, and numerous societies for the promotion of various branches of art and science in the churches. The produce arising from the public estates, the regalias, and taxes is about 3,100,000 dollars per annum, and the expenditure not quite 5,000,000. This has been much reduced of late years, and the public debt, which in 1821 amounted to 274 millions of dollars, is now only 11,000,000. The military establishment is 13,000 men, the greater part generally absent on furlough, except at the time of the annual exercises.

The constitution is a monarchy with a representation divided into two branches, without the consent of which no law can be issued, altered, or authentically interpreted. The executive power is in the king, and in urgent cases, where the intention of the object might be defeated by delay, he may make orders without consultation with the Chambers, for which however the ministers are responsible. The king cannot become the sovereign of another state without the consent of the Chambers. The crown is hereditary in the male line of the Albertine house of SAXONY. If that becomes extinct, the succession devolves on the female line. Saxony is a member of the German Confederation, and as such furnishes a contingent of 12,000 men and a contribution of money. It has the fourth place in the German Diet, between Bavaria and Hanover, and has four votes in the full council.

Divisions of the Kingdom. — The whole kingdom is divided into five provinces, called cirles, viz., Meissen, Leipzig, the Erzgebirge, Vogtland, and Lusatia, which subdivided into bailliwick, in all 42. No country in Europe, except the Netherlands, is more densely populated. On an average there are 263 inhabitants to a square mile. In the Erzgebirge 310 to a square mile, and in the territory of Schleiz 464 to a square mile. There are 141 cities and large towns, 51 smaller towns, and 3250 villages. The principal towns, all of which are described in their alphabetical order, without numerous notices, are:

Lipsia, 69,232; Leipzig, 47,514; Chemnitz, 28,265; Freiberg, 11,446; Plauen, 9380; Zittau, 8674; Bautzen, 8160; Meißen, 7740; Schneeberg, 6910; Annaberg 6700; Zwirak, 6410; Glashuette, 6300; Pirna, 5360. Other towns having more than 5000 inhabitants are:

Dresden, 5760; Meißen, 5600; Dobschütz, 5550; Frankenbourg, 5550; Zschopau, 5384; and Oschatz, 5360.

SAXONY, PROVINCE OF, in the kingdom of Prussia, is situated between 50° and 53° N. lat., and between 9° 50' and 13° 50' E. long.; it is bounded on the north and north-east by the province of Brandenburg, on the south-west by the kingdom of Saxony, on the south by Gotha, Rothenburg, and Nuremberg, and on the west by Hanover and Hesse. It is divided into two circles, the counties of Magdeburg, Merseburg, and Erfurt, and is composed of almost the whole of the portion of Saxony ceded to Prussia at the Congress of Vienna, to which the principality lying to the north of the upper reaches of the River Elbe, and to the west of the Elbe and the Havel River, belonged. The whole province contains an area of 8200 square miles, with 1,561,187 inhabitants. The three duchies of Anhalt, a great part of Schwarzburg, the bailliwick of Almenau, belonging to Weimar, and that of Kassel belonging to Brunswick, lie entirely within the territory of this province.

The principal river is the Elbe, which traverses the province from south to north, and is joined in the north at Wurzen by the Havel, and in the south by the Saale. The greatest part of the province is formed of the extreme south-western border, and the lower (or eastern) part of the district of Merseburg on the other side of the Saale, belong to the plains of northern Germany, and contain gentle eminences, but are not very diversified. The hills of the district of Merseburg and that of Erfurt are more considerable, with a level, for on the one side branches of the Havel river, and on the other side those of the Thüringer Wald range, which is continued by numerous small plains, and the mountains and hills which traverse nowhere of considerable elevation, except in the extreme circle of Hesse, on the south-western border of the province, is the highest mountain of the northern German Highlands. The climate is very generally cultivated; pulse, oleaginous seeds, cereals, and vegetables of all kinds, are annually sufficient for consumption of the inhabitants; a considerable quartering is made, and with beer and bread, the usual food manufactured in the province, is mostly used as home consumption. In many parts of the government, Magnalberg wood is scarce, and there is barely anywhere except in the government of Erfurt. The corn is mostly from two to three bushels to land, the principal material is copper, of which about 1150 is annually obtained; some wine is made, and there is hemp, hemp, baster, freestone, linen, and vitriol. The porcelain obtained near Halie is of very superior quality, and is not salt from the saline springs furnishes a large supply. The manufacture of tobacco is considerable. The earthenware at Magdeburg and Althaldensleben are of very large scale. The exports are wool, corn, woollen cloth, cotton manufactures, brandy, copper, iron and asbestos and salt.

The most important commercial town is Magdeburg, on the account of the facility of communication with Hanover. All the principal towns are described under their respective heads—Arensburg, Burg, Oranienburg, Egeln, Erfurt, Halberstadt, Halles, Magdeburg, Magdeb:burg, Muhlhausen, Naumburg, Nordhausen, Quer—Leipzig, Salzwedel, Torgau, Weissenfels, Wittenberg, Zittau.

SAY, CAPTISTE, a writer on political economy was born at Lyon in 1767, and died at Paris, Nov. 16th, 1818. He came to the capital at an early period of the Revolution, and was one of the projectors and conductors of a journal entitled 'La Decade Philosophique,' one of the small monthly journals of the time. He obtained near Halie is of very superior quality, and is not salt from the saline springs furnishes a large supply. The manufacture of tobacco is considerable. The earthenware at Magdeburg and Althaldensleben are of very large scale. The exports are wool, corn, woollen cloth, cotton manufactures, brandy, copper, iron and asbestos and salt.

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althus sur différents Sujets d'Économie Politique," 1809.


"This is the effect of the 'Traité' more amply and familiarly illustrated. The first and second works in the above list have been translated into English. Say is the author of some smaller works, one of which is entitled 'De l'Anet' de l'Économie Simples,' and other works are in press. SIRIUS or BIRRI, the name of a police force which existed in the Papal and other Italian states. They were not military corps; they were not uniform, and lived in their own houses; they received a small pay, and were furnished with arms. They were ready at any time of the day or night to rally at the summons of their captain, who was usually Bagello, for the purpose of tracing and arresting bad characters or suspected persons. Parties of them went their rounds in the night to the 'Digest' of the city, and assumed various disguises for the purpose. They were placed under the orders of the respective governors of the towns and districts. This body of men fell at last into great disrepute: they were open to bribery, and then had a secret understanding with robbers and assassins, they were recruited from among bad characters, resorted to smuggling, &c. They have been replaced now almost everywhere in Italy by the carabinieri, a regular military body, responsible to the government, to maintain law and order.

SCAB. [Scherf.]

SCA'BIES. [Itch].

SCABRICOLA, Mr. Swainson's name for a subspecies of the butterfly Caresus Mitrica, in his sub-family Mitrinae, of the family Noturnidae.

SCA'EVOLA. There were many distinguished persons who bore this name.

QUINTUS MUCIUS SCAEVOLA was praetor in the year B.C. 341, and the following year had the government of Samicia. He may be the Quintus Mucius, a jurist, mentioned by Pomponius (Dig., i., tit. 2, s. 37), if Mucius is the right reading.

PUBLIUS MUCIUS SCAEVOLA, one of a family of jurists, 3rd century B.C., being praetor B.C. 141, praetor B.C. 136, consul in the year B.C. 133, and in the year 131 B.C. he was pontifex maximus. Up to his time, says Cicero (De Or., ii. 12), the events of every year were registered by the pontifex maximus, and such registers were the Annals Maximus. This Scaevola was a distinguished jurist, and also had the reputation of being an able orator and an honest man. Cicero speaks of his judicial writings, and Pomponius attributes ten works to him. Scaevola is cited in the 'Digest' several times, and his conduct may be considered as having a lasting influence on the law. Tiberius Gracchus perished, and his conduct was marked by moderation.

QUINTUS MUCIUS SCAEVOLA, commonly called the Augur, was consul with L. Cæcilius Metellus in the year B.C. 117. He was praetor in 110 B.C., and praetor in 109 B.C. M. Scaevola, as he is sometimes called, who was consul B.C. 175, and grandson of Q. M. Scaevola who was praetor in the year B.C. 215. He was less distinguished as an orator than Cicero, who was praised specially to give instruction in the art. He was Cicero's master, but he was then an old man, and after his death Cicero attacked himself to Quintus Mucius Scaevola, the pontifex. It is not known that he left any writings behind him, and accordingly he is not mentioned by Pomponius ('De Origine Juris,' Quin. i., tit. 2). He was the son-in-law of C. Laelius, and the father-in-law of the orator L. Crassus, and is one of the interlocutors in Cicero's treatise 'De Oratore' (lib. i.) of the treatise 'De Amicitia,' and in the treatise 'De Republica.'

Q. MUCIUS SCAEVOLA, commonly called the Pontifex, to distinguish him from Q. M. Scaevola the Augur, was the son of Publius. He was the colleague of L. Crassus as tribunus plebis in the year B.C. 106, the year of Cicero's consulship (Dig., i., tit. 2). He was the son of the province Asia, being distinguished himself by the wisdom and justice of his administration; and the Greeks commemorated his happy government by establishing a festival called Dion Mucia. He subsequently attained the consulship of large equites in B.C. 96, and maintained an integrity and great ability; a distinguished orator, and still more eminent as a jurist. (Cic., De Or., i. 39.) After the death of the Augur, Cicero had the advantage of the society of the pontifex, who formed many distinguished pupils, though he did profess specially to give instruction in the law. C. Aquilius Gallus, one of the masters of Servius Sulp. P. C., No. 1293.
on which it runs; and on the upper railway is a smaller carriage, which supports tackle suitable for raising the frames. By this arrangement a stone may be lifted up, and moved, by the combined action of the two railways, to any point required on the wall.

It does not fall within the scope of the present work to enter minutely into the various kinds of scaffolding used under different circumstances. The centering of arches, an account of which was omitted under Centering, is however a kind of scaffolding that claims particular notice.

The centering (or centering) of an arch is the wooden support or mould on which it is formed. It is required to be of great strength, not only on account of the great weight which it has to sustain before the arch is closed in, but also because of the unequal manner in which the load presses at different angles on the work. A center usually consists of a number of distinct frames, resembling the trusses of a roof, placed equidistant from each other in vertical planes, and covered with a series of planks or beams of timber called bridging-joists, laid at right angles with the frames or trusses. This boarding or covering of bridging forms a convexity coinciding with the internal concavity of the intended arch. The trusses of the centering may be from three to about eight feet or more apart, according to the weight of the arch and the strength of the covering on which the stones immediately rest. For arches the centering is usually covered with planks; but in large works bridging-joists, one laid for each course of arch-stones, are preferred, these being kept at the proper distance apart by blocks of wood between them. In the latter case however the arch-stones do not always rest immediately upon the bridging-joists; planks of soft wood being sometimes interposed between them in order that, by cutting away the planks, the arch may be made to take its own bearing without lowering the centering. The whole weight of the stones is kept by crossbars to keep the trusses equidistant and parallel to each other.

When the arch is to be built over a small stream, with a good bottom from which intermediate supports may be obtained by boring, in other cases in which it is not necessary to maintain a free passage under the centering, it is a simple matter. Even where the span is large, and no support can be obtained, except at the piers, centering may be constructed on the principles of trussing which are treated of under Roof, provided that it be necessary to leave a free passage for vessels under the arch. But when a bridge is built over a navigable river, horizontal ties near the bottom of the truss are inadmissible, and much skill is required to construct a strong and inflexible centering. Nicholson, in his "Architectural Dictionary," describes several different principles of construction that have been adopted for the trusses or ribs. One consists of a large truss formed of two inclined bars (the thrust being borne by the piers, in the absence of a tie-beam), supporting the center or crown of the arch, while the intermediate points between the crown and the springing are sustained by smaller trusses resting on the sides of the principal one. In this case the rafters, or inclined beams of the main truss, may be used also as tie-beams to the subordinate trusses. In another arrangement a large truncated truss is used to support the trusses, while the crown of the arch is sustained by a small triangular truss resting upon the top of the former. In either case the bars which form the external ring of the trusses, the outer edges of which are of a curved form, are supported at several intermediate points by means of struts abutting on fixed points in the truss. The construction adopted by Fenestrelle, in his celebrated bridge, consists of a set of polygons placed within each other; the angles of one polygon bearing against the middle of the bars forming that immediately outside it. Fig. 1 represents a centering formed on this principle; the trussing-posts which are added in a radiating position at the joints serving to prevent the angles of the inner polygon from bending the bars against each other. In some cases the polygons are not placed in series with each other, but each forms a distinct and independent arch, the whole being made to act in combination by means of trussing-posts, which are made of two pieces, one being bolted on each side of the polygon. Centres of the kind just described left a very free space under the arch, especially as it was usual to construct the timbers at the foot of the centering, to make them have a narrow base; but they appear to have been very seldom in strength and immutability of figure. In the construction each fixed point of the curve that supports the trusses is supported by two timbers abutting on opposite sides of the arch; each pair of which may be called a separate arch and piece of wood called the upper striking plate. Fig. 2, which represents a centering, shows that the two timbers supporting each piece do not actually meet at their upper ends; a short piece of wood, termed an apron-piece, being placed between them.

Fig. 2.

In this cut no attempt has been made to give the face of the centering, the object being simply to explain the principle on which it is constructed. The timbers of the center are made to terminate, on each side of the arch, in a piece of wood called the upper striking plate, the under side of which is formed into a series of inclined planes. A similar piece, with the inclined planes upwards, is supported by struts, abutting on steps or offsets on the pier; and between these striking-plates is placed a piece of timber formed into a series of wedges, by driving which further in, the center may be very gradually lowered. By this plan much greater stability is obtained than when the base of the centre is contracted so as to bear on one point only; and when the bed of the river is as very soft, a still greater firmness and security may be obtained by driving piles some distance within the piers, to support the inner ends of the lower striking-plates. The timbers are halved into each other at their intersecting joints, the number of which is perhaps the chief disadvantage of this plan; and double king-posts, as in the construction last described, are added to keep the joints firm.

Robinson (Mech. Phil.) observes, speaking of centered arches which is supported wholly on the piers, that the frame which is to support our arch before the key set, may itself be an arch, depending on the mutual abutment of two beams. This natural principle is acted upon in the centering represented in Fig. 1; and also in another kind which is occasionally used, consisting of a number of quadrangular frames abutting on each other like the vases of the joints radiating from the centre. Each frame is stiffened by diagonal braces; and the whole structure resembles the Norman roof (represented in the article Roof), with the addition of pieces parallel with the infills to complete each frame.

The centering of the new London Bridge was formed on a different plan from any that have been described, the greater part of the arch being supported by one long trellis, the upper part of which, being formed of a number of pieces abutting against each other, coincident with the form of the arch, and which was stiffened by nine vertical trussing-posts, and diagonal braces. This truss was erected so as to allow some passage under the tie-beam, by means of a trussing frame, and the arch, resting on the...
struck-plates; and a broad base was obtained for the whole by piling.

It is frequently difficult to ascertain which of the timbers in a centre will be exposed to tension, and which to compression; and some will be subject to both in different stages of the work; a circumstance for which it is difficult to provide securely. As in other kinds of truss, all transverse strains should be avoided, and the joints should be strongly secured with bolts and straps. As a general rule, the necessary stiffness should be obtained by means of struts rather than ties, on account of the difficulty of making joints that will bear the timber centering is liable; especially because the temporary character of the structure renders it desirable to turn the timber as little as may be needed, in order to save expense. The centers contrived by British engineers are generally so constructed as to secure the alteration of shape is unavoidable, owing to the shrinking of the joists, &c., and as the arch must be expected to sink a little when the support it derives from the centering is withdrawn, the center should be made rather higher at the crown than the curve which the arch is intended finally to assume, in order that the stones may be in equilibrium.

It is scarcely necessary to observe that the building of the arch should proceed simultaneously on each side, in order to avoid unequal strain on the central point. It is sometimes useful to load the crown of the centering during the progress of the work, to prevent it from changing form by the unbalanced pressure of the haunches. When the arch is complete, the removal of the centering is a danger of serious proportions. Perhaps the most effectual method of support from the arch, or, in technical language, eased the centering, by cutting away the transverse pieces upon which the stones immediately rested; beginning at the abutments and advancing equally on each side towards the crown. Another, though a very objectionable plan, of cutting away these cross-pieces alternately, and leaving the arch supported for a time at a few distant points, has been practised. The best plan appears to be, gradually lowering the whole centering simultaneously on each side, and finally to move it away by means of a pair of engines, &c.

2. The rubbing surfaces of the wedges and striking-plates are commonly soaked and rubbed with black lead, or, in large works, covered with sheets of copper. While the building the arch is in progress, blocks are set into the spaces behind the wedges, to prevent their slipping; and when completed, these blocks being removed, the wedges are driven back either with mauls, or, if very large, with a battering-ram suspended from the centering. The wedges are sometimes so arranged that they may be struck from the sides of the bridge, so that the men employed need not be under the arch during the operation. The centering is lowered but little in the first instance, and should not be taken away until the arch has completely settled. In most cases it is desirable to lower the centering as uniformly as possible; but where a tendency to unequal settlement is observed in the arch, it may be advisable to ease it irregularly, to assist the arch in settling to a firm bearing. For bridges consisting of several equal and similar arches, two or three centerings may be sufficient, one only being removed at once.

In a Report by Telford on the passage of the Menai Strait, printed in the Parliamentary Papers for 1811, a method is proposed for the centering of very large arches, especially adapted for situations in which, from the nature of the bottom, the rapidity of the current, or the great elevation of the bridge, a centering put up from below would be impracticable. It was suggested for the erection of an inner arch of 500 feet span at Ynys-y-Moch. Telford proposed that the masonry of the abutments should be carried up to the level of the roadway, and surmounted by four massive frames, about fifty feet high, placed at the same distance apart that the ribs of centering were to be. The centering was to be formed of a number of trussed frames, fitting together like the stones of an arch; these frames being twenty-five feet deep at the sides, and gradually diminishing to seven feet six inches at the crown of the arch. The first set of these frames of centering were to be put up by means of scaffold other secured to the abutments; and supported by horizontal ties set in the masonry, and iron rods suspended from the frames at the top of the abutment. On the first portion of centering thus put up, a flooring was to be laid, on which the second set of frames could be moved forward. These, being laid upon the first set in an inverted position, were to be hinged to them by a contrivance resembling the joint of a carpenter's rule, and then turned over until their ends abutted against the ends of the first set. Suspension rods being then extended from the ends of the second set to the frames on the abutment, the flooring was to be extended, and a third portion of the centering moved forward and fixed in like manner. Thus the centering would be suspended from the abutments; and, when completed, it would have the strength of an arch, as well as that of the suspending rods, to enable it to support the superstructure.

To avoid the expense of centering, Brunel (now Sir Mark Isambard Brunel) invented, a few years since, a method of building brick arches, in which, by taking advantage of the cohesive strength of Roman cement, and the introduction of iron hooping to tie the brickwork together, one half of an arch is capable of supporting itself; no centering being required beyond a slight rib to serve as a model of the curve of the arch. This plan has not, we believe, been applied in practice, but it appeared, from an experimental arch (or rather a pier, supporting part of the arches), erected near the Thames Tunnel, to be adapted even for large spans. If we mistake not, this experimental erection had one half of a very flat arch of sixty feet span; and it stood a much longer time than could, under any circumstances, be required in practice.

The centering of groined arches has been already described under Groins, vol. xi., p. 455.

Much ingenuity has been applied to the construction of scaffolding for peculiar and unusual purposes, as the erection of the upper part of the obelisk, &c. In the 31st volume of the Transactions of the Society of Arts is an engraving of a scaffolding, contrived by Mr. Hughes, for reparing the interior of a dome in the Manchester Exchange. It consists of a vertical pole erected in the centre of the dome, to which is fixed a framework, supporting a kind of ladder, corresponding with the form of the interior of the dome; and mounted on wheels, so that it may be moved round to any part of it, the vertical pole serving as an axis.

In the 3rd volume of the same work is a detailed ac

account of an apparatus, invented by Mr. Slacks, a mason, for building an obelisk without scaffolding of the ordinary description. This simple and ingenious machinery is represented in the following cuts, and was used in erecting an obelisk of sandstone, 100 feet high, not including the foundation, on the summit of a mountain called Whitlaw, in Dumfriesshire, in honour of the late Major-General Sir John Malcolm. The Society of Arts rewarded the inventor with their gold Isa medal in 1837. Fig. 3 is a general view of the apparatus, the obelisk being shown in section, and Fig. 4 an enlarged representation of the upper part.

The obelisk is hollow, having bond-courses throughout at intervals, in which holes of ten inches diameter are left to receive the lower part of a pole, forty feet long and ten inches in diameter. At the point where the pole passes through the upper bond-course it is surrounded by a collar
of hard wood, firmly bolted to it; which, resting on the bond-course, supports the whole apparatus, while the lower bond-course, by embracing the pole, nailing it in a vertical position. To enable the pole to turn round with facility, seventeen balls, three inches and a half in diameter, are placed between the collar and the stone, each of which has a circular groove to receive the balls and guide them in the right direction. At the top of the pole a cross-piece, about twelve feet long, is fixed, and secured to the pole by iron braces. Each end of this cross-piece carries a grooved pulley, that at a (Fig. 4) being inserted in a mortise cut in the beam, while that at b is mounted on a small carriage, capable of rolling nearer to or farther from the centre, upon rails fixed on the top of the beam; a long groove or mortise being cut through the beam to receive the lower part of the pulley. A circular railway is laid round the base of the obelisk, on which a carriage, containing a crb, or machine for winding up the rope. The rope, by which the materials and workmen are raised, passes up from the carriage over the pulleys a and b, and down to the ground on the opposite side, where the stones are attached to it, their tendency to swing against the obelisk being checked by a guy-robe held by a man on the ground. The natural effect of the weight raised is to make the pulley b approach the centre of the cross-beam, but this tendency is so regulated as to cause the stone to descend upon any required point, by attaching a small rope to each side of the carriage in which b is mounted, which, passing round a small pulley at c, and over another on the axis of a, is carried down to a small windlass mounted on the same carriage with the crab. There is a rope of this kind on each side of the beam, but, at a short distance below it, the two are united. By winding up this rope, the pulley b is caused to approach the end of the beam, and by fixing the windlass it may be made stationary at any required point.

For a more particular account of this apparatus, and the means by which it is elevated from one stage to another, the reader is referred to the volume mentioned above, or the 'Mechanic's Magazine,' vol. xxxii., pp. 225-236. The contrivance for fixing the top of the obelisk must however be mentioned here. When the first sloping course of the apex was laid, a light hanging scaffold, represented in Figs. 5 and 6, was laid upon it. The first cut represents the scaffold in profile, while the second is a ground-plan.

The scaffold consists of four pieces of wood, twelve feet six inches long, formed into a frame, the inside of which fits and rests upon the sloping stones. At the angles d, d there timbers are fixed together by screw-bolts, and at e, e by slip-bolts with their points upwards, keyed to prevent from falling through. This frame being held by guyropes from the ground, a flooring of planks and battened lines in Fig. 6) was laid on the sides and top, and a pulley fixed on the fourth. The stones were then cut away and drawn from the apex by the new lines in Fig. 5 being then hoisted up, the uprząnt rope passed over the pulleys and slung off to the level of the upper course of stonework, which was then loaded, all the stone being lowered under left in the obelisk. When the work was completed, the planks were lowered by the rope and pulley, and ropes were attached to the slip-bolts at e, e, and others to the keys which they were secured. The last person then descended, and the keys attached to the keys being successively pulled, the frame was dismounted, and tied to the ground. The ropes for withdrawing the keys and those were passed through blocks at the base of the obelisk, so as to be directed to a safe distance from the work, arranged, which is unnecessary here to detail, as made for the safety of the persons employed.

A kind of portable scaffold, or travelling platform, may prove useful in some situations where support can be obtained from above, which was rewarmed by the Society of Arts in 1839. It consists of two boards, twelve inches long, four wide, hinged together, with the joint upwards. Great care is taken to make the inner edges of the boards, so that a rope suspended from a point above that is used, will pass over the pulleys, and be used by them when the boards are not pressed upon, but grasped tightly when the joint is closed by a weight. These boards are strapped to the feet of the carriage, which has a belt round the carriage holding a ring that slides up and down the rope. He draws up his hands, the rope slipping between the boards as he ascends; but as soon as his weight rests upon them, they close upon the rope so tightly as to enable him to maintain station at any point, leaving his hands free.

CAGLIO/SA (from the Italian scaglia, a scale or flake, is an inrustation of artificial composition which is spine to columns, and produces the most perfect imitative marble, from which it can hardly be distinguished either by the eye or the touch, as it takes an equally high polish and feels equally hard and cold. Scagliola has long been used in Italy, where, according to Lani, it was invented by Giuseppe of Carpi (1584-1649), and it is still afterwards much used for Florentine and Venetian work of the kind called a cimento. It was not introduced into this country before the latter half of the last century, and the earliest approbation of it was in the columns of the Pantheon in Oxford-street, London, built by James Wyatt. Since that time, it has been brought into more general use, and has been used in Buckingham Palace and many of the churches in London. It is far less costly than any kind of varnished marble, though too expensive to be brought into general use on any occasion, and it answers the purposes of the real material not only as regards appearance and effect, but durability also, since it will last quite as long as any other part of the interior of a building. There is besides one great advantage attending it, that columns inrusted with scagliola are generally of wood and hollow, or else filled with soap powder, and consequently do not require a floor beneath them which would be necessary if solid marble shafts were employed; and if required to support a beam above them, the columns may be made of brick or ordinary stone, and afterwards coated with scagliola. Nor is the use of this composition confined to pillars and columns; for it may be used and is indeed applied to other ornamental purposes, for table-slabs, pedestal-stands, dadoes of rooms, borders of floors, &c. The composition or cement itself is prepared from the purest gypsum, which is first broken into small pieces, and after being calcined is reduced to powder. It is then passed through a fine sieve, and mixed with Pianter glue, varnish, &c. In this state it is mixed up with colouring matter of the kind required, and as it is generally an imitation of variegated or painted marbles (all coloured stone being more or less so), as many different colours and shades of the same colour must be mixed up separately as there are in the kind of marble to be.
composition is applied to columns or other surface intended to receive it, and which has a rough coating of lime and hair. The different colours are laid on and mixed by the workman, and consequently much depends upon his skill and taste in regard to the exactness of the imitation or the beauty of the painting. There was nothing floating, as it is termed, or laying on the cement. The next operation is to prepare the surface for polishing, by rubbing it with pumice-stone and cleansing it with a wet sponge. The polish is then given by rubbing it again, first with tripoli and then with a white dust of sunday, which is then dipped in tripoli and oil, and lastly with oil alone. By this means a durable lustre is obtained fully equal to that of the finest and most highly polished marble.

Can Francesco was succeeded by his two nephews, Alberto and Mattino, who acted a conspicuous part in the wars of the Italian factions in the fourteenth century, fighting against the Visconti, who possessed the kingdom of Milan. Alberto continued to rule until the year 1387, when Gian Galeazzo Visconti, duke of Milan, took possession of Verona, having driven away Antonio della Scala, an illegitimate son of the last lord. After some more vicissitudes Verona came into the possession of the Este family, in 1395.

SCALA, Klein's name for the Scolarla of authors.

SCALARIANS, Lamarm's name for a family of descendants of the Scalari, a native family, which were the first section of his order TRACHELPITTA. The Scalarians of Lamarm con sist of the genera VERNETUS, SCALARIUS, and DELPHINUM.

SCALI, properly SKA/LLD, is an ancient Scandian word, as skald or skálkn, signifying a poetess. The name is therefore sometimes applied to the Scandinavian poets in general, but it belonged more especially to that class of poets who celebrated in their songs the exploits of heroes. The Scalds were not merely poets, but also the historians of their nation. When Snorri Sturluson, the last and most celebrated of the Scalds (1176-1241) states that the Scalds indeed always praised their contemporary heroes most, but never attributed to them any fictitious deeds, we must infer that their creative powers were less acute than the poets that we have before us, and that the mode of expressing them was more crude, which they displayed their poetic powers; and how they salved themselves of this right is clear from the numerous specimens of Scaldic poetry still extant: they are full of the boldest and most extraordinary imagery, whence they are frequently very obscure and almost unintelligible.

Scaldic poetry is almost the only source from which we derive our knowledge of the antient history of the North of Europe. A considerable portion of it goes back to the remotest antiquity, and contains many mythological legends; while another portion, in its form of poetry, contains historical accounts of contemporary events. Such poetical histories, very different from the rhymed chronicles of other nations, continued to be written down to the middle of the sixteenth century. The Scalds were generally in the service of a chief or king, whom they accompanied on his expeditions in the capacity of historiographers; and it was the pride of the chieftains to obtain such Scalds as possessed most ability and learning. Their services were richly rewarded by the benefactions bestowed by the benefactors.

We still possess a very long list of Scalds, among whom are persons of the highest rank, and even kings. The most distinguished however were those of Iceland, and it is to these that we are indebted for the collection of antient poetic traditions known under the name of the Scaldic poems, 'Fundgruben des Nordens,' vol. i.; John Olafsen, 'Om Nordens gamle Digtekonst, Grundregler, Versakter, Sprog og Foredrags mod,' Copenhagen, 1756; F. Wachter, in the introduction to his German translation of Snorri Sturluson's 'Heimskringla,' and the article SNEIDE STUR- LUSON.
SCALES (Music). A great deal has been written on this subject, by mathematicians, by musicians, and by those who love both characters, and from various instances, hardly anything which is accessible to the young arithmetician wishing for something which may really be a help to him in his musical studies. The Greek scale [Music; Tetrachords], the only fruitful subject of inquiry of all that exists, has with excellent reason, and ingenuity of the best writers, with no result but this, that over-refinements of theory are found either to have hindered practical excellence, or to have arisen out of the want of both; and this is true, but, from the sanction of the ancients, however much it was necessary to apply to the explanation of the Greek writers, has made it usual to write on this subject more profusely than on others of the same difficulty; it is an object in the present article to explain the mathematical, more accessible, and at the same time important, parts: leaving to the article TEMPERAMENT such considerations as, arising out of the present article, are required by those who would understand the higher practical details of the subject.

The object of music being to please the ear, or the mind through the ear, there is no other test of excellence nor condition of beauty, in any one detail, except the opinion of the best judges. This seems to assume the question, for the best judges can only be described as those who best know what distinguishes excellence from excellence; this circle can be avoided by speaking of music or any other of the fine arts; to taste we must appeal, not to the taste of everyone. All we have here to do with this is to remark, that the mathematical sciences employed in the present article are present not to be considered as placing the musical scale upon a mathematical basis, but simply as showing that there is something like an explanation of those rules, which derive their authority not from the mathematical system which contains them, but from the sanction of the majority of cultivated ears. Those things which are agreeable in practice are found to be in certain mathematical relations to one another which make the theory of the musical scale simple and interesting; but had it been otherwise, it must have been left more simply and tersely, and preferred a more pleasing complexity.

The sounds which are agreeable to the ear are found to be those which are the consequence of vibrations of equal duration following one another. [Acoustics.] The note called A, for instance, sounded at the same time on a harp, a flute, and a horn, presents three different characters, three different intensities, but only one species of vibration as to the time of lasting. If the first instrument communicates its length of a second to the second, the third to the second, and the third to the first, the difference of number or loudness, and with the difference of character, the twang of the harp, or the tone of the horn, we have nothing to do in considering the place in the scale of the note made by the other. It is placed exactly in the same way by the same note, and a mathematician knows that they severally communicate to the air the same number of vibrations per second.

Let us then suppose a string to be mounted, and stretched at both ends, or, better still perhaps, suspended vertically by one end, and bearing a weight at the other. If this string be then set in vibration by the finger or by the bow of a violin, a musical (that is, a pleasant) sound is produced, if the string be not too long, nor stretched by too small a weight. With the phenomena of vibration, as well as the length, material, and stretching weight of the string, we have here nothing to do (except to remark, that the ear observes that, material and tension remaining the same, the length of the string, the lower the tone, and vice versa). 2. That the mathematician knows that, ceteris paribus, the longer the string the fewer the number of vibrations in a given time, in inverse proportion to the length. Thus, if a certain string, stretched by a certain weight, makes 200 vibrations per second, if the string be halved the length, stretched by the same weight, will give 400 vibrations per second. If a vibration mean a double motion of the string, once backwards and once forwards, the effects begin to lose their musical soon after the string is short enough, or stretched enough, to give 360 vibrations per second.

The number of musical tones is, theoretically, infinite: 1. Woodward, On Musical Intervals, p. 64. The author repeated the experiments of Pitcher Acoustics, p. 97, and found a monochord thus constructed of better than the common one for the purpose. His result was that A (the second space of the treble clef) made 65 vibrations in one second.

That is, between any two tones as many different ones we please can be interposed, no one of which may be the common term; highness and lowness of tones are terms which are purely relative, and refer to an effect upon the ear which does not admit of definite common terms usually distinguished only extremely. Thus, a tone disagreeably high is one that is disagreeably high, and those derived from other sensible sounds; in fact, it would be impossible to persuade any one, that if light and darkness were to be designated by musical tones, the light ought to be represented by low notes, and the darkness by high notes: and a composer who should so con.
We have not yet, however, got a sufficiently agreeable scale, and the reasons why the ear will not be contented with the preceding most simple concords, must be derived from observation, from which it appears that

1. That a frequent repetition of sounds very near to one another is not pleasing to the uneducated ear. Now the interval from the minor to the major third is as follows: the first makes $\frac{1}{3}$ of a vibration while the second makes $\frac{2}{3}$, or the first makes $\frac{1}{4}$ vibration while the second makes $\frac{1}{2}$, or $\frac{3}{4}$. This is too much near to a unison for continual repetition.

2. That a frequent repetition of sounds too far from each other is not pleasing to the ear, after a little cultivation. If we look at the intervals from the fourth to the fifth, and from the fifth to the sixth, we shall find, for their respective representatives, while from the fundamental note to the minor third, and also from the sixth to the octave, the interval is $\frac{1}{4}$ much larger than the preceding intervals.

Both these defects, as must easily be seen arithmetically, and as the ear finds out for itself, may be remedied by inserting a note between C and B in place of E, which shall make a better division of the interval CB, and by placing an additional note between A and C. But how are we to choose these additional notes? If we cannot have any more simple consonants with the fundamental note, we must take those tones which make the simplest consonances with other notes, and the more they make the better.

We have already a repetition of some consonances; for instance,

\[
\text{Interval } FC' = 2 + 4 = 6, \quad \text{or a fifth.}
\]

\[
\text{Interval } G'C' = 2 + 4 = 6, \quad \text{or a fourth.}
\]

\[
\text{Interval } FA = 4 + 4 = 8, \quad \text{or a major third.}
\]

Now since $\frac{1}{2} \times \frac{3}{2} = 1$, we see that a note $\frac{1}{2}$, or one sound, which makes 9 vibrations while the fundamental note C makes 8, will be a fourth below G, and $\frac{3}{2}$ divides C and E well, the three notes 1, 1, 1, giving the intervals $\frac{1}{2}$, $\frac{3}{2}$, already found in another part of the scale. This note is D. Again, observe the intervals from F to E, or $\frac{1}{2}$, and take a fifth above B, or $\frac{3}{2}$, or $\frac{3}{2}$; this fraction falls between $\frac{1}{2}$ and 2, and looking at the intervals of $\frac{1}{2}$, and 2, we find $\frac{1}{2}$ and $\frac{3}{2}$, both of them intervals already sound. This note C, or which makes 15 vibrations while the fundamental note makes 8, is the usual sound of civilized nations, called the diatonic scale, is now complete in the following

\[
\text{D E F G A B C'}
\]

This diatonic scale seems then to be the scale of the simplest concords of the fundamental note, with one alteration on account of the too great proximity of two concordant notes, and one interpolation on account of the too great distance of two others. If we examine all its intervals, we shall find the repetitions are as follows (C D standing for the interval from C to D, &c.), some new appellations being added:

\[
\begin{align*}
\text{CD} &= \text{FG} = \text{AB} = \frac{3}{2} \quad \text{(major tone).} \\
\text{DE} &= \text{GA} = \frac{3}{2} \quad \text{(major tone, } \frac{3}{2} \text{ of major).} \\
\text{EF} &= \text{HC} = \frac{3}{2} \quad \text{(diatonic semitone).} \\
\text{CE} &= \text{FA} = \text{GB} = \frac{1}{2} \quad \text{(major third).} \\
\text{EG} &= \text{AC} = \frac{3}{2} \quad \text{(minor third).} \\
\text{DF} &= \text{DG} = \text{EA} = \text{GC'} = \frac{1}{2} \quad \text{(fourth).} \\
\text{CG} &= \text{EB} = \text{FC'} = \frac{3}{2} \quad \text{(fifth).} \\
\text{DA} &= \frac{3}{2} \quad \text{(sixth).} \\
\text{KB} &= \frac{3}{2} \quad \text{(minor sixth).} \\
\text{CB} &= \frac{3}{2} \quad \text{(seventh).} \\
\text{DC} &= \frac{3}{2} \quad \text{(octave).}
\end{align*}
\]

We observe here the consonances mentioned before, two inharmonious intervals, a new species of consonance (the flat seventh) standing as it were between the more perfect consonances and the others, and new varieties of a tone, of the third, and of a fifth, differing from those already described, and flatter by the interval $\frac{1}{2}$. This interval is called a comma, and though the ear can distinguish a difference between the
tones of two strings, one of which vibrates 81 times while the other vibrates 80, yet the difference is so slight as to produce no prejudicial effect. With regard to the comparatively high minor or major scale, we sometimes observe that the flat seventh is very nearly equal to the flat seventh, differing only by the interval of a tone.

We have also the diatonic semitone, $\frac{1}{14}$, which is incorrectly named, since, if beginning with 1, we repeat the interval of a semitone twice, we have $\frac{1}{14} + \frac{1}{14}$, or $\frac{1}{14}$, which is very near to $\frac{1}{14}$, sharper (that is, higher, as flatter means lower) than a major tone by the interval $\frac{1}{14}$ and than a minor tone by $\frac{1}{14}$, very nearly.

The following table gives the intervals of the diatonic scale, but we now proceed to mention two varieties of it. It seems to have been offensive to the ears of rude nations to hear any semitones at all. If we deprive the diatonic scale of F and B, the major and the semitone at the next step, we have C, D, E, G, A, C, for all the sounds which remain in the octave. This unfinished scale, as we should call it, is the original scale of the Chinese, Avans, Hindus, and Eastern Islands, the northern nations of Europe, &c. It is the well-known scale of the old Scotch and Irish music; it is said to have been found in Wales and Cornwall, in various parts of Africa, and even in old Italian music. The Chinese, who never change, have preserved it in absolute perfection, though the modern form of most antient airs in other countries has been relaxed. We copy the notes of a Chinese air given by Laboreau:

```
DCGAGGCAGEDCAGGAGACAGAGCAGGGCCAGG
```

It will be observed that F and B never occur. An almost perfect specimen of this scale occurs in the Scotch air 'The Campbells are coming.' The effect of the scale may be tried by playing ad libitum on the black keys of a piano-forte.

The other scale which we have here to mention is that known by the name of the minor scale, the common diatonic scale being for distinction called major. It may easily be observed that the intervals of the minor third and minor sixth have a sad, or at least plaintive effect, as compared with the major third and major sixth. No explanation can be given of this: perhaps the effect of musical intervals is somewhat in some degree determined by associations which arise from the human voice in speaking. All persons, except perhaps schoolboys reading what they do not understand nor care about, are constantly, whether they know it or not, varying the tone in which they speak, and making intervals which are very nearly musically correct: and the effect of sorrow, regret, fatigue, &c. is to make those intervals minor.

Any person of a quick musical ear who will watch the method of saying the simple words 'I cannot' pronounced as determined by the tones and composition of the voice, will see that when an expression of regret or want of power, will almost always find such an interval as C F or C G in the first, and C E or C A in the second; if this be so, it is not surprising that a scale in which minor intervals, the same as those in the first, are occupied by major intervals, should produce those associations which have been alluded to. This is a conjecture merely, for after all nature will take the liberty in art, as in science, of concealing her operations. But this much is certain, first, that the minor scale is more plaintive than the major, and secondly, that all musical composers are acquainted with the fact, from the African women who sing of Mungo Park, 'Let us pity the white man, no mother has he to bring him milk, no wife to grind his corn,' up to the composer of Der Freischutz, with all the power of cultivation and the memory of centuries of art. The change from the minor to the major scale is perhaps the most effective of musical resources, certainly the most powerful of those which are employed by every composer of the ordinary degree of cultivation. Take as an instance the music of the following words from Oberon:—

```
As Arably, As Arably, my own, my native land.
Methought I crossed the dark blue sea, and touched a gale like strand.
And there I saw my father's house, &c.
```

The intervals with which the voice passes over the hyphens in the first two lines are minor, but in the third line a modulation of the major or of the closes scale, may be very properly taken care to produce a strong result of the new scale in the first two syllables: the effect of the change is strikingly appropriate.

What is the minor scale? This question has been differently answered by different writers on the theory of music, who severally contend for one or another scale as the scale. For ourselves, we are no believers in the minor scale as the natural scale: it is a characteristic which has been used by good composers, and proved by good hearers. It seems to have been the custom, that for there is one diatonic major scale, by universal consent, therefore there must be one lawful diatonic minor scale: the best as well must be right, and the Armenian tritonic is the one metre of Greek tragic dactylos, there must be also some one other metre, and that one occurs in the choruses. Fortunately however the scholar learns what the musician ought to know, that no such satisfaction is to be had he teaches that the best tragicians must be the guide, because of the universal approval which has been conceded to their writings. Taking the same sort of guide, we find in the tragic airs of the Greeks (the unknown authors, of national airs, &c. very highly authorized, included) one major scale and seven minor scales; a thing not more atrociously wrong than than the one metre of dialogue, and the variety of metres of the Greeks. And if, moreover, we take the mathematical theory of the scale, we shall find we have equal claims on the score of simplicity of consonances.

Return to the fundamental note C and its companions namely—

```
C E B E F G A C' 1 1 1 1 1 1 1 1 1
```

Instead of throwing out E as too near to E, let v the latter which we reject; if we finish this with the D B of the diatonic scale, we have what is called the ascending minor scale, the commonness of which we deny: but, though it strikes us that others use it commonly, if not more so.

```
(1) C D E B F G A B C' 1 1 1 1 1 1 1 1 1
```

The ear will not very quickly acknowledge this as a minor scale in descent, and for the obvious reason that a going from C to C there is no distinction between the scale and the major scale till we come to E B; though it is evident that the minor occurs early. To remedy this, and B is both lowered a semitone, or the A is made A a fourth to E B, and the B is made B, a fifth to E B, when given.

```
(2) C D E B F G A B C' 1 1 1 1 1 1 1 1 1
```

and this scale reversed is called the common mode of descending the minor scale; but as we also find it used in ascending, we put it down as a second minor scale, both for ascent and descent, observing also that (1) may be, and is, used in descent. Again, suppose we retain the B of the original scale, and lower the A, we have then

```
(3) C D E B F G A B C' 1 1 1 1 1 1 1 1 1
```

a wild and pleasing scale, both in ascent and descent, and employed too in the other songs of the A and B. Its harmonies, technically speaking, are easier and more natural than those of the common scale, and Schneider (Elements of Harmony) makes it the principal minor scale, treating all others as incidental deviations: the English translator of Schneider contends for its absolute truth, and asks (justly enough) which scale a composer would use if he was converting the air of 'Robin Adair' into the minor key (the original air having the notes G A B C D F), namely, G A B D E F, or A B C D E F. There be no doubt that the latter would be preferable, but we might add, that if the composer were required to make two variations in the minor key, he would probably choose scale (1) for his other case. The following most scales are used and employed by every composer of the ordinary degree of cultivation.

```
(4) C D E B F G A B C 1 1 1 1 1 1 1 1 1
```

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(5) C D E B F G A B C 1 1 1 1 1 1 1 1 1
```

Of all these minor keys, we prefer (3). For an instance of the use of it, take the first part of the air 'Charlie is my darling,' the minor key of which is given by, D D F G C' A B C G C' D' E B C D' E B C. It is also the scale used in the first two lines of the air from Oberon, already noticed.

We now come to the extension of the diatonic scale by the interpolation of notes between all such notes as are
In order therefore to make an instrument which shall play in perfect tune in every one of these diatonic scales, we must have it capable of sounding the following notes, those of the original diatonic scale, or very near to them, being in parentheses, and requisite notes of nearly equal sound being written under one another.

\[
(1) \frac{4}{3} \quad \frac{5}{4} \quad (1) \quad (1) \quad \frac{4}{3} \quad \frac{5}{4} \quad \frac{6}{5} \quad (2) \quad \frac{4}{3} \quad \frac{5}{4} \\
(1) \quad (1) \quad \frac{4}{3} \quad \frac{5}{4} \quad \frac{6}{5} \quad (2) \quad \frac{4}{3} \quad \frac{5}{4}
\]

With this we might go on ad infinitum; for it might be required to construct new diatonic scales on every one of these new notes, which would introduce more new notes, on which again new diatonic scales might be produced, and so on ad infinitum. But since the diatomic scale consists of major and minor tones (nearly equal) and diatonic semitones (nearly half-tones), the new notes will very nearly divide the whole tones into equal parts, a circumstance of which advantage will presently be taken. In the mean time we proceed to explain, as far as it can be done, the distinction musicians draw between flats and sharps; unfortunately we are unable to make writers on this subject agree with each other, or with themselves, as to the meaning of these words in an untempered scale. The conventions under which the name of flat and sharp is used are easily enough, and temperament avowedly makes small adjustment and accommodations between the several notes, which cause the sharpened A to be practically the same as the sharpened B, and so on. But what the distinction of sharp and flat is practically to that adjustment, we wish we could evoke or provoke some musician to tell us. One word to those who write on the scale without much mathematical knowledge; — get into a tempered scale that you can, and keep there.

The nomenclature is regulated as follows. The notes A, B, C, D, E, F, G are preserved in every key; so that if any key contain A and a note between A and B, the latter is not called A#. For them (A A#) A would occur twice in the scale, but Bb, giving A Bb. Follow this rule in every one of the scales just given, and we shall find the following sets of notes in them severally:

\[\text{Name of the Key} \]

\[
\begin{align*}
\text{C} & : D E F G A B C \quad \text{(natural, C)} \\
\text{D} & : E F G A B C D \quad \text{(natural, D)} \\
\text{E} & : F G A B C D E \quad \text{(four sharps, E)} \\
\text{F} & : G A B C D E F \quad \text{(one flat, F)} \\
\text{G} & : A B C D E F G \quad \text{(one sharp, G)} \\
\text{A} & : B C D E F G A \quad \text{(five flats, A)} \\
\text{B} & : C D E F G A B \quad \text{(five sharps, B)} \\
\end{align*}
\]

That is to say, a diatonic scale on D, for instance, only keeps D, E, G, A, B, or notes very near to them, of the diatonic scale, and requires the insertion of notes between F and G and C and D, which the avoidance of repetition of letters requires to denote by B flat and C sharp, and not by Gb or Db. In the preceding keys then, we have five sharps mentioned (though really seven notes of the kind, the two between C and D, two between F and G, one between each of D and E, G and A, and A and B) and one flat (between A and B). When we come to the diatonic scales, we shall find

\[
\begin{align*}
\text{F}_\# & : G_A B C D \text{E}_\# \text{F}_\# \quad \text{(six sharps, } F_\#) \\
\text{C}_\# & : D_{\#} E F G_A B C \quad \text{(seven sharps, } C_\#) \\
\end{align*}
\]

with not precisely the same notes as before, but very near to them, excepting two notes which are new; one between E and G (called E#), and one note between B and C (called Bb). But on which of the values of F# and C# in the table are these scales to be constructed, and why? Again, as to the flats, if we construct diatonic scales on Bb, and on each new flat as it is successively introduced, we shall find that our nomenclature gives us no keys, as follows:

\[
\begin{align*}
\text{B}_b & : C D E F G A B \quad \text{(two flats, } B_b) \\
\text{E} & : F G A_b B_b C_D E_b \quad \text{(three flats, } E) \\
\text{A} & : B_b C D_E F G A \quad \text{(four flats, } A) \\
\text{G} & : A_b B_b C_b D_b E_b F_b G_b \quad \text{(five flats, } G) \\
\text{B} & : C_b D_E F_G A_b B_b C_b \quad \text{(seven flats, } B) \\
\end{align*}
\]

But if we were actually to proceed to form this scale, beginning from Bb ('B') gained from the preceding process, we should find ourselves keeping very near the chromatic scale of sharps already obtained, so that the notes which
appear in the preceding as remnants of the diatonic scale would really be close to the real notes. Let us see, for instance, what the F would be in the key of G♭:

B♭, a fourth above F = G♯, E♭, a fourth above B♭ = D♭, Eb = C, A♭, a fourth above E♭ = B♭, D♭, a fourth above B♭ = A♭, E♭, a fourth above D♭ = C♯.

F (so called) a seventh above G♭ = G♯× C = G♯♭. F (so called) = G♯♭, F (really) = C.

Now from C to F the interval is only ⅓, the comma which we meet with so often elsewhere. But we shall find different values for the same flat in the different keys above, and all have different values for the same sharp in the preceding. To show how in a confused state the natural chromatic scale has been left, we copy three scales, the first from Wallis ('Phil. Trans.' No. 242, A.D. 1698), the second from La Borde ('Essai sur la Musique ancienne et moderne,' vol. ii. p. 29, A.D. 1780), and the third from Montferrier ('Dict. des Math.' vol. iii. p. 43, A.D. 1840). All these writers omit the flats, mentioning only the sharps:

C C♯ D D♯ E F F♯ G G♯ A A♯ B
1 ½ ⅔ ⅜ ⅞ ⅝ ⅜ ⅝ ⅜ ⅞ ⅝ ⅜
1 ⅔ ⅜ ⅝ ⅜ ⅞ ⅝ ⅜ ⅞ ⅝ ⅜
1 ⅜ ⅝ ⅞ ⅝ ⅜ ⅞ ⅝ ⅜ ⅞ ⅝ ⅜

It has been laid down by some writers that the definition of a sharp and flat is as follows: When it is necessary to take a note between, say A and B, that note is called A♭ and it is inserted between A and B. Let such be the definition; then the note which is exactly half way between C and D, being expressed by √2: 9: 8), is 1°0607, while 1°0588, 1°0567, and 1°0817. The two first only come under the denomination of C♯, according to this definition, while the third ought to be called D♭. In fact, this third scale is almost a scale with its semitones, collected from the minor keys which are found to please the ear, with a slight alteration and one addition. In (2) B♭ is made as a fourth to F, instead of a fifth to Eb giving ⅘ in place of ⅙. Then ⅘ to be taken instead of ⅘. Then between F and G insert G♭, a minor third to E♭ (giving ⅙). Take the simplest sharps from the diatonic scales hereinafore found, and putting all the results together, we shall have the following, which, if a complete and proper enharmonic scale is to be given, we believe, be as defensible as any. The sharps are all derived from the diatonic major scale, the flats from minor scales made by the usual minor intervals; the sharp of each note is lower than the flat of the following, though the former and latter are not always in different halves of the interval:

C C♯ D D♯ E F F♯ G G♯ A A♯ B C
⅔ ⅜ ⅝ ⅐ ⅜ ⅝ ⅔ ⅐ ⅜ ⅝ ⅐ ⅜

The enharmonic intervals of this scale are as follows:

C D♭ = 1°284, D♭ E♭ = 1°284, F♭ G♭ = 1°284,

so that this enharmonic interval will be in every instance 1°284, or 1°284. This circumstance was not looked for in the formation of the scale, and it is thus seen that if the scale is to be carried from the major and from the minor diatonic scales of the different notes in the fundamental diatonic scale, and the flats solely from the minor scales which have been judged admissible, the result is an enharmonic scale, in which the enharmonic interval is everywhere the same, namely, the interval by which three major thirds fall short of an octave.

If an instrument could give all the above sounds, the same music played in different keys would have slightly different effects. We remember to have seen a statement of the supposed character of the different keys, which would be useless here, on account of its not describing the scale which was supposed to be the basis. We might suppose beforehand that of two keys, the one in which some prominent consonances are a little flatter than in the other, would partake, in a slight degree more than the other, of the plaintive character which distinguishes the minor keys. But, in the first place, instruments in general, and particu-ularly the piano-forte, on which the greater part of the music is written, have this effect, and this effect is more tolerable in some keys, particularly if loudness is the aim. Some Temperament, that is, mutual adjustment of notes to each other, would be necessary, and we refer to a separate article the account of the intervals which prevail, or have been sanctioned, which we here lay the mathematical foundation of the which is easy enough to one who can use logarithms, following table will be necessary, which we proceed to explain:

Since all intervals are found by multiplication and division it is obvious that if for intervals we substitute the logarithm of the interval, we form logarithms by multiplication and subtraction. Hitherto, we express a note which makes vibrations while the fundamental note makes b vibrations by a; let us now express it by log a — log b, the logarithm of the preceding. It only remains to see what system of logarithms it will be most convenient to take. Having once the octave, or the interval from 1 to 2, consist of two semitones (not equal indeed, but nearly so), let us use a new scale, to which all others shall be referred, and which is a perfect octave into 12 semitones (although the so-called major third is ⅓ of an octave, or what we should express by a system of logarithms in which log 2 = 12. The preceding is a table; to the mathematician it would be described as a system of the base of which is ⅖. But to the musician it may be described as follows: it shows the number of mean semitones contained in every Harmonic of the fundamental note, from the first to the 250th inclusive. Thus, opposite to 21 we see written 52.71, which means that the 21st of a string sounds a note which is 52 mean semitones above the fundamental note of the string. This interval '71 of a mean tone is one which, repeated a hundred times, gives 21 mean tones. All the numbers that must be understood.
music are only fictions. This scale would enable us to play with equal correctness in all keys up to seven flats among the flats, and seven sharps among the sharps. Nailing these keys by their principal notes, they are the keys of

\[
\begin{align*}
C & \quad G & \quad D & \quad A & \quad E & \quad B & \quad F & \quad C \\
F & \quad B & \quad E & \quad A & \quad D & \quad G & \quad B & \quad C
\end{align*}
\]

Suppose now there is an accidental deviation into the key of A. Looking into the preceding scale from A ascending, we find we can get a whole tone at B, but the next whole tone is wanting, nor can we get it except by lowering C, and D and E tempered chromatic semitones above C, and therefore called C# or C#. On the piano-forte we must be content with D for C# and, according we have in like manner

E for D#, D for Eb, D# for Fb, &c.

In the preceding scale also, when enharmonic transitions are written, they can most frequently be actually made; on the piano-forte, though written, they can only be made in imagination. The ear, knowing what is coming, as soon as the enharmonic modulation is seen, prepares itself for a change of key, and gives the chord in its possession to the mind, not altogether in the same way as when it was not a note of preparation. If any one will compare the effect of music heard the second time with that produced by the first, he will see, we think, be inclined to accede to our opinion, that sounds heard without any knowledge of what is to come afterwards differ more than those which are heard with such knowledge than the effects of two scales constructed on the two most recent and all the approved systems of temperament. In Huyghens's system, his subdivision is '387 of a mean semitone, the chromatic semitone is '774, the diatonic semitone '1'161, and the tone '935. The harmonics of any string C may be readily found from the table, reduced into the octave between C and C:\ they may then be compared with the untuned diatonic scale. For example, what is the 53rd harmonic of C? C itself, counting as the first. It is by the table 78 mean semitones above C, lower this five octaves, by subtracting 60, and we have 873, lying therefore between A and A, but nearer to the latter.

[CHROMATIC SCALE; DIATONIC; ENHARMONIC. For Scales of Voices, Alto-Bass, &c. For Scales of Musical Instruments, BASSINO, CLARINET, HARP, VIOLIN, &c.]

SCALE (Mathematics). A scale is any line drawn upon wood or other solid substance, and divided into parts, equal or unequal, the lengths of which may be taken off by the thumb or by the fingers of the right hand. In all the scales constructed, in all the imitations of the natural, the manner in which the scale is divided depends on the nature of the algebraical or trigonometrical expression the values of which are to be represented. When the scale is divided equally, the method of the divisions in Graduation may be employed to obtain them; but in other cases, and indeed in the preceding one, it is usual to form scales by copying from an original which is carefully made in the first instance. The most simple of all scales is that in which the subdivisions are all equal, or, as it is called, a scale of equal parts. Such a scale is not only the most easily constructed, but may be considered as containing all other scales. For example, suppose it required to lay down very accurately an angle of 24 degrees: it appears [Proc. roy. Soc.] that radius contains 500 equal parts, the chord of 25° contains 216 such parts and four-tenths of a part. With a good scale of equal parts, and five hundred of them taken as a radius, the angle may be laid down, if required, much more correctly than in the common tale. \[\text{TRACTOR.} \]

The largest table of chords which is laid down on common scales has a radius of three inches, the five hundredth part of which, or about the 167th of an inch, is a small length, when it is difficult to trace the chart without verification, except the scale of equal parts. In the latter species, one part may be tried against another, and any one may for himself very soon ascertain whether there is any perceptible error. In all the most accurate species of tuning, it is better to rely on tables and on a really good scale of equal parts than on any of the common scales, though the latter are generally very good, and will do abundantly well for ordinary purposes.

Long scales of equal parts are made with different subdi
visions, ranging from the thirtieth part of an inch to the fiftieth. If the substance of the scale be ivory, an inch will very well bear division into sixty parts, but fifty is more convenient for decimal calculation. A common ivory scale, of a rectangular form, such as is usually found in cases of drawing instruments, if it has no trigonometrical lines laid down, usually contains the following scales of equal parts:

1. The quarter of an inch divided into ten equal parts, each of which is again subdivided into ten equal parts by a DRAGONAL SCALE. There are certain extremely fine lines, each an inch long, and drawn from each end of the scale of quarters, the one on the left dividing the eighth of an inch into 100 parts, and the one on the right the quarter. It will easily be seen that the 400th of an inch is a useless small quantity, even when the scale is on ivory.

2. A set of scales in which the inch is severally divided into 30, 35, 40, 45, 50, and 60 equal parts. Ten of these parts make, in each case, one of the larger subdivisions of the scale, and one larger division is also divided into twelve equal parts, so that, when the larger division is made to represent a foot, feet and inches may be easily laid down.

3. A set of scales in which the larger divisions are 1, 1.1, 1.4, 1.5, 1.6, and 1.8 of an inch. The larger division is, as before, divided both into ten and twelve parts.

In practical use, these lines are laid down, they are usually one or two scales of chords, the radius of each of which is found by its chord of sixty degrees; a scale of _rumbas_, which is nothing more than a scale of chords, the angles of which are not a degree, but the point of the compass; a scale of sines, with one of secants sometimes added; a scale of tangents, and of semitangents; the latter being really the same scale as the former, but marked with double angles, semitangent being a technical term, not for the half of an angle but for one half of a tangent. We shall have something more to say of these lines under _Sector_.

4. Tuner's scale, as it is called, which is a scale of two feet in length, used in navigation, there are also scales of logarithms, of numbers, of angulas, etc.; and also a scale of divisions (see _Rum Line_); of these logarithmic scales we shall have to speak more particularly under _Slideing Rule_.

SCALENE, a name given by Euclid, in his definitions (but seldom or never afterwards used by him), to a triangle having two sides of which are equal to one another.

SCALIGER, JULIUS Cæsar, was born, according to the statement of his son, on the 23rd of April, 1484, in the court of Riva near the Lago di Garda. The history of the descent and the early youth of Scaliger is involved in mystery. In the following period of his life made pretensions, which, though supported by his son, are irreconcilable with other well-attested facts, and which were contradicted and ridiculed in his own lifetime by eminent persons. His real parent, however, and he pretended to be descended from the princely family of the Scalas of Verona. There is a patent of naturalization which, in 1528, he requested and obtained from Francis I., king of France, in which he is called "Julius Caesar della Scala de Bordini, doctor of physic, a native of Verona in Italy." This document, which would surely have mentioned his noble descent, if it had been known, shows either that his pretensions were without any foundation, or at least that he did not indulge in this vanity till at a more advanced period of life. Tiraboschi calls him the son of Benedetto Bordone, a native of Padua, who lived at Venice, carried on the trade of illuminator, and assumed the name of Scaliger, either because he had a scale for his sign or because he knew of a poet called Scaliger, of his own account, he had in his twelfth year been made a page to the emperor Maximilian, whom he served for seventeen years, both in peace and war. Afterwards he retired to Ferrara, where he received a pension from the duke of Ferrara. His parents had died in the mean time, and he now determined to abandon his military pursuits and to apply himself to study. He therefore went to Bologna with the intention of studying theology and of entering into the Franciscan order. But he soon gave up his religious vocation for the study of the sciences. He returned to the court of Ferrara, where he served for some time in Podmont under the French viceroy. At Turin he was persuaded by a physician to begin the study of physic, which he did in his leisure hours and then under the guidance of the worthy doctor. At this time he commenced learning Greek, of which he had hitherto been entirely ignorant. As he advanced, his delight in his new studies increased, and this, as well as frequent attacks of the gout, at length induced him to give up his studies and to devote himself entirely to his favorite pursuit. 1525 he accompanied Antonio de la Roversi, who as a bishop of Agen, to his new diocese, in the capacity of a physician. The degree of doctor of physic, which he obtained in the dominical letters referred to, was obtained before this time, but in what university a man obtained that degree is generally supposed that he obtained it at Padua. It was at first his intention not to stay at Agen after his arrival; but after two days he returned to France, to the chagrin of young lady of the highest and wealthiest family with whom he married. He now settled at Agen, where he lived until his death, on the 21st of October, 1558. He continued the practice of physic, and at the same time professed a scientific and literary life.

Considering that Scaliger commenced his studies at an advanced period of life, and considering the number and excellence, as well as the value of his works, none of which were published before he had attained the age of forty-seven, it may be owned that he was one of the most extraordinary minds of the age. He had a most tenacious memory and acute understanding. His son praises him especially for the great love of truth, but he was of a very irritable temper and excessively vain; and he treated every contemporary with the utmost contempt. He provoked many bitter enemies, he had many friends; his contemporaries, and scholars of subsequent age bestowed on him the most extravagant eulogisms and adulations. He was much beloved as a scholar, though very great in his own eyes, with more just appreciation of subsequent times than is deserved by that of his son Joseph.

The following is a list of his principal works: _De Litteris Libraria Ex Libris de Inscriptione,_ Lat., Lyon, 1538, 8vo. _De Causis Linguarum Latinarum_, viii., Lyon, 1540, 4to, reprinted at Geneva in 1588. This is the first great work which was written on the Latin tongue in modern times and is still valuable; it contains a great many fanciful statements and errors. _Ex eetius Exoterici Liber Quintus-decimus de Salutis ad Hieronymum Cardanum_, Paris, 1557, 4to. The nineteen preceding books, which had no relation to Caesar, have never been published. _Poeticae Libri Sex,_ Louv., 1561, 4to. This work perhaps contributed most to the reputation of the author, though it shows that he possessed more grammatical knowledge than profound erudition and creative power. _In Theophrasti Libros De Caribus_, Lat., Paris, 1548, 4to, was directed against the work of Erasmus, entitled _Contra proponens_, and was published in 1548, 8vo. _Adnotationes in Biblias_, in 8vo., 22, 4to., 4to., was published in 1551, and appears to have been his earliest work. Scaliger also published a number of Latin poems, which however of very little value. The style is often obscure and bare.

SCALIGER, JOSEPH JUSTUS, the son of Julius Cæsar Scaliger, was born on the 4th of August, 1544, Agen. He received his earliest instruction from his father. At the age of eleven he was sent with two of his brother brothers to the college at Ferrara. At the age of seventeen he was sent to the study of the Latin language. After a stay of seven years at Bordeaux, he was compelled by the appearance of the plague to quit the place and return to Agen. His father now continued his education, and made him his companion in all parts of the world during his youth. He wrote a tragedy on the subject of King Oedipus. After the death of his father, when he was nineteen years of age, he went to Paris, where he entered himself principally in the study of history. He published _Historiae Tauri_, and that he made good use of the time, he confined himself to Greek writers by his
self. He commenced with Homer, and in the course of two years which was the maximum of his success from the world he received only all the Greek authors both in verse and prose. He also turned his attention to Oriental languages, which he likewise learned by himself.

Respecting the years which succeeded this period of intense study from about 1593 to 1599, we know very little of the life of Scaliger. It must have been during this time that he left the church of Rome and became a Protestant, which was probably the reason why he did not obtain any public appointment in France. In the year 1593 he was involved in the Julian of belles-lettres in the University of Leyden, where he spent the remainder of his life, devoting himself entirely to the elucidation of antiquity. He was one of that constellation of great scholars who are to this day remembered by the chair of belles-lettres of the University of Leyden. Among his numerous pupils was Hugo Grotius, who enjoyed the especial friendship of Scaliger, and who was entirely guided by him in his studies. Scaliger's life in Holland presents scarcely any incidents, and we only know that, absorbed in his studies, he paid so little attention to matters of ordinary life, that he spent many days in his study without taking any food, and that he was sometimes in a state of absolute poverty. Several persons of distinction, who esteemed his talents and his learning, generally offered him pecuniary assistance, but his distaste for such aid never allowed him to accept any present. He was never married. He seems to have inherited his father's character, for he was exceedingly proud, and, like his father, he treated his pupils with disdain. In his private character, he was revived and defended the ideal preconium of his father respecting the illustrious origin of his family, in a letter addressed to Deusa, "De Vetustate et splendore Gentis Scagellior." Scaliger then, in his private character, was full of the bitterest invectives against that scholar.

Scaliger died of dropsy, on the 21st of January, 1669.

As a critic Joseph Scaliger is pre-eminent, and there are very few scholars who can be compared with him. Some of his works are still read in Geneva, with admiration and adoration by the prolific learning which they display, combined with an almost unparalleled acuteness and sagacity. Although in his verbal criticism and in his emendations and conjectures he is often so bold and so capricious, yet all that he has done bears the peculiar impress of his great genius, and he scarcely ever exposes himself to the charge of inaccuracy, from which his father was by no means free.

The contest among the numerous works of Joseph Scaliger is, "De emendatione Temporum," Paris, 1583, fol. A corrected and much improved edition of this work appeared at Geneva, 1629, fol. In this work Scaliger, for the first time, examined and established what are called chronologists. He established a complete system of chronology founded on sound principles. Several errors which were detected in the work by his contemporaries, were afterwards corrected by Scaliger himself, in another work, entitled "Thesaurus Temporum, complectens Eusebi Pamphilii Chronicon cum Isagogicis Cronologim Canonicibus," the best edition of which is that published at Amsterdam, 1658, in 2 vols. fol. Among his other and less important works there is a Latin translation of two centuries of Arabian proverbs, published at Leyden, 1623; his "Pomeron," Leyden, 1615, 8vo.; and his "Epistola," which were edited by Daniel Heinsius, at Leyden, 1637, 8vo. His poems have little merit, but his Epistola are very instructive, and also valuable for the literary history of the times. A large collection was also edited by Scaliger with emendations and annotations, and there are few antient writers for whom he has not done something. His commentary on Varro "De Lingua Latina" was written when he was twenty years of age; it was published at Paris, 1655, and is reprinted in the Bifol edition of Varro. His edition of Theocritus, "Cum Emendat. Jos. Scalig. et J. Casaub. Lect.," appeared at Heidelberg, 1656, 8vo.; "M. Manili astronomia," Leyden, 1660, 4to; Catullus, Tibullus, and Propertius, Paris, 1577, 8vo. He also made emendations and wrote commentaries on Sannio the dramatist, Ausonius, Nonnus, Festus, and many other authors.

SCALOPS. [SORECIDE.] SCALPELLUM. [CRISPEDIA. Vol. vii. p. 208.] SCAMONI. [CONVULTUS.] SCAMOZZI, VINCENZIO, was both a contemporary and fellow-countryman of Palladio, having been born in 1559 at Vicenza, where his father Giovanni Domenico also practised as an architect. He was taught by his father the elementary part of his art, and then sent by him to Venice, where he is said to have studied under Palladio, yet this is exceedingly doubtful, and it is certain that in his earlier writings Scamozzi rather than an admirer of that master. Before leaving Vicenza he had given proofs of his abilities and taste in several designs for Count Veristi and others; and in 1569 he was employed to remedy the defects of S. Salvatore at Venice (destroyed by fire, 1741). At the age of twenty-one he wrote his "Dissertatio de planulis," wherein he entered at length into the subject of scene-painting. It was in 1579 that he first visited Rome, where the sight of the remains of antiquity filled him with admiration. He was most diligent in studying them, sparing neither expense nor trouble to penetrate the secrets of the kind he made elaborate drawings of the baths of Antoninus and of Diocletian. Having thus occupied himself in that city for eighteen months, he proceeded to Naples, at which place and its environs he was equally diligent in exploring the vestiges of ancient buildings.

On his return home he resolved to fix himself at Venice, as offering a wider field to his ambition. His first occupation there was however with his pen, for, at the request of the great architect Vincenzo Scamozzi, he was called by Pittori, to which he prefixed three chapters relative to ancient Rome generally, a work, which, although extolled by Maffei beyond its real merits, is undeservedly obtained for him credit with his contemporaries as one of the most important of its kind. The recent discoveries of the baths of S. Bartolomeo and Pallocio (1579 and 1580) were circumstances in his favour, and caused him to be generally looked forward to as their successor in the public esteem. Accordingly almost as his very first work, after the monument to the Duke Nicolò da Ponte, was to complete the public library by the first-mentioned of those architects; he was afterwards similarly employed to finish one of Palladio's, namely, the Teatro Olimpico at Vicenza, to which he added the front of the nave and the perspective, first executed in perspective, but executed in relief. Although such kind of decoration is utterly unsuitable to the modern drama, and is anything but an improvement on painted scenery, it gave as much as a very first work, for on passing the entrance of the Duke Vespasiano Gonzaga to erect a similar theatre at Sabbionetta, of which structure nothing now remains.

About this time a deputation being sent from the republic to congratulate Sigismund on his accession to the throne of Poland, Scamozzi accompanied it himself at the request of his friend the senator Duodo of visiting that country, and also in the course of their route some of the principal cities of Germany. It was this journey that first fixed his attention to architecture, and he afterwards, in his work entitled "Architectura Universale," which he intended to be a sort of encyclopedia of the art, and to contain specimens of various styles and examples in different parts of Europe. Nor was this the only result of his journey, for, on passing the city of Salzburg he was introduced to the archbishop, by whom he was afterwards employed (1604) to design the cathedral of that city, which may be considered as his work, though not completed till 1628, and which is described by Tomanza as one of the noblest temples of modern times, and greatly superior, as regards architecture alone, to St. Peter's. In the meanwhile his engagements at home were numerous, and, besides many noble private habitations erected by him both in the city and on the Venetian terra firma, he was several times invited to S. Maria di Tiro, Vicenza (remarkable for having a Corinthian hexastyle diptyle, subsequently added by Tiralii), and SS. Simone e Giuda. But his most important work, that which has chiefly contributed to his time, is the stately range of building on the south side of St. Mark's Place, called the Procuratoria Nuove, commenced by him in 1586. The design itself however may be said to belong nearly as much to Sansovino, at least to have been fixed by him, all the lower storey as far as the façade of the building being the continuation of the façade of the adjoining public library; while the difference is that the excessively deep frieze and cornice of Sansovino's second order are moderated, and a third or Corinthian story added to the second order. Thus least has been contributed by some to be the most elegant portion of the whole, but it is also objected to as destroying the general uniformity, in regard to height, of the buildings.
END OF VOLUME THE TWENTIETH.

Printed by William Clowes and Son, Stamford.