Alexander the Great. Born 356 B.C., died 323 B.C.—
Bust in the Capitoline Museum, Rome.

and to attempt to unite all races in a cosmopolitan empire. As soldier and statesman, in brilliancy of strategy, rapidity of movement, grasp of detail, and breadth of organization, and the lasting character of his work, Julius Cæsar alone can compare with him. As a man, Alexander displayed a singularly lovable character: he was generous, warmhearted, chivalrous, brave even to a fault; certainly not naturally cruel, though capable of severity on occasion. For his age and position, his morality was remarkable. He never stooped to intrigue. His marriage with Roxana was one of affection, his others of pure policy. His great fault was excess in drinking, which more than once led him to acts, such as the murder of Cleitus, quite inconsistent with his nature; and it was this vice, together with the labours he imposed upon himself, and the many wounds that he received, ever fighting among the first of his men, that caused his premature death. There are no contemporary authorities for the history of Alexander; we have to depend on Arrian (*Anabasis of Alexander*), Quintus Curtius, Plutarch, Justin, and Diodorus, who all make use of earlier writers whose works are lost. See Hogarth's *Philip and Alexander of Macedon* (1897); Droysen's *Geschichte A. des Grossen* (5th ed. 1898); B. I. Wheeler's *Alexander the Great* (1900); M'Crindle's *The Invasion of India by Alexander the Great*. Dr. Budge has edited Syriac (1889) and Ethiopic (1896) *Lives* of Alexander.

It is not surprising that this illustrious figure has given rise to many legends. After the death of Alexander, the Egyptians claimed him to be the son of their last native king, Nectanebus II. A later version, from the same country (*c.* A.D. 200), extant in Greek MS., was falsely ascribed to Pseudo-Callisthenes. We meet with versions in Latin (3rd century), Armenian (5th century), and Syriac (7th century), the last of which, having originated in a Persian source, makes Alexander a Persian prince. The Ethiopic hero and his counsellor, Aristotle, are both trinitarian Christians; the Hebrew Alexander is a student of the Book of Daniel; he has been identified with 'the two-horned' of the Arabic Koran. The legendary Alexander has been found in Siam and Malay. A Turkish epic has this subject. A portion of a French poem by Alberic de Besançon (12th century) is still extant, and the library of Venice holds the MS. of a later French epic in decasyllables. These were followed by the most popular French version (pub. 1846), from the old romance composed (*c.* 1180) by Lambert li Court and Alexandre de Bernay (*Li Romans d'Alexandre*). There are German versions (1130) by Lamprecht; by Rudolf von Ems, who took the story from Walter of Châtillon's Latin epic; and by Seifried (1352). A Norman-French metrical poem by Thomas of Kent is translated in the English *King Alisaunder*. Examples in several other languages might be cited. See Nöldeke's *Beiträge zur Geschichte des Alexanderromans* (1890); Spiegel's *Alexandersage bei den Orientalen* (1851); Meyer's *Alexandre le Grand dans la Littérature Française au Moyen Age* (1886).

Alexander, BOYD (1873–1910), British explorer, was born at Cranbrook, Kent. The most important enterprise in which he took part was the Alexander-Gosling expedition of 1904–7, across Africa from Niger to Nile, in which both Captain Claud Alexander, his brother, and Captain Gosling, their companion, lost their lives as a result of the hardships suffered. In March

1909 Boyd Alexander proceeded to the Kamerun Mts., and subsequently left for Nigeria. He had passed Lake Chad, and was on his way eastwards to the Nile, but was killed by natives at Nyeri, near the Anglo-Egyptian Sudan border. He has published *From the Niger to the Nile* (1908), and many papers on ornithology.

Alexander, GEORGE (1858), English actor, born at Reading, made his début at Nottingham in 1879 in Mr. Sydney Grundy's *The Snowball.* In 1881 he made his first appearance at the Lyceum in *The Two Roses,* and in 1884 he accompanied Irving on his American tour. In 1890 he made his first venture as a manager, opening the doors of the Avenue with *Dr. Bill.* In 1891 he transferred his company to the St. James's, where his career has been one series of successes, beginning with *Sunlight and Shadow, The Idler,* and *Lady Windermere's Fan,* which, after a long run, was succeeded by Mr. R. C. Carton's *Liberty Hall.* Then came Mr. Pinero's much-discussed *Second Mrs. Tanqueray,* in which Mrs. Patrick Campbell scored her first great hit, and *Guy Domville,* by Henry James. Among subsequent productions may be mentioned *The Masqueraders, The Prisoner of Zenda, Rupert of Hentzau, The Princess and the Butterfly, The Tree of Knowledge, The Ambassador, If I were King, Old Heidelberg, The Garden of Lies, The Man of the Moment, His House in Order, The Thief, The Thunderbolt, The Builder of Bridges,* and *Colonel Smith.*

Alexander, JANNÆUS (d. 78 B.C.), succeeded his brother Aristobulus as king of the Jews in 104 B.C. With the help of Cleopatra, he ultimately repelled Ptolemy Lathyrus from Palestine; but throughout his reign he was engaged in constant strife with the surrounding tribes. In the civil conflicts of the Pharisees and the Sadducees, with the latter of whom he sided, Alexander exhibited unusual cruelty. An account of him is given by the Jewish historian Josephus.

Alexander, JOHN WHITE (1856), American portrait and figure painter, is a follower of William Page in his love of experiment. He was born in Allegheny, Pa., studied at Paris and Munich, and was influenced by Whistler. He possesses a special sense of feminine grace, chooses daring colour schemes, unusual postures, unconventional backgrounds. He first exhibited at the Champ de Mars in 1893, and was made associate of the *Société Nationale* (1894). His portrait of Walt Whitman is in the Metropolitan Gallery, New York; and he painted *The History of the Book* in the Congressional Library, Washington (1897). His characteristics are well shown in his portrait of Rodin (1900). His later works include *A Quiet Hour, Woman in Grey, The Black Cat.* See the *Studio,* xx., 1900.

Alexander, WILLIAM (1824), archbishop of Armagh and Primate of all Ireland since 1896; appointed bishop of Derry and Raphoe (1867). Publications: *Witness of the Psalms* (Bampton Lectures, 1874) (1876); *Leading Ideas of the Gospels; Verbum Crucis; Epistles of St. John; Primary Convictions; Commentaries on Colossians, Thessalonians, and Philemon;* and *What think ye of Christ? St. Augustine's Holiday, and other Poems* (1887); and *The Finding of the Books* (poems). In 1896 he published the collected poems and hymns of his wife, Cecil Frances Alexander.

Alexander Archipelago, isls., Alaska, U.S.A., extending along the coast of British Columbia for about 300 m. The principal are Sitka and Prince of Wales isls.;

inhabited by various tribes of Thlinket Indians.

Alexanders (*Smyrnium olusa-trum*), a plant of the order Umbelliferæ, which was formerly used as celery; hence still found near old gardens.

Alexandra, QUEEN, wife of the late King Edward VII., born at Copenhagen, Dec. 1, 1844, is the eldest daughter of King Christian IX. of Denmark and his wife, Princess Louise of Hesse-Kassel. To the careful upbringing by her wise and clever mother, as well as to the simplicity which characterized her early home life, may be traced many of the admirable qualities for which the Queen is conspicuous. The marriage of this 'sea-king's daughter from over the seas' to the Prince of Wales was solemnized in St. George's Chapel, Windsor, on March 10, 1863. Except for the loss of an infant son in 1871, the first break in the family circle was the death of the eldest son, the Duke of Clarence and Avondale, Jan. 14, 1892. For thirty-seven years, the Queen, as Princess of Wales, took part, along with her husband, in numerous public and state functions. An Eastern tour as far as Egypt and Constantinople was undertaken by the prince and princess in 1868-9, mainly for the sake of her health. Throughout her life, both as Princess of Wales and as Queen, she has displayed deep interest in philanthropic agencies, especially in the London hospitals, and participated actively in the efforts made to succour the wounded soldiers and to support the widows and orphans of those who fell in the South African war. On the death of King Edward VII. in 1910 Queen Alexandra assumed the title of the Queen Mother.

Alexandra, magisterial div., Natal, on the S.E. coast between Umzimkulu R. and Umkomansi R. Area, 670 sq. m. Pop. 42,500, including 1,000 whites and 6,000 Asiatics.

Alexandra Nile, or KAGERA, head-water of the Nile, consists of two head-feeders, the Akanyaru and the Nyavalonga, and enters the Victoria Nyanza on the w. about 1° s. of the Equator.

Alexandra Park, pleasure grounds (480 ac.), 6 m. N. of Charing Cross, London; with a glass palace covering 7½ ac., built 1863, rebuilt 1873.

Alexandre, AARON (?1766–1850), celebrated chess-player, native of Hohenfeld, Bavaria; lived some time in Paris; travelled in most European countries and Egypt, and died in London; author of *Encyclopédie des Echecs* (1837); *Problèmes d'Echecs* (1846).

Alexandrescu, GRIGORIE (1812–1886), Roumanian author and statesman, who won great popularity by his political satires, and was minister of education under Alexander Cuza. Collected works: *Meditatii, Elegi, Epistole, Satire si Fabule* (Bucharest, 1863).

Alexandretta, ISKANDERUN, or SCANDEROON, seapt. tn., N. Syria, on gulf of same name, 23 m. N. of Antioch, port of that city and of Aleppo, at N. end of low marshy plain. Its imports are valued at £2,500,000, and its exports at £1,500,000 per annum.

Alexandri, VASILE (1821–90), Roumanian author and statesman; wrote numerous plays for the theatre at Jassy (1844-8); took part in the Roumanian rising of 1848; was minister of foreign affairs (1859–60); founded, with Negruzzi, the review *Convorbiri Literare.* In 1873 his famous drama, *Boierii si Ciocoii*, was written and acted. His martial songs, written during the Russo-Turkish war (1877–8), were received with enthusiasm, and his collection of Roumanian folk-songs is very meritorious. His *Opere* appeared at Bucharest,

1873-6, in 7 vols.; his dramatic pieces in 1875, in 4 vols. In 1874 he won the prize given by the Society of Romance Languages at Montpellier for the best poem with his *Cantecul Gintei Latine*, in which he glorified the Latin race as the queen of humanity.

Alexandria, one of the most famous cities of antiquity, was founded B.C. 332 by command of Alexander the Great. Situated about 14 m. w. of the Canopic mouth of the Nile, on the coast of Egypt, on the narrow strip of land separating Lake Mareotis from the Mediterranean, the new city was admirably placed to become a great emporium. Nearly a mile off lay the little rocky island of Pharos, afterwards the scene of the labours of the translators of the Septuagint. By order of Alexander, a mole, the Heptastadium, 600 ft. broad—now twice that width—was run out from the mainland to the island, thus converting the open channel inside Pharos into two splendid harbours, the N.E. or Great Harbour, and the S.E. or Eunostos, from which a canal ran into Lake Mareotis. On the N.E. corner of Pharos, Ptolemy II. (Philadelphus) built (B.C. 283) a lighthouse, whence *Pharos* became synonymous with 'lighthouse' (Fr. *phare*). At the E. end of the city, in the quarter called the Brucheion or Basileia, lay the royal buildings, and the Museum, containing the Great Library. Here also stood the two so-called Cleopatra needles (16th century B.C.), one of which is now in London (since 1878), and the other in New York (since 1880); the temple of Poseidon; the palaces of the Ptolemies. To the s. of it were the gymnasium and the hippodrome. In the Egyptian quarter (Rhacotis) stood the Serapeum, or temple of Serapis, containing a second library and the Pillar of Pompey, and at the extreme w. lay the Necropolis.

A special feature was the great system of underground tanks, holding more than a year's supply of water.

Under the Ptolemies, Alexandria rose to be a mighty trading centre, with a mixed population of about 750,000, consisting of Greeks, Egyptians, Jews, Romans, and a sprinkling of other nationalities. It was also famous for its glass, paper, and fine textiles—all manufactured there—but was even more famous as one of the chief intellectual centres of antiquity. Even when Egypt became a Roman province, after its conquest by Cæsar (B.C. 48), Alexandria continued to be the greatest seaport of the empire. It survived the cruelties of Caracalla (A.D. 215), the internal struggles between Christian and pagan factions in the 3rd century, and the Jewish persecutions carried on by the patriarch Cyril in the 5th century; but it sustained a severe blow when captured by the fanatical Arabs under Amru (641). The misrule of the Turks (who took the city in 1517), the discovery of America and of the sea route to India and the East, completed the temporary ruin of Alexandria, until towards the end of the 18th century it had only about 6,000 inhabitants. But in 1806 it began to revive under Mehemet Ali; and, with the returning prosperity of Egypt in modern times, it has acquired fresh importance. In 1798 the city was taken by storm by Napoleon, but in 1801 it was wrested from him by the British. In 1882, during the rebellion of Arabi Pasha, the British fleet under Admiral Seymour bombarded and destroyed the harbour forts.

Libraries. — There were two libraries — the 'Great' in the Museum, and the 'Daughter' in the Serapeum. In the former were close upon 700,000 volumes. Under a succession of great

librarians it became a famous centre of learning, to which also the observatories, the zoological and botanical gardens, and the collections of the Museum contributed. The Great Library and Museum were destroyed during Cæsar's wars (B.C. 48–47), the 'Daughter' Library and Serapeum by command of Theodosius (A.D. 389). The story of the destruction of the Alexandrian Library by Amru is discredited by the best authorities, although to his caliph Omar is ascribed the saying that if the books in it agreed with the Koran they were useless, if they did not they were pernicious, and in either case should be destroyed. See Ritschl's *Die Alexandrinischen Bibliotheken* (1866); Weniger's *Das Alexandrinische Museum* (1875).

School and Philosophy.—The thousand years over which the influence of the great Alexandrian School extended falls into two periods, the Grecian (B.C. 332-30), and the Neo-Platonist, merging into the Christian (B.C. 30–A.D. 641). The school was strong in erudition and criticism, but lacked originality. Imitative rather than creative, its leaders used the old epic, lyric, dramatic, and elegiac forms for treatises on astronomy, grammar, criticism, mythology, etc., rather than for subjects suitable for poetic treatment. The one exception is found in the *Idylls* of Theocritus. But to Alexandrian scholars the world owes its possession of the texts of most of the ancient authors. In science also we are their debtors: Euclid the geometrician, Eratosthenes and Ptolemy the geographers, and Hipparchus the astronomer, here laid the foundations and extended the borders of their respective sciences. Alexandria was also the seat of Jewish learning, a school of thought which came under the influence of Greek ideas, and of which the most illustrious teacher was Philo. Alexandria, the last fortress of paganism, became in turn the stronghold of orthodox Christianity through its famous exponents, Clement and Origen, the great teachers, and Athanasius, the steadfast patriarch of the city. It was in Alexandria, too, that the Septuagint translation of the Old Testament (from Hebrew into Greek) was made. See Bigg's *Christian Platonists of Alexandria* (Bampton Lectures, 1886).

Codex.—The Alexandrian Codex (Codex A), one of the authoritative Greek texts of the Holy Scriptures, dating probably from about 450, was presented to King Charles I. in 1628, through Sir Thomas Rowe, ambassador at Constantinople, by Cyrillus Lucaris, patriarch of that city, who had taken it thither on his removal from Alexandria. Since 1753 it has been in the British Museum. See *Prolegomena* of Woide (1786) and of Baber (1816-1828).

MODERN ALEXANDRIA (Turk. *Iskanderieh*) is the chief port and second town of Egypt, and is the station of the Egyptian fleet. There are three principal quarters—the Frank (European) in the E., the Arab in the W., and the Mohammedan between the two harbours. The chief features of the last named are the palace Ras et-Tin, the barracks, and the arsenal. Alexandria is the seat of a Roman Catholic archbishop. The tonnage entering the port is over 4,500,000 tons annually; of this some 43 per cent. is British. Alexandria is joined to the Rosetta branch of the Nile by canal. About nine-tenths of the whole trade of Egypt is carried on through this port. The yearly imports are valued at over 22 millions sterling, and the exports (four-fifths cotton, cotton-seed, and wool, the rest being sugar, beans, onions, gum arabic, cigarettes) at 25 millions. Pop. 400,000. See Sharpe's *Alexandrian*

Chronology (1857); Kingsley's *Historical Lectures and Essays*; Ritschl's *Die Alexandrinischen Bibliotheken* (1866); and Weniger's *Das Alexandrinische Museum* (1875). (See also EGYPT.)

Alexandria. (1.) Tn., Scotland, in Vale of Leven, Dumbartonshire, 3 m. N. of Dumbarton; has extensive bleaching and colour-printing works and dyeing works. Pop. 8,000. (2.) Tn., Teleorman dist., Wallachia, Roumania, 50 m. s.w. of Bucharest. (3.) Dist. and vil. in S.E. of Cape Colony. The dist. reaches from the sea to the Zuurberg Mts. Area, 947 sq. m. Pop. 10,000. (4.) City, Virginia, U.S.A., on the Potomac R., 6 m. below Washington; has chemical works, and manufactures shoes, glass, fertilizers, beer, machinery, etc., to the annual value of about £4,000,000. Pop. 15,000. (5.) Tn., Madison co., Indiana, U.S.A., 48 m. N.E. of Indianapolis; has natural gas, and manufactures glass, paper, and iron. Pop. 7,500. (6.) Co. tn. of Rapides par., Louisiana, U.S.A., on the Red R., 65 m. N.W. of Baton Rouge. Produces cotton, sugar, and molasses. Pop. 6,000.

Alexandrine Liturgy, called also the LITURGY OF ST. MARK, who is said to have composed it for the use of Egyptian Christians. It is still extant in substance.

Alexandrine Mosaic, or OPUS ALEXANDRINUM, named after the Emperor Alexander Severus of Rome (A.D. 225–235), a magnificent type of mosaic in which were used precious stones, rare marbles, porphyries, and enamels.

Alexandrine Verse is an iambic metre consisting of twelve syllables. The name is derived from the old French romance of *Alexandre le Grand*, composed about 1180 by Lambert li Court and Alexandre de Bernay, in which the measure is first used. It is the standard measure in

French poetry. According to the rules of scansion in French, the cæsura must always fall after the sixth syllable; but this rule has been neglected by most English poets who have employed the metre. English poets use the Alexandrine occasionally for the sake of variety. The Spenserian stanza regularly ends in one, and Dryden and Cowley use it pretty freely among their deca-syllables. But the only long English poem in which this metre is exclusively employed is Drayton's *Polyolbion* (1612–22), and the result shows how little it is adapted to the genius of our language. This metre has been employed in Germany by Opitz, Rückert, Freiligrath, Geibel, and others. See Saintsbury's *History of English Prosody* (1906).

Alexandriya, tn., gov. Kherson, Russia, 150 m. N.N.E. of Kherson city; station on the Kremenchug-Elisabethgrad Ry. Cattle-raising. Pop. 14,000.

Alexandropol, formerly GUMRI, fortress and tn., gov. Erivan, Transcaucasia, Russia, 80 m. s.w. of Tiflis. Pop. 32,000.

Alexandrov, tn., gov. Vladimir, Russia, 70 m. w. of Vladimir city. Iron and steel foundries. Pop. 7,000.

Alexandrovsk. (1.) Town, gov. Ekaterinoslav, Russia, 52 m. s. of Ekaterinoslav city, on the l. bk. of the Dnieper. Grain trade; three annual fairs. Pop. 30,000. (2.) The centre of government in Russian Sakhalin and of the Alexandrovsk dist. in the N.W. of the island. Flour and saw mills. Across the Gulf of Tartary, 65 m. N.N.W., is the Siberian port of Alexandrovsk.

Alexandrovsk - Grushevski, tn., prov. Don Cossacks, Russia, 15 m. N.N.E. of Novocherkask. Pop. 17,000.

Alexandrovsky, tn., Russia, 5 m. S.E. of St. Petersburg; has a royal residence, and cotton

mills and glass and china works. Pop. 10,000.

Alexei Michailovitch (1629–1676), Czar of Russia. Succeeding his father, Michael Feodorovitch, in 1645, he extended his dominions after a successful war against Poland (1654–67). He also waged war with Sweden, extended his power to the east of Siberia, and put down (1672) a revolt of the Don Cossacks. His most important works, however, were the codification of the laws, and the opening up of communication with W. Europe.

Alexei Petrovitch (1690–1718), eldest son of Peter the Great, was excluded from the succession because of his opposition to his father's reforms. He fled to Vienna, and thence to Naples. Having returned to Russia, he was imprisoned, condemned to death, and then pardoned, but died (or was executed) in prison a few days later. His son became Peter II. See Barrow's (1883) and Schuyler's (1884) *Life of Peter the Great*.

Alexeiev, ERGHENYI IVANOVITCH, Russian naval officer, born 1843 of Armenian father and Russian mother. Commanded the Pacific squadron in 1899; afterwards governor of prov. of Kwantung; adjutant-general (1901); and viceroy of the Far East (1903), but was recalled in Oct. 1904. when he became commander-in-chief of the Russian Navy. His strong character and obstinate policy helped to precipitate the war with Japan. Admiral Alexeiev is aide-de-camp to the Emperor of Russia.

Alexeievka, tn., gov. Voronezh, Russia, 75 m. s. of Voronezh. Sunflower culture. Pop. 14,000.

Alexiad, THE, a prolix chronicle of the reign of Alexius Comnenus, Byzantine emperor; written by his daughter, Anna Comnena, and her husband, Nicephorus Bryennius. It extends from 1069 to 1118 A.D., and consists of 15 vols.

Sir Walter Scott founded *Count Robert of Paris* on it.

Alexinatz, or ALEKSINAC, tn., Servia, cap. of prov. of same name, on Morava, 102 m. S.E. of Belgrade; captured by Turks during Russo-Turkish war, 1877-8. Centre of a tobacco-growing district. Pop. 5,500.

Alexis, WILLIBALD. See HARING, GEORG.

Alexius I., COMNENUS (1048–1118), nephew of the Emperor Isaac Comnenus, and one of the ablest of the Byzantine emperors, supplanted (1081) the Emperor Nicephorus. From the north and east his empire was assailed by the Pechnegs and the Turks, from the west by the Normans; and in 1096 the warriors of the first Crusade encamped before Constantinople. But by wisdom and courage he contrived, during thirty-seven years, to organize his empire—to put in order the finances, and reform the army. His career is fully recorded in the *Alexiad*.

Aleyard, an English measure of capacity; also a drinking-glass, so called from its elongated shape.

Alfa, or HALFA, the Arabic name, now naturalized in French, for esparto grass, particularly for the varieties *Stipa tenacissima* and *Stipa arenaria*.

Alfadir (*i.e.* 'All-Father'), in ancient Scandinavian mythology a favourite name for Odin.

Alfalfa, the Spanish name for the *Medicago sativa*, or lucerne, a leguminous plant highly valued for pasture and forage. From Europe it has spread through the temperate zone of the New World, being grown in great quantities in S. California and the western states of the U.S.A. generally, into which it was introduced by early Spanish settlers. It produces several crops a year. Also known as Spanish trefoil, French, Brazilian, and Chilean clover, and, in Britain, medic or purple medic.

Alfarabi (d. c. 950), Arabian philosopher, born at Farab, beyond the Oxus. In his encyclopædia he recognized six orders of sciences—language, logic, mathematics, natural sciences, civil science, divine science. Lived at Bagdad and Damascus. He popularized among the Arabs the theories of Aristotle, and was the master of Avicenna. For his partially published works, see Munk's *Mélanges*, pp. 341–352 (1859), and Steinschneider's *Mémoires de l'Académie de St. Pétersbourg*, 7th series, vol. xiii. (1869).

Alfieri, VITTORIO, COUNT (1749–1803), Italian poet and dramatist, born at Asti, in Piedmont; succeeded at fourteen to a large inheritance. From his nineteenth year he travelled widely in Europe. His first work was a tragedy on Cleopatra, staged at Turin in 1775. In 1777 Alfieri became deeply attached to Louise von Stolberg, Countess of Albany, wife of Prince Charles Edward, and settled with her first in Alsace, and later in Paris, whence he was driven by the revolution. He returned with Louise to Florence, where the last ten years of his life were spent. Alfieri's own *Memoirs* (Eng. trans. 1810) give an excellent picture of his character. His tragedies, inspired chiefly by political, and especially by republican ideals, are severe and restrained in form. His dislike of French anarchy is recorded in his *Misogallo*; he also wrote many sonnets, and odes on American independence. Charles Lloyd (1815) and Bowring (Bohn) have both translated the tragedies. Landor introduces Alfieri in the *Imaginary Conversations*. A new edition of his *Opere* was begun at Rome in 1902. See Centofanti's *Vita di Alfieri* (1842); Porena's *Vita di V. Alfieri* (1904); Mazzantini's ed. of the *Letters* (1890); Vernon Lee's *Countess of Albany* (1884); Bertana's *Vittorio Alfieri* (1902).

Alföld, or PUSZTAS, the great central plain of Hungary, in Miocene and Pliocene times probably covered by a large inland sea, extends from the Danube to the Carpathians; consists alternately of sand ridges and alluvial valleys, and produces cereals, wines, and fruit, but the larger part is grazed by wandering herds of cattle, sheep, buffaloes, and horses. The inhabitants live in large villages, situated at considerable distances apart.

Alfonsine, tn., Italy, prov. of and 12 m. N.W. of Ravenna. Pop. 10,000.

Alfonso I. OF PORTUGAL (1110–85), 'The Conqueror,' son of Henry of Burgundy, undertook (1128) the control of state affairs, till then directed by his mother, Theresa of Castile; waged successful warfare against the Moors, inflicting a decisive defeat on them at Ourique (1139), when he assumed the title of King of Portugal; and captured Lisbon in 1147.

Alfonso III., 'The Great' (848–910), king of Leon, Galicia, and the Asturias, an intrepid champion of Christendom against the Moors in Spain, succeeded Ordoño I., his father, in 866. In a succession of hard-fought campaigns he extended his rule over Old Castile and part of Portugal. Popular discontent, represented by his son Garcias in 888, and later by his queen, forced him to abdicate in favour of his three sons; but a Moorish invasion recalled him to power.

Alfonso I. (d. 1134), king of Aragon and Navarre from 1105–34, surnamed 'The Victorious,' succeeded his brother Pedro I. The opposition of his wife, Urraca of Castile, from whom he was separated, frustrated him in his attempt to annex Castile on the death of his father-in-law, Alfonso VI. In his successful warfare against the Moors he seized Saragossa and Tarragona, and inflicted a severe

defeat upon them in the mountains of Valencia (1126). Victor in twenty-nine engagements, he was mortally wounded during the siege of Fraga.

Alfonso V. OF ARAGON and I. OF SICILY AND SARDINIA (1385–1458), 'The Magnanimous,' was the son of Ferdinand the Just, whom he succeeded in 1416. In 1420 Joanna I. of Naples made him her heir, but revoked the gift in 1423; and thereafter, until 1442, he was engaged in a struggle to secure possession of that kingdom. He was an enlightened ruler, and gave asylum to many scholars who fled from Constantinople when it was captured by the Turks.

Alfonso I. OF CASTILE and VI. OF LEON (1030–1109), son of Ferdinand of Castile and Leon, ascended the throne of Leon in 1065. He carried on, with varying fortunes, a long and sanguinary warfare with his brother Sancho, king of Castile; and on the assassination of the latter, in 1072, Alfonso obtained his kingdom. He imprisoned his younger brother Garcia until the latter's death. He won New Castile from the Moors, but ultimately sustained a crushing defeat at their hands in 1108.

Alfonso X., king of Leon and Castile (1226–84), surnamed 'The Wise,' or 'The Astronomer,' succeeded Ferdinand III., his father (1252); was chosen king by some of the German princes (1257); his arms were successful against the Moors (1263); repressed the rebellion promoted by his son Philip (1271), but was driven from the throne by Sancho, his second son (1282). He was a patron of literature; completed the codification of the laws—*Leyes de las Partidas* —and was the author of poetical and scientific works. By his command the first complete history of Spain was written in the Castilian tongue, and the Old Testament was translated into Spanish. The astronomical tables known as *Alfonsine* were prepared under his direction.

Alfonso XII. (1857–85), king of Spain, son of the exiled Queen Isabella, was chosen by the provisional government to succeed Amadeus of Aosta in 1874. He put down the Carlist rebellion of 1876, and restored orderly government.

Alfonso XIII. (b. 1886), king of Spain, posthumous son of Alfonso XII., was proclaimed king on the day of his birth (May 17). His mother, Queen Maria Christina, acted as regent until he reached his majority, at the age of sixteen, in 1902. In 1906 he married Princess Victoria Eugene Julia Ena of Battenburg, and after the ceremony an attempt was made on his life by an anarchist. In 1907 Don Alfonso, prince of the Asturias (heir apparent), was born. In 1910 King Alfonso was one of the nine kings who attended the funeral ceremony of King Edward VII. He is an ardent and successful sportsman, and popular both in Spain and in England.

Alford, HENRY (1810–71), scholar and poet; laboured as clergyman in Ampton, Wymeswold, London, and (1857) as dean of Canterbury; was evangelical in sympathy; is remembered chiefly for his *Greek Testament* (1849–61). First editor of the *Contemporary Review* (1866–70). Wrote *Poems and Poetical Fragments* (1831); *The School of the Heart* (1835); *Chapters on the Greek Poets* (1841); the Hulsean Lectures, *On the Consistency of the Divine Conduct*, etc. (1841–2); *A Plea for the Queen's English* (1863); also author of several hymns. See *Life* (1873) by his widow.

Alfred, magisterial div. at the extreme S. of Natal, bounded by Alexandra on the N., Pondoland on the S., Griqualand E. on the W., and the Indian Ocean on the E. Area, 570 sq. m; pop. 24,000, including 500 whites.

Alfred the Great (849–901), king of the West Saxons in England, was born at Wantage in Berkshire. He was the youngest son of King Ethelwulf, but when his brother Ethelred died in 871 Alfred was declared king by universal consent. The young king fought eight or nine battles with the Danes in the first year of his reign, winning, amongst others, the battle of Ashdown. A period of rest followed; but in 878, Guthrum, king of the Danes in E. Anglia, invaded Wessex, and Alfred retired for a time to Athelney, in Somersetshire, where tradition says that he burned the cakes. Shortly afterwards he gathered levies from three shires, and inflicted a severe defeat upon the Danes at Edington, in Wiltshire. The peace of Wedmore was concluded, under which Guthrum consented to become Christian and to withdraw from Wessex, while the supremacy of Alfred was acknowledged over the whole country south of the Thames and over the greater part of Mercia. From 878 to 893 the land enjoyed comparative peace. It was utilized by the enlightened king in the consolidation of England. He practically founded the British navy; reorganized the national defences; raised public buildings, reclaimed waste lands; and revised all existing laws, combining those which he found good into a single code. He founded schools, encouraged literature in the native tongue, and improved the services of the church. This work was again interrupted by war. A new Danish army appeared under Hastings, who for four years kept Alfred and his forces incessantly occupied. Having once more saved his country, the great king died, Oct. 27, 901, at the age of fifty-two. The thousandth anniversary of his death was celebrated in 1901 in Winchester, the ancient capital of England. Alfred's prin-cipal writings are as follows:— (1.) A translation of the *Universal History* of Orosius contains three original insertions by the king: a brief description of North-Central Europe, and the account of two voyages of discovery by the explorers, Othere and Wulfstan. (2.) A translation of Bede's *Ecclesiastical History*, which, on account of Mercian peculiarities in the language, may be due to Alfred's instigation rather than to his own execution. (3.) A translation of the *De Consolatione Philosophiæ* of Boethius. (4.) A close translation of Gregory's *Cura Pastoralis* contains a priceless original preface by the king. (5.) A translation of Gregory's *Dialogues*, not yet edited, and by some assigned away from Alfred. (6.) *Blooms*, a common-place-book of 'sayings which King Alfred collected.' (7.) Alfred's hand is not directly traceable in the *Saxon Chronicle*, but the finest writing it contains is the contemporary narrative of the Danish wars in his reign, and the *Chronicle* itself is certainly due to his fostering interest and care.

The *Anglo-Saxon Chronicle* is the best authority on Alfred. There are *Lives* by Asser (ed. W. H. Stevenson, 1904), Powell (1634), Spelman (1678), Bicknell (1777), Reinhold Pauli (1851), and Thomas Hughes (1878). See also Alfred's Laws in Thorpe's *Collection* (1840); Turk's *Legal Code of Alfred the Great* (1893); Alfred's *Works* (Ox. 1852–3); *Alfred the Great* (ed. Bowker); Earle and Plummer's *Two Saxon Chronicles;* an Alfredian *Old Eng. Reader*, containing the original preface to and extracts from the *Cura Pastoralis;* the *Orosius;* and the *Chronicle* (Camb. Press).

Alfred Ernest Albert, Duke of Edinburgh and Duke of Saxe-Coburg and Gotha (1844–1900), second son of Queen Victoria, was born at Windsor. In 1858 he entered the navy, and became

admiral of the fleet in 1893. In Aug. 1893 he succeeded his uncle, Ernest II., as reigning Duke of Saxe-Coburg and Gotha. He was succeeded by his nephew, the Duke of Albany.

Alfreton, mrkt. tn., Derbyshire, England, 14 m. N.N.E. of Derby; has large collieries, potteries, and ironworks. Pop. 17,500.

Alfuras, or HARAFURAS, the original inhabitants of Celebes, but found also in Buru, Ceram, Jilolo, the Sula Is., and the N.W. of New Guinea. They are apparently of Malay descent, greatly modified by Papuan blood.

Algæ, a large group of the simplest plants, including seaweeds, and the filamentous and microscopic forms which are found in stagnant pools and on moist surfaces exposed to the air. Though they vary greatly in complexity—from a single nucleated speck of protoplasm at one end of the scale, to the gigantic Macrocystis of southern seas with its fronds of 600 to 800 ft. in length, clothed with ribbon-like leaves of proportionate size, at the other end—algæ never possess true roots, stems, or leaves. They are distinguished from the fungi by their power of building up their organic materials out of elementary inorganic substances. Algæ are also distinguished from lichens, which consist of algæ and fungi living together in an intimate nutritive relation—a high form of symbiosis. They always possess chlorophyll —the substance by means of which new material is assimilated under the influence of light—though its presence may be masked by other pigments. Algæ are usually classified in three orders: CHLOROPHYCEÆ (green); PHÆOPHYCEÆ (brown); and RHODOPHYCEÆ (red); to which some authorities add a fourth, CYANOPHYCEÆ (blue). The green algæ occur in great variety in pools of fresh and salt water. One of the simplest forms

is Pleurococcus, abundant on damp surfaces. It is a single round green cell, which multiplies by division into two or four cells, which then separate; in some allied aquatic forms the protoplasm may escape through its cellulose wall, develop a pair of cilia, and swim through the water. In more complex forms, the individuals resulting from fission may not wholly separate, but remain embedded in a common envelope. A very highly developed example of such a colony may be seen in Volvox, a constantly moving sphere of many hundreds of ciliated individuals, connected by threads of protoplasm through the envelope, some of which are purely nutritive in function, while others become female reproductive cells, destined to form new colonies, and others again divide into numerous minute and active male elements, which are set free to fertilize the ova. The filamentous green algæ are higher forms, in which continued division results in single rows of cells separated from each other by transverse walls (Confervoideæ), as in Ulothrix, a long dark-green hairlike plant very common on stones in running water, which propagates by means of motile zoospores formed in certain cells, and set free to swim to a new site for a new plant, and also reproduces itself by means of the fusion of two free motile sexual cells (*gametes*). Or the filaments may consist each of a single continuous tube (Siphoneæ), as in Vaucheria, common in moist soil in greenhouses, which has a highly developed form of sexual reproduction, as shown by the large quiescent female cell (*oogonium*) and the minute active male (*antherozoid*). The so-called blue algæ are inconspicuous and degenerate plants, found in fresh waters. A common example is Anabæna, which often makes the water of a pond opaque and dirty green in colour, giving

it a foul odour. It is among the brown and the red algæ or seaweeds that we find at once the largest and most differentiated forms, and the highest development of sexual reproduction. The common Laminaria, Fucus, and other seaweeds of British shores, together with examples of simpler algæ already mentioned, are illustrated in the accompanying plate; but for a description of seaweeds, see that article. See also DIATOMS.

Algaroba, a Spanish name for the pods of several leguminous plants, principally those of the mesquite tree, found from Colorado westwards to California and southwards through Central America to the Argentine Republic. The pods form excellent food for cattle and horses, and are used commercially in tanning and dyeing.

Algarotti, COUNT FRANCESCO (1712–64), scholar and critic; born at Venice; his works popularized abstruse subjects. His *Neutonianismo per le Donne* (1732; trans. into several languages) was praised by Voltaire. He travelled through Europe, staying some time at Paris, Berlin, Dresden, and St. Petersburg, and was especially honoured by Frederick the Great. His poetry was mediocre, but his *Saggi* (essays) on art, etc. (1769), were influential in Italian literature. His *Opere* (Venice, 1791–4) were accompanied by a Life by Michelessi.

Algarve, the southernmost province of Portugal; mountainous in the N., but with a fertile coast belt on the S. Figs, almonds, olives, oranges, and vines are grown in the lowlands; cereals on the higher ground. Tunny, herring, and sardine fisheries. The Algarves are noted sailors. Area, 1,920 sq. m. Pop. 270,000. Cap. Faro.

Algebra (Arab. *al jebr*), the science of operations with quantities, where the quantities are usually represented by letters (*a*,

b, *c* . . ., *m*, *n* . . ., *p*, *q*, *r* . . ., *x*, *y*, *z*, etc.) and the operations by symbols ($+$, $-$, $\times$, $\div$, $\propto$, etc.); these symbols may themselves be numbers. Algebra took its origin in arithmetic, and both studies have the same fundamental laws. But many ideas are original in algebra. Certain quantities (*e.g.* imaginary quantities, such as the square root of a negative number: $\sqrt{-1}$) cannot be entertained by arithmetic. Every quantity, and every step in the working, of an arithmetical problem is capable of intelligible conception; but algebra admits of unthinkable quantities and operations. Vieta (16th century) first used letters for all quantities, and shortly afterwards symbols were used for the operations. For a time the various 'powers' of a number were represented as xx, xxx, etc.; but when Descartes indicated the power by a number (x^2, x^3, etc.), the laws of indices were soon discovered, and it was by subjecting binomials to the latter that Newton discovered the binomial theorem. The whole field of algebra is covered by the investigation of identities (or the methods of presenting an algebraic expression in various ways) and of equations. Algebra, as commonly taught, is only one of many algebras. Hamilton, Grassmann, and others have conceived algebras with different fundamental laws, of which quaternions is an example. For the various algebraic operations, see the respective articles; also Chrystal's *Text-book of Algebra* (1889).

Algeciras, tn., prov. Cadiz, Spain, the port on the bay opposite Gibraltar (5 m.). Industrial town, with busy export trade. Here on April 7, 1906, an international agreement regulating the affairs of Morocco was concluded.

Algeciras Bay, BATTLE OF. In the summer of 1801 a small French division of three ships of the line

I.

and a frigate, under Rear-admiral Linois, had to anchor in Algeciras Bay. Sir James Saumarez, afterwards Lord de Saumarez, was blockading Cadiz at the time, and made a gallant attack (July 6), when, with the loss of one ship, the *Hannibal*, he succeeded in forcing the French vessels ashore, and in sinking five Spanish gunboats. See *Political Hist. of Eng.*, ix. 8 (1906).

Algemesi, tn., prov. Valencia, Spain, 20 m. s. by w. of Valencia. Produces oranges and rice. Pop. 8,200.

Algeria, or L'ALGÉRIE, a French colony of N. Africa, which occupies the central portion of the former States of Barbary. It is bounded by the Mediterranean on the N., the Sahara on the s., and is separated from Tunis on the E. and from Morocco on the w. by conventional boundaries. The area in 1901 was 184,670 sq. m., but it has since been increased by the acquisition of new territories to the south, and now extends to about 343,500 sq. m. The country is divided by elevation and climatic conditions into three zones, parallel to the coast, but of different breadths:—(1) The Tell, or region of forests and arable land; (2) the Steppe, or region of herbaceous vegetation and of pasture-land; (3) the Sahara, where agriculture is possible only by irrigation in certain limited spots called oases. The coast, running nearly E. and w., has an extent of almost 690 m.; it is, on the whole, high and rocky, and presents little shelter. There are, however, a few large semi-circular bays. The orographical structure is determined by two series of mountain chains, which form part of the Atlas range, and may be called the Tell Atlas and the Sahara Atlas. Neither of these forms a continuous ridge; they are cut up into a series of distinct *massifs*, separated by rivers or plains. The height of these *massifs* is seldom more than 4,000 ft., and does not exceed 8,000 ft. in any part. The region between the two series of mountain chains is occupied by high plains, the altitude of which varies from 2,400 ft. to 3,900 ft. The rivers are nothing but torrents (*wads* or *wadies*), very frequently dried up. The waters of some of them are dammed up for irrigation. In the steppes the running waters have generally been unable to find an outlet to the sea; they form the *shotts* of the plains, shallow lakes where snow and rainwater gather in winter.

Algeria belongs to the zone of Mediterranean climate, characterized by the division of the year into two seasons—the rainy or cold season (autumn, winter, spring), and the dry or hot season (summer). The climate fluctuates between the humidity of the Mediterranean and the aridity of the Sahara, the influences of which vary according to latitude, altitude, exposure, etc. The result of this is a great variety of local climates. The temperature is very equable on the coast. (See ALGIERS.) On the other hand, the interior and Sahara are subject to great and sudden changes. The flora and the fauna, like the climate, are Mediterranean. The trees and shrubs are for the most part evergreens, the olive being the characteristic tree. The forests are composed chiefly of cork-trees, evergreen oaks, Aleppo pines, cedars, and cypresses; the steppes are covered with alfa or esparto grass and salt-loving plants; the date-palm is the characteristic tree of the Sahara.

Algeria had (1906) 5,231,850 inhabitants, of whom 4,477,788 were natives (Berbers or Arabs). The Berbers, who are Mohammedans, but do not practise polygamy, occupy principally the mountain ranges and the southern oases, and are either settled or semi-nomadic;

the Arabs inhabit the plains and the steppes, are nomadic or semi-nomadic, and occupy principally the western part of Algeria. The Algerian Jews, to the number of 65,000 (1906), were naturalized by decree in 1870. The European population numbers 730,000, of whom 280,000 are French, 120,000 Spanish, and the rest mostly Italians and Anglo-Maltese.

Algeria is essentially an agricultural country. The principal product is the vine; fertile vineyards cover 310,000 ac., producing annually over 180,000,000 gallons of wine. The area and the output have trebled since 1884. The olive grows very well, but its culture, together with that of the date, fig, and other fruit trees, is capable of development. Market-gardening flourishes in the neighbourhood of the seaports, and the cultivation of cereals (chiefly wheat and barley) occupies large stretches of country. Tobacco (a growing industry) is extensively cultivated. Sheep-breeding is especially important.

There are copper, zinc, lead, antimony, and mercury mines, and petroleum springs. The only minerals at present of real importance are iron ore at Aïn Mokra and Beni-Saf, zinc ore, and the extensive deposits of phosphate of lime, chiefly in the Tebessa district. The red marble of the ancients (*giallo antico*) was rediscovered near Kléber in Oran in 1878. There are numerous hot mineral springs, as at Constantine. The native industry (carpets, leather-work, arms) is on the decrease, and that of the Europeans is limited to the preparation of agricultural produce (flour-mills and distilleries).

In 1909 the total imports were valued at £18,033,000, and the total exports at £13,172,000. The greater portion of this commerce is with France (86·6 per cent. of the imports and 71 per cent. of the exports). Algeria exports wines, cereals, alfa, tobacco, hides, sheep, wool, iron, and phosphates; it imports cottons, cloth, tools, metals, coal, and colonial produce.

There were 1,900 m. of national roads and 2,000 m. of railway open in 1908. The railway system (first section opened in 1862) consists of one long line, parallel to the coast, joining the large towns of the Tell, and extending as far as Tunis; lines branch off N. to the seaport towns, and S. towards the Sahara, Biskra being the farthest station S. The principal seaports are Algiers (the cap.), Bougie, Philippeville, Oran, and Bona.

Algeria is divided into three departments—Oran, Algiers, and Constantine. At the head of the country is a civil governor-general. The army forms the 19th corps (about 56,000 men) of the French army.

The oldest evidences of the presence of man which one meets with in Algeria are the cut flints and the various instruments of polished stone. The monuments called megalithic, dolmens, menhirs, tumuli, and cromlechs are fairly numerous. The history of Algeria, the ancient Numidia, is the history of various successive conquests—*viz.* those of the Phœnicians, the Romans, the Vandals, the Byzantines, the Arabs, the Mediterranean peoples of every race, and finally the French—which have been forced in turn upon the old Berber stock, always persisting and resisting. The Turkish government of Algiers, with its corsairs scouring the Mediterranean, and its prisons for Christian galley-slaves, lasted from the 16th century to 1830. France put an end to this by taking possession first of Algiers and then of Algeria. The conquest was long, difficult, and attended by numerous insurrections. For seventeen years the Arabs maintained a vigorous resistance, and after

that the Berbers continued the struggle. The important stages in the conquest were the struggle between Marshal Bugeaud and Abd-el-Kader, ending in the submission of the latter in 1847; the conquest of Great Kabylia in 1851 and 1856-7; and the rising of 1871.

See Sir Lambert Playfair's *Bibliog. of Algeria*, from the earliest times to 1895 (1887; with Supplt. 1898); *Exploration scientifique de l'Algérie* (17 vols. 1844-54); *Statistique triennale de l'Algérie* since 1858; *Procès-Verbaux du Conseil supérieur*, preceded by *L'Exposé annuel* of the situation by the governor (annual); Accardo's *Répertoire des Tribus et Douars de l'Algérie* (1900); *Publications de l'Ecole Supérieure des Lettres d'Alger* (Leroux), 34 pamphlets on Algeria published by the governor-general for the Paris Exhibition of 1900. Geographical works—Reclus's *Nouvelle Géographie Universelle* (vol. xi. 1886), the best general description of Algeria; Niox's *Géographie physique* (1885), and *Géographie militaire* (1890); Wahl's *L'Algérie* (new ed. 1899), popular books; Leroy Beaulieu's *L'Algérie et la Tunisie* (1897); Lorin's *L'Afrique du Nord* (1908); Simpson's *Algiers and Beyond* (1906). For history — Mercier's *Hist. de l'Afrique septentrionale* (3 vols. 1888-90), complete, but very confused; Legendre's *La Conquête de la France Africaine* (1904). For the Roman period—besides the *Corpus Inscriptionum Latinarum* with the Supplements, Gaston Boissier's *L'Afrique Romaine* (1895). For the Arab period the best document is Ibn Khaldoun's *Hist. des Berbères* (trans. from De Slane, 4 vols. 1854). For the Turkish period—De Grammont's *Hist. d'Alger sous la Domination Turque* (1887). For the French period—De Raynaud's *Annales Algériennes* (3 vols. 1887). On the contemporary native population—Hane-

teau and Letourneux's *La Kabylie et les Coutumes Kabyles* (3 vols. 1872-86); and Masquéray's *Formation des Cités chez les Sédentaires de l'Algérie* (1886).

Alghero, seapt. and episc. see, on w. coast of Sardinia, 22 m. s.w. of Sassari; founded by the Genoese. Coral fishing; wine, olives, etc., grown. Pop. 11,000.

Algiers (Fr. *Alger*; Ar. *Al-jezaïr*, 'the islands'), cap. of Algeria, is situated on the Mediterranean, about 500 m. from Marseilles (26 hrs.). It stands on the seaward slope of high hills, and on the shores of a large semicircular bay. The Arab town is in the form of a triangle, of which the Kasbah (fortress) forms the apex, and of which the base has been rebuilt in an imposing seafront of modern architecture. The modern town in no way differs from European cities. There are two large suburbs—St. Eugène in the N., and Mustapha in the s. Mustapha Supérieur is the residential quarter for Europeans. Algiers is joined to Oran, Constantine, Tunis, and other large towns, by railway, and lies equidistant from the E. and w. boundaries of the country. An extent of about 10 m. along the bay is fringed with an almost unbroken succession of buildings. It possesses a Roman Catholic cathedral, and has a large college, an observatory, etc. With its exquisite climate, Algiers has become a favourite winter resort for Europeans. Mean temp. 64·3° F.; Jan. 54° F.; Aug. 78° F. Algiers is one of the first provision and coaling stations of the Mediterranean, and by far the most important seaport of Algeria. During the Turkish period it was the headquarters of piracy and slave-dealing; was bombarded by Duquesne in 1682, by Lord Exmouth in 1816, and captured by the French, 1830. Pop. (1906) 145,280, of whom 112,030 were Europeans. See Grammont's

Hist. d'Alger sous la Domination Turque (1887); Playfair's *Scourge of Christendom*(1884), and his *Handbook of Algeria and Tunis* (1895). The department of Algiers (65,930 sq. m.) had (1906) a pop. of 1,619,842, of whom 265,798 were Europeans.

Algiers, tn. Louisiana, U.S.A., suburb of New Orleans, with which it is connected by ferry across the Mississippi. Manufactures locomotives, boilers, and machinery, and has shipbuilding yards. Pop. 15,000.

Algin, or ALGINIC ACID, a substance resembling albumin, but not coagulated by heat, is obtained from seaweed, chiefly the genera Fucus and Laminaria, as a precipitate after boiling with sodium carbonate and adding hydrochloric acid. It is used as a dressing for fabrics, and as a thickening for soups and jellies.

Algoa Bay, an open bay or roadstead on the S.E. of Cape Colony. Here was the landing-place of the settlers who founded the prosperous town of Port Elizabeth (1820). The bay is exposed to the S.E. gales, but is largely used.

Algol, β Persei, was catalogued by Ptolemy as the *lucida* of the Gorgon. It is the model 'eclipse star,' varying in brightness from 2·3 to 3·5 magnitude in a period of 2 days 20 hrs. 49 mins., through the interpositions of a revolving dark satellite. The light-changes of Algol, noticed by Montanari in 1669, were methodically observed and explained by Goodricke in 1783; and his occultation hypothesis, discussed by Pickering in 1880, was spectroscopically verified by Vogel in 1889. An inequality in the timekeeping of the pair, compensated after about 140 years, is attributed by Dr. Chandler to its revolution round an obscure primary in an orbit crossed by light in 152 minutes. The opposite deviations of the eclipses from their calculated times would, on this supposition, be due to periodical alterations in the distance from the earth of the eclipsed body. M. Tisserand, on the other hand, accounted for the disturbance by the spheroidal shape of both the bright star and its companion—the diameter of the first-named being about 1,000,000 m., and the latter 830,000 m.; and their joint mass seems to be just two-thirds that of the sun. Yet Algol must possess far more than the solar luminosity. It gives a helium spectrum, and is now purely white. Al-Sûfi classed it in the 10th century as a red star. It is approaching the sun at a rate of 1 m. a second.

Algoma, dist., N.W. Ontario, fronting Lakes Huron and Superior. Copper, silver, and nickel abound. Area, 43,132 sq. m. Pop. 60,000. It is traversed by the C.P.R. along its S. margin. The town, a seaport on the N. channel of Lake Huron, is the see of an Anglican bishop. Pop. 3,600.

Algonkian System, in geology, the lowest of the sedimentary rocks (so named by Walcott in 1889, the term being now generally accepted), lies below the Cambrian rocks and above the Archæan. With the latter it is often classified as the pre-Cambrian formations. They consist of slates, quartzites, gneisses, and other rocks. This stratum is often scarcely separable from that below it, owing to the degree to which metamorphism has proceeded. Near the great lakes of N. America the Algonkian formations have been still further metamorphized through the intrusion of great masses of igneous rocks, and here occur some of the greatest iron and copper deposits of the world.

Algonquins, one of the main linguistic divisions of the N. American aborigines, extended from the Rocky Mts. to Newfoundland, and from Hudson Bay

to the Carolinas, though a considerable part of this area was occupied by the Iroquois. The largest tribes are known as the Cree, Ojibwa, Blackfoot, and Micmac. They number about 90,000 in all.

Algorism, or ALGORITHM, the Arabic system of numbers; a name derived from 'Al-Kharizmi,' the agnomen of Abu Jafar Mohammed, a mathematician of the 9th century A.D.

Algraphy, or ALUMOGRAPHY, a printing process in which aluminium plates are used for the same purpose as the stone in lithography.

Alguazil (Sp. *alguacil*, from Ar. *al*, 'the,' and *wazir*, 'an officer or vizier,' or *wazil*, 'power granted by the king'), an inferior officer of justice in Spain entrusted with the duty of seeing the decision of a judge put into execution. A special class, called *alguaciles mayores*, is in different municipalities either hereditary or elective; while the *alguaciles menores* are ordinary officers attached to a court of justice.

Algum, or ALMUG, a wood which was brought from Lebanon (2 Chron. 2 : 8), or Ophir (1 Kings 10 : 11), for the building and furnishing of Solomon's temple. It is commonly supposed to have been red sandalwood, but this is perhaps only the least unlikely of many and various identifications.

Al=Hakim II., caliph of Cordova (961–976), a patron of art and learning. His library is said to have contained 600,000 volumes, afterwards partitioned among various colleges and the academy of Cordova.

Al=Hakim=ibn=Otto, or HA-KIM IBN ALLAH (d. *c.* 780), a false prophet who came to Merv, the capital of Khorassan, in 774. He was surnamed Al-Mokanna, 'The Veiled One,' because he always wore a mask in public. Moore made him the subject of his poem, *Mokanna, or the Veiled Prophet of Khorassan.*

Alhama. (**1.**) Town, prov. Murcia, Spain, 19 m. s.w. Murcia. The town stands at the foot of a great cliff crowned by a Moorish castle. Pop. 8,500. (**2.**) Town, prov. Granada, Spain, 22 m. s.w. of Granada. It is romantically situated, is a resort of invalids, and has been famed for its medicinal springs since Roman times. The upper town was damaged by an earthquake in 1884. Pop. 7,700.

Alhambra (Ar. *Kilaat el-Hamara*, 'Red Castle'), the palace of the Moorish kings of Granada, was erected from 1248 to about 1350. The Emperor Charles V. destroyed part of it, in order to build a newer palace. In 1812 the French under Sebastiani blew up eight of the towers, and an earthquake in 1821 did serious damage. Its restoration was commenced by Queen Isabella in 1862. The Alhambra stands on a lofty terrace, enclosed by a strong wall. The parts of the palace still standing lie round two rectangular courts—the Court of the Myrtles, and the Court of the Lions, in the centre of the latter being the celebrated Fountain of the Lions, a magnificent alabaster basin supported by twelve lions in white marble. The characteristic gloomy Moorish exterior gives place in the interior to gorgeous colouring, to the finest carving in stone, to palmlike marble pillars, and to elaborate scroll-work (arabesque). The other chief buildings are the ruined Alcazaba (*i.e.* the Citadel), the Hall of the Ambassadors, the Hall of the Abencerrages, and the Hall of the Two Sisters. The South Kensington Museum contains a complete series of models of the Alhambra; there is also a model in the Crystal Palace, London. See Washington Irving's *Alhambra* (1832); Jones's *Plans, Elevations, etc., of the Alhambra* (1848); Murphy's *Arabian Antiquities of Spain* (1856); and Calvert's *The Alhambra* (1904).
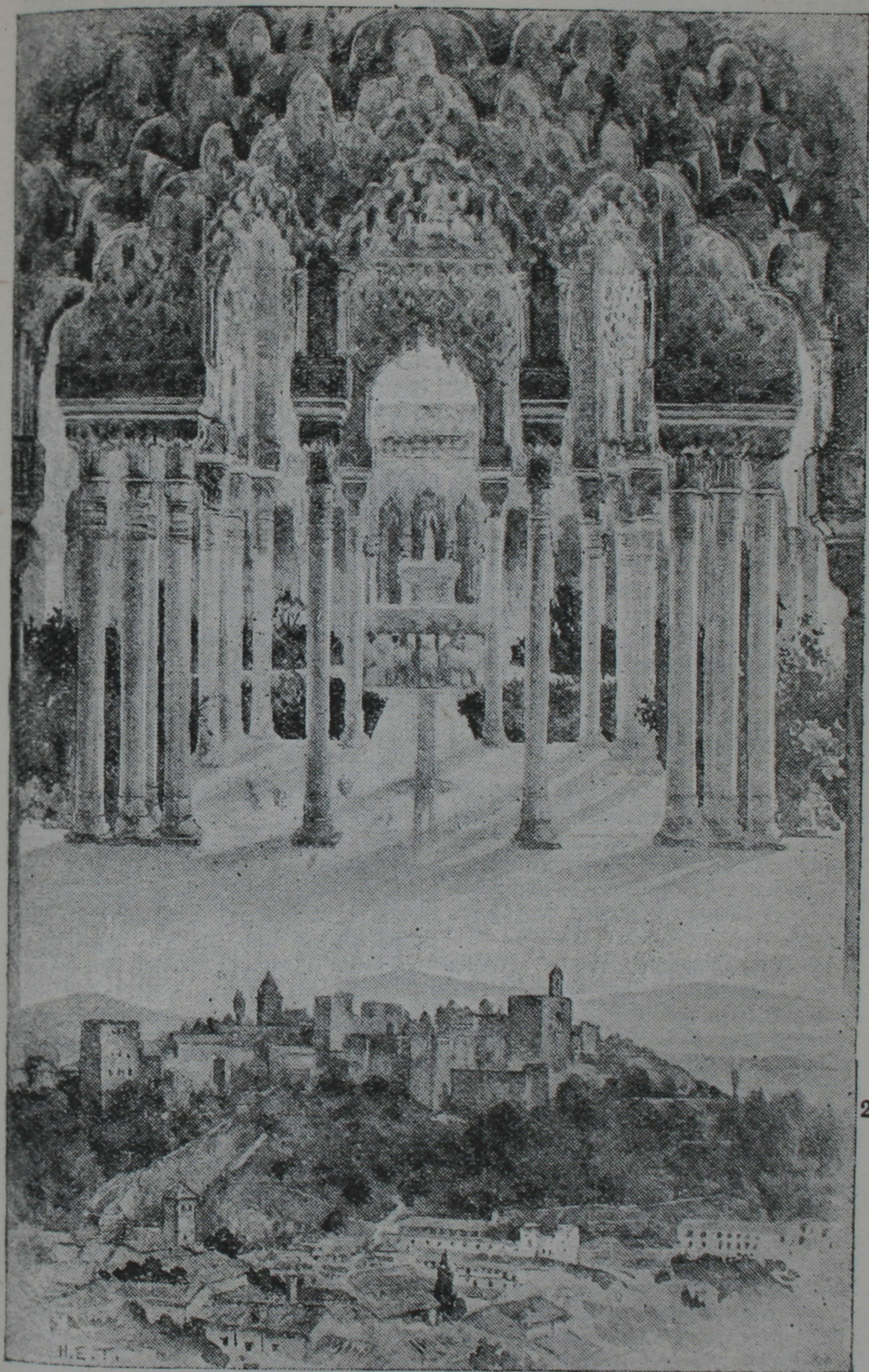
The Alhambra, or 'Red Castle.'

1. Court of the Lions.   2. General view.

Alhaurin = el = Grande, tn., Spain, prov. of and 14 m. w.s.w. of Malaga; has sulphur baths. Pop. 8,000.

Al=Hazan (965–1039), Arab astronomer and optician, was a native of Bassora, but afterwards settled in Cairo. He wrote a treatise on optics, which was translated into Latin, and published in Basel in 1572, under the title *Opticœ Thesaurus*. His account of the power of lenses is the earliest known, and he is credited with the first suggestion of spectacles. Kepler made considerable use of his writings.

Ali (d. 661), cousin and son-in-law of Mohammed, was the first to believe in the mission of the prophet, whom he served as an intrepid soldier and able vicegerent. He became the fourth caliph, succeeding Othman (656); his appointment was the occasion of the schism between the Shiites and the Sunnites. Ali crushed his opponents. He was succeeded, on his assassination, by his son Hassan.

Ali, RIGHT HON. SYED AMEER, C.I.E., the first Indian to be appointed a member of the Judicial Committee of the Privy Council, succeeding, in 1909, Sir Andrew Richard Scoble, K.C.S.I., who resigned.

Aliaga, pueb., Neue Eciya prov., Luzon, Philippines, 65 m. N. of Manila. Pop. 12,000.

Alias (Late Lat., 'otherwise'), in common usage that part of an indictment describing a prisoner who goes under one or more feigned names, from the Latin words formerly used in the indictment, *alias dictus*.

Ali Bey (1728–73), a freed Caucasian slave in Egypt who gained a large following among the Mamelukes, and, having destroyed his rivals, assumed the title of sultan and renounced the suzerainty of the Porte. He reduced Syria and the west of Arabia to his rule,

but was defeated and fatally wounded in battle near Cairo.

Ali Pasha, surnamed THE LION (1741–1822), pasha of Janina in Albania, born in Tepeleni, of an old and noble family. For his services in the war against Russia and Austria he was made by the Sultan pasha of Trikala in 1787, and in 1788 he became pasha of Janina. From 1803 he governed Albania, Epirus, Thessaly, and the southern part of Macedonia despotically. In 1820 the Sultan decided to get rid of him, and sent an expedition against him. Ali, besieged in Janina, defended himself like a lion; but, running short of provisions, was forced to capitulate in 1822. In February the same year he was treacherously killed. Lord Byron visited him in 1809, and alludes to him in canto ii. st. 47 of *Childe Harold*.

Alibi. The plea of *alibi* in a criminal prosecution means that the person accused was elsewhere (*alibi*) at the time of the commission of the crime. If proved, it is conclusive; but it is a plea which is easily fabricated.

Alicante. (1.) Prov., S.E. Spain, part of ancient kingdom of Valencia. Arid climate, but one of the most fertile districts of Spain; almonds, oranges, olives, and pines are grown. Lead is mined. Area, 2,185 sq. m.; pop. 470,000. (2.) Cap. of above prov., busy port on Mediterranean, with a fine harbour. Popular winter resort for invalids. Pop. 50,000. Exports fruit, wine, esparto, lead, copper, etc.

Alice, tn., Cape of Good Hope, 60 m. w. of East London, on ry. from there to Cookhouse junction. Near it is the mission station of Lovedale.

Alice Maud Mary, PRINCESS (1843–78), Grand-Duchess of Hesse-Darmstadt (m. 1862), third child of Queen Victoria. She took great interest in art, literature, painting, and sculpture. She was

much loved for her thoughtful philanthropy (*e.g.* in the Franco-German war), and for the grace of her home life, shown in her devoted nursing of her father (1861), of her brother the Prince of Wales (1871), and of her own children, intending whom she contracted her fatal illness (diphtheria). She left four daughters (Victoria; Elizabeth, widow of the Grand Duke Sergius; Irene; and Alexandra Feodorovna, the Czarina), and one son, Ernest Louis, who succeeded his father in 1892. See *Memoir* by Sell (Eng. trans. 1884; new ed. 1897).

Alicuri, or ALICUDI. See LIPARI ISLANDS.

Alien. In most civilized countries, an alien is one who by birth owes allegiance to a foreign power, and who has not taken the necessary steps to renounce that allegiance. An alien enemy is one whose sovereign is at war with England. According to the British Acts of 1730 and 1773, every one is a British subject who was born in British territory, or whose father or paternal grandfather was so born; but subsequent events have rendered this to a great extent nugatory. Formerly, an alien, in English and Scottish law, could not hold land, even of leasehold tenure, although in Scotland special statutes were passed (1558) in favour of Frenchmen and (1607 and 1669) of Englishmen; but now, by the Naturalization Act, 1870, all disqualifications have been removed, except that an alien cannot own a British ship, or hold any public office, including a seat in Parliament, or vote at any election. In England, he can sit on a jury after ten years' domicile in England or Wales (33 & 34 Vict. c. 77, s. 8); but in Ireland he is absolutely disqualified (34 & 35 Vict. c. 65, s. 7), and in Scotland the law is uncertain (*S.L.R.*, 1876, p. 180). A woman who marries a foreigner becomes an alien. An alien may become a naturalized British subject after five years' residence, on application to a Secretary of State under the Naturalization Act; and the crown has also the prerogative right to grant letters of denization. A British subject born of a British father outside the British dominions, or a British subject who is also the subject of another state, may make a declaration of alienage, and thereby cease to be a British subject. A British subject who becomes naturalized in a foreign state *prima facie* becomes an alien, unless he makes a declaration to the contrary. British colonies have power to grant naturalization within their territory, but it has no effect elsewhere. (See DOMICILE.) The British practice of granting pilotage certificates to foreigners has been disapproved by more than a hundred members of Parliament, who consider that we are training up a body of men who in time of war will add to the strength of an enemy's intelligence department. See ALIEN IMMIGRATION, DENIZEN.

Alienation, in law, a transfer of the title to property from one person to another, by conveyance, and not by inheritance.

Alien Immigration. The Aliens Act, 1905, forbids immigrants (*i.e.* alien steerage passengers) to land from immigrant ships (*i.e.* ships bringing more than twenty immigrants) except at ports where immigrant officers are stationed, whose leave must first be obtained. An immigrant is to be considered undesirable who cannot show that he is in a position decently to support himself and his dependants (if any); or who is a lunatic, idiot, or, owing to any disease or infirmity, likely to become a charge on the rates, or otherwise a detriment to the public; or who has been sentenced for a crime, not being an offence of a political

I.

character. But an immigrant who proves that he is seeking admission to the country to avoid persecution or punishment on religious or political grounds is not to be refused admission on the ground merely of lack of means, nor is one who has been refused admission to another country after residence in the United Kingdom, and has returned direct, nor one who satisfies the immigration officer that he was born in the United Kingdom, his father being a British subject. There is an appeal from the immigration officer to a board appointed by the Secretary of State. The Secretary of State may exempt any immigrant ships from the provisions of this section if satisfied that a proper system is being maintained for preventing the embarkation of undesirable aliens. He may make an expulsion order against convict or undesirable aliens in certain cases. The total number of aliens entering the kingdom during 1908 was 170,879. The total number of aliens in the United Kingdom has been computed at 286,925 (London 135,377), not including children born of alien parents in this country. Most states reserve the right of refusing to admit certain classes of undesirable aliens, the most rigidly restrictive acts obtaining in the United States and Australia. The United States Act of 1903 raises the head-tax on immigrants from one to two dollars. The former act prohibited the admission of Chinese labourers, persons under agreement to perform labour or service in the United States, idiots, insane, paupers or persons likely to become a public charge, persons suffering from a loathsome or dangerous contagious disease, those convicted of crime (except political), polygamists, and persons who have been assisted by others to come. To these classes the new act adds epileptics, persons who have been insane within the previous five years or have had two attacks of insanity, professional beggars, and anarchists. In Australia there is a poll-tax of £100 on Chinese and coloured immigrants, and by the Immigrant Restriction Act of 1901 persons who cannot write fifty words of a European language and sign the same are inadmissible, as well as workers under contract, unless absolutely required by the Commonwealth. See Report of Royal Commission, 1903, *The Destitute Alien* (Social Science Series), and *Board of Trade Returns*.

Alif, the first letter of the Arabic alphabet and of the word Allah, is used by Mohammedans as a symbol of the one God or of the unity of the Godhead, and is set as a monogram at the head of letters and other writings.

Aligarh, or ALIGHUR. (1.) District, Meerut div., United Provinces, India, between the Ganges and the Jumna. Pop. 1,200,000. (2.) Town, cap. of above, 47 m. N. of Agra. It adjoins the town of Koil, which has a fort captured by Lord Lake in 1803. Here is a Mohammedan Anglo-Oriental college, affiliated to the University of Allahabad. Pop., including Koil, 70,000.

Alignment, in typography, means the arrangement of type-letters in such a way that their impressions shall be exactly in line. This is a difficult matter when types of various sizes are introduced in the same line.

Alignments, in archæology, are rows of menhirs or upright stones, usually in parallel lines. There are many in Brittany, notably at Carnac. The best example in the British Islands is at Callernish, in the Hebridean island of Lewis.

Alima, riv., French Congo, Africa, r. bk. trib. of the Congo;

rises near source of the Ogowé, and flows N.E., then E., and finally E.S.E. for 400 m. to join the Congo 220 m. N.E. of Brazzaville.

Aliment, in Scots law, the maintenance of children and other persons who are entitled to claim on the ground of relationship or marriage. Parents are bound to aliment their children until of sufficient age and ability to support themselves — an obligation which extends to remoter descendants. Children able to do so must aliment their indigent parents or grandparents. A husband must aliment his wife whether living with him or not, and during divorce proceedings, but not after divorce, unless the husband was the defender, when she is entitled to her legal provisions. A wife with separate estate must aliment her children if the husband is unable to do so, but it is not settled whether she is bound to aliment him. Payment of alimony may be enforced by action.

Alimentary Canal, that passage, beginning at the mouth and ending at the anus, through which food passes in the course of eating and digestion. See MOUTH, ŒSOPHAGUS, STOMACH, INTESTINE.

Alimentary Debt, in Scots law, a debt due by decree of court for maintenance — as of a legal relative—for which, if it be not paid, successive warrants for the imprisonment of the debtor may be granted at intervals of six months.

Alimentary Fund, a money provision intended solely for the maintenance of the recipient. If the provision be reasonable in amount it is not arrestable, nor can it be claimed by creditors. A debtor, however, cannot alienate from his creditors his own funds as an alimentary provision for himself. In statutes regulating widows' funds, the provisions are usually declared to be alimentary and unalienable.

Alimony, an allowance made by a husband to a wife, or by a wife to a husband, in divorce proceedings. It may be either (a) *pendente lite*, and will then amount to one-fifth of the joint income; or (b) permanent—e.g. after a judicial separation — and will then amount to not more than half, and generally not less than a third, of the joint income. It must be shown that the person against whom the order is made has means. See DESERTION, DIVORCE, and HUSBAND AND WIFE.

Alin, OSKAR (1846–1900), Swedish historian and statesman, was professor of history and political economy at Upsala, and leader of the Protectionist Conservatives in the Swedish Lower House. He wrote important books on the Swedish Council of State in the middle ages (1872, 1877); *Sveriges Historia, 1520–1611* (1877–8); *Minnen ur Sveriges Nyare Historia* (1881–93); *Sveriges och Norges Traktator* (1900); and several books on the union of Norway and Sweden (1889–1900), in which he warmly championed the nationalist Swedish view.

Alipur, a S. suburb of Calcutta, and the residence of the lieutenant-governor. It contains many handsome buildings, a zoological garden, reformatory, and jail. It is a cantonment for native troops.

Aliquot Part. One number which divides another exactly without remainder is said to be an aliquot part of it. Thus, 1½, 2, 3, 4, 6 are aliquot parts of 12, being contained respectively 8, 6, 4, 3, 2 times in it.

Aliscans, or ALESCHANS, a 12th century *chanson de geste* of the Carlovingian cycle, which deals with the battles of Guillaume au Court Nez against the Saracens and their emir Abderame (Abdur-Rahman). The poem, written in ten-syllable lines partly assonanced, partly rhymed, seems derived in title from *Elysii campi,*

a burial-ground near Arles. See Gaston Paris's *Litt. du Moyen Age* (new ed. 1905).

Alishan, Leon (b. 1820), Armenian national poet and historian. His numerous works include *Collected Poems* (5 vols. 1857–67); *Popular Songs of the Armenians* (1867); a *Universal Geog.* (1854); a *History of Armenia* (1860); 2 vols. of *Historical Monographs* (1870), etc. He also translated *Childe Harold*, Schiller, selections from American poetry, etc., and produced a French version of Sempad's notable *Assizes of Antioch* (1876), besides editing the Armenian literary and scientific journal, the *Polyhistor*, and writing a *Hist. and Geog. of Armenia* (1885), suppressed by the Turkish authorities.

Alison, Rev. Archibald (1757–1839), second son of a lord provost of Edinburgh, where he was born. He held the livings of High Ercall, Roddington, and Kenley (Shropshire). In 1800 he became senior incumbent of St. Paul's Chapel in the Cowgate, Edinburgh. He published *Essays on the Nature and Principles of Taste* (1790), favourably noticed by Jeffrey in the *Edinburgh Review*, 1811; also *Sermons* (1814–15). His wife was a daughter of the celebrated Dr. John Gregory. He died at Colinton, near Edinburgh.

Alison, Sir Archibald (1792–1867), lawyer and historian, was born at Kenley, Shropshire, and in 1814 was called to the Scottish bar. In 1822 he became advocate-depute, and in 1834 accepted the sheriffdom of Lanarkshire, which he held until his death. His *Principles of the Criminal Law of Scotland* (1832) and *Practice of the Criminal Law* (1833) still possess value. His *History of Europe from the Commencement of the French Revolution to the Restoration of the Bourbons* (14 vols. 1833–42), though popular, cannot rank as a classic, because of the strong partisan views of its author, and his superficial methods. Other works are: *Polit. and Hist. Essays* (3 vols. 1850), reprinted from *Blackwood's Mag.*; *Principles of Population* (1840), a reply to Malthus; *Life of Marlborough* (1847); *Lives of Lord Castlereagh and Sir Charles Stewart* (3 vols. 1861). See his *Autobiography* (1882).

Alison, General Sir Archibald (1826–1907), a son of the preceding, was born in Edinburgh. He served in the Crimean war; the Indian mutiny (as military secretary to Sir Colin Campbell), losing his left arm at the relief of Lucknow; commanded the European Brigade in the Ashanti expedition (1873–4); was in command at Alexandria (1882) during the bombardment, before Wolseley's arrival; led the Highland Brigade at Tell-el-Kebir (1882); commander-in-chief in Egypt (1882); commanded Aldershot Division (1883–9); was adjutant-general (1888). He published a treatise *On Army Organization* (1869).

Aliwal, vil., 9 m. w. of Ludhiana, Punjab, on the left bank of the Sutlej; famous as the scene of the great battle of the first Sikh war, in which Ranjit Singh was defeated by Sir Harry Smith, Jan. 28, 1846.

Aliwal North, tn. and dist. in the N. of Cape of Good Hope, bounded by the Orange R. on the N., and the Stormberg Mts. on the w. Area, 1,330 sq. m. The town stands on the Orange R., 180 m. N.N.W. of E. London. Pop. 5,600.

Aliwal South. See Mossel Bay.

Alizarin is $\alpha\beta$ dihydroxyanthraquinone, $C_{14}H_6(O_2)(OH)_2$, and is the principal colouring matter of the madder root, but is now almost entirely prepared synthetically by the following series of reactions:—Anthracene from coal-tar is first oxidized to anthraquinone, which, after puri-

fication, is converted by fuming sulphuric acid into sulphonic acids. The latter are neutralized by sodium carbonate, and then heated under pressure with caustic soda and sodium chlorate, alizarin being precipitated from the product by hydrochloric acid. Alizarin is a red crystalline solid (m.p. 282° c.), and owes its dyeing value to its power of forming 'lakes' with metallic hydroxides of various and permanent colours, according to the metal employed. The hydroxides in question, or 'mordants,' are prepared in the fibres of the material to be dyed from appropriate salts, which are of aluminium for red (Turkey red), iron for purple, violet, or black, etc. See DYEING.

Aljubarrota, vil., prov. Estremadura, Portugal, 63 m. N.N.E. of Lisbon. Here John of Portugal defeated John of Castile (1385), and secured the independence of Portugal. Pop. 2,000.

Alk, the resin obtained chiefly from the terebinth or turpentine tree, *Pistacia terebinthus*, a native of the Mediterranean littoral, especially Chios. In its liquid state it is called Cyprian, Scian, Chio, or Chian turpentine.

Alkahest, or ALCAHEST, a name used by the alchemists (especially Paracelsus) to denote an imaginary substance which should dissolve every other substance.

Alkali (Ar.), a term originally applied to the ashes of sea plants, but afterwards extended to the ashes of substances which dissolved in water had a soapy feel, and effervesced with acids. Ammonium carbonate was known as a volatile alkali, as distinguished from sodium and potassium carbonates, the 'fixed alkalis.' When sodium carbonate (soda) was made by Duhamel, in 1736, from common salt, it was named 'mineral alkali,' and the potassium carbonate (potash) 'vegetable alkali.' The term al-

kali is now chiefly applied to the hydroxides of the 'alkali metals' —*i.e.* sodium, potassium, and the rarer elements lithium, rubidium, and cæsium; but the carbonates of these elements, such as ammonia and the compound ammonias, or amines, are also included. The hydroxides are deliquescent, and very soluble in water; the solutions neutralize acids, forming salts, act corrosively on animal and vegetable substances (*i.e.* are caustic), and change the tint of vegetable colouring matters, or are said to have an alkaline reaction. Exposed to the air they absorb carbon dioxide, forming carbonates. Barium, calcium, and strontium are known as the metals of the alkaline earths, and form hydroxides which are sparingly soluble in water; hence the solutions are but faintly alkaline, and much less caustic. In its most general sense an alkali is a soluble hydroxide, or carbonate of a metal, ammonia, or an organic base.

The history of the manufacture of sodium carbonate from common salt is in itself an account of the rise and progress of chemical manufacture in Britain; and this industry includes that of sulphuric and hydrochloric acid, of chlorine and bleaching-powder—all being essentially connected. The increased production and the reduction in price of sulphuric acid led to its general use, and to the rapid growth of other industries, notably the manufacture of alum, and of superphosphate of lime for manure. Cheap alkali made soap and glass cheap; and with the economical production of bleaching-powder, encouraged the cotton and linen industries and the production of paper. The total capital invested in British alkali works is about 12 millions sterling, of which 2½ millions is that of the Alkali Union, a combination of about forty of the largest producers. In 1900 there were 1,182 works open to

inspection under the Alkali Acts. The annual production is 150,000 tons of bleaching-powder, 225,000 tons of caustic soda, 500,000 tons of soda ash, 200,000 tons of bicarbonate of soda, besides carbonate of potash, caustic potash, chlorate of potash, borax, and many other soda salts. The total value of these substances exceeds 7 millions sterling. In 1900, alkali and bleach of the combined value of £1,491,646 were exported. The older, or Leblanc, process of manufacture is divided into three stages: — 1. The preparation of salt cake, in which sulphuric acid is heated in iron pots with common salt. Hydrochloric acid is evolved, and collected in 'scrubbers,' or condensing towers, in which a descending stream of water dissolves the ascending gas. The mixture is then heated more strongly in a reverberatory furnace, from which the product, salt cake, containing 95 to 98 per cent. of sulphate of soda, is withdrawn. 2. The preparation of black ash, in which chalk or limestone (30 cwt.), slack or powdered coal (20 cwt.), and salt cake (30 cwt.) are mixed and introduced into a large revolving iron cylinder. The cylinder is heated by a furnace, or by a Siemens gas-producer; the mass fuses, and in about two hours is emptied into iron trucks. In theory the reactions taking place are simple; but owing to impurities in the materials, many by-products are obtained, and black ash is a very complex mixture, containing carbonate of soda, soluble in water, and sulphide of calcium, which is insoluble. 3. The lixiviation of the black ash, or solution of the sodium carbonate, which is effected in vats, fresh water being used to wash the nearly exhausted ash, afterwards passing on to fresh ash; in this way all the carbonate of soda is extracted with a minimum quantity of water, and a strong liquor is obtained. The

tank liquor is boiled down to obtain carbonate of soda, which is sold in three strengths—(1) soda crystals or washing-soda (Na_2CO_3 $10H_2O$), containing 37 per cent. of sodium carbonate, equal to 21·6 per cent. of real alkali (Na_2O); (2) 48 per cent. alkali, crystal carbonate, or refined soda ash, containing about 80 to 85 per cent. of sodium carbonate; (3) alkali or soda ash—99 per cent. of carbonate and 58 per cent. of real alkali (Na_2O). The first two are preferred for scouring wool and for domestic use; but the 58 per cent. alkali has now largely superseded them for all other purposes.

Caustic soda ($NaOH$) is prepared from the tank liquor by boiling it with slaked lime. Tank liquor which is to be 'causticized' is freed from sulphide by blowing air through it, and then diluting it to a sp. gr. 1·10. After boiling with the lime, the liquor is filtered from the chalk sludge and evaporated. Finally, the hot caustic liquor is ladled into iron drums, in which it solidifies, and is distributed to the consumer. Caustic soda is sold as 60 per cent., 70 per cent., and 77 per cent. of real soda (Na_2O), respectively equivalent to 80, 90, and 99·5 per cent. of caustic soda ($NaOH$).

The Leblanc process has been largely superseded by the Solvay or ammonia-soda process, and by electrolytic processes. In the former, sodium bicarbonate is obtained by passing carbon dioxide into a saturated solution of ammonia and common salt in water, and is then converted into sodium carbonate by heating; and in the latter, common salt is electrolyzed, usually in solution, with the production of chlorine and sodium hydroxide. See SODIUM.

The Alkali Works Regulation Acts, 1881 and 1892, require the registration of alkali and other chemical works according to the regulations of the Local Govern-

ment Board; forbid the emission of noxious gases, and the discharge of alkali waste; and provide for the appointment of inspectors, the prosecution of offenders, and for inquiries into complaints by sanitary authorities. The administration of these Acts is the subject of an annual Parliamentary report.

The United Alkali Company, Ltd., controls the production of alkali in the United Kingdom.

For further details, see Lunge's *Sulphuric Acid and Alkali Manufacture* (1902); Thorpe's *Dict. of Chemistry;* Lomas's *Manual of the Alkali Trade;* and Blount's *Electro-Chemistry* (1901).

In medicine, alkalis in solution are used externally as rubefacients, and as caustics in their undiluted form. Dilute solutions of potash and soda relieve itching in skin diseases; caustic potash destroys warts and corns; ammonia relieves the pain of stings by bees, ants, and mosquitoes, by neutralizing the formic acid. Internally, ammonia is inhaled to relieve headache, as a restorative in shock, and, taken in solution, aids expectoration in bronchitis. Alkalis, taken before meals, stimulate the secretion of gastric juice; taken after meals, they act as antacids. They are given to increase the alkalinity of the blood and to diminish the acidity of urine, with the object of preventing or removing acid deposits in the joints and urinary system. The symptoms of poisoning by alkalis are generally like those of acids, but the vomit is alkaline, and there is no characteristic stain on the clothes. Ammonia (hartshorn) acts locally like potash or soda, but may suffocate by its pungent vapours. The treatment in cases of poisoning by alkalis is to give diluted vinegar, lemon juice in water, or any other highly diluted acid drink, in small, frequent doses; and later, when the alkali is neutralized, milk, olive oil, and demulcent drinks. In the case of ammonia, special attention must be paid to relieving the respiratory symptoms, as by placing the patient in a tent the air of which is rendered moist by steam. The stomach-tube must not be used.

Alkali Lands, the name given to regions (as in parts of Wyoming, Nebraska, Montana, Utah, and New Mexico) marked by the presence of alkali either under the ground or crusted on the surface. An alkali soil requires only a small rainfall, and irrigation is harmful. Improvement by drainage and the use of gypsum is advocated. See various *Reports* published by the U.S.A. Department of Agriculture.

Alkalimetry, the quantitative estimation of the amount of alkali, is usually carried out by adding an acid solution of known strength to a given weight of the substance, until the colour of litmus, or some other indicator, shows the solution to be neutral; when, from the measured amount of acid that has been required, the amount of alkali can be calculated. See Sutton's *Volumetric Analysis* (1896).

Alkaloids, nitrogenous organic compounds having alkaline or basic properties. They occur in both animal and vegetable substances, and some have been prepared artificially. Most alkaloids are white, odourless crystalline solids composed of carbon, hydrogen, nitrogen, and oxygen; but a few are liquids, and contain no oxygen. They all combine with acids to form well-defined salts, but have few other properties in common, though many have an acrid, bitter taste, and most are powerful poisons. In cases of poisoning there is no common antidote. The stomach must be cleaned out by emetics or by the stomach-pump; and, since alkaloids are precipitated by tannic

acid, copious draughts of strong tea are sometimes used. Some of the alkaloids are antagonistic in their action—*e.g.* strychnine and morphine, atropine and physostigmine—and thus one may become an antidote for another. Several are valuable medicines. There are several characteristic general tests for the alkaloids, which are readily recognized when pure; but their detection in and separation from organic materials is difficult, especially as ptomaines, the poisonous compounds in putrid flesh and fish, possess all the general characters of alkaloids.

The best known vegetable alkaloids are *aconitine*, occurring in aconite; *atropine*, in the belladonna or deadly nightshade; *cocaine*, in coca leaves; *coniine*, in hemlock; *daturine*, in stramonium thorn apple; *ergotinine*, in ergot; *eserine*, or *physostigmine*, in the Calabar bean; *morphine, codeine, narcotine*, and many others, in opium; *nicotine*, in tobacco; *pilocarpine*, in jaborandi; *piperine*, in pepper; *quinine, cinchonine*, and *cinchonidine*, in cinchona bark; *strychnine* and *brucine*, in nux vomica and St. Ignatius bean; and *veratrine*, in cevadilla. See Thorpe's *Dict. of Chemistry*, article 'Vegeto-Alkaloids;' and Wynter Blyth's *Poisons*.

Alkan, CHARLES VALENTIN MORHANGE (1813–88), pianist and composer, born in Paris, where he studied under Zimmermann. His compositions include *Marche funèbre, Marche triomphale, Etudes caprices*, 25 *Préludes*.

Alkanet, or ALKANNA (*Anchusa tinctoria*), a plant of S. Europe, belonging to the forget-me-not family. Its blood-red roots yield a harmless red dye, used for colouring woods, perfumery, and wines.

Al-Khwarasmi, or AL-KHO-WAREZMI, Arab mathematician, born in Khorassan, who lived at the beginning of the 9th century. He was librarian to the Caliph Al-Mamun at Bagdad. After composing two astronomical tables called *Sind-Hind*, based on the Indian system *Sindhanta*, he wrote an algebra (founded on that of Brahmagupta) which was the source of all subsequent mediæval works on the subject. He was also author of the first book of arithmetic showing the Indian system of notation.

Al-Kindi, ABU YUSUF, mathematician and philosopher, born at Basra in the 9th century. The Arabs, who call him *the* philosopher, look upon him as the founder of their philosophy. He wrote on almost all the sciences known in his day, and is especially distinguished as a writer on logic and on mathematics, and as a commentator on Aristotle. See Flügel's *Al-Kindi genannt der Philosoph der Araber* (1857).

Alkmaar, tn., prov. N. Holland, Netherlands, 20 m. N.W. of Amsterdam, on the N. Holland Canal (16½ ft. deep). Salt is made, and there are cheese markets. In 1573 the town withstood a siege by the Spaniards. Pop. 18,000.

Alkyl, the general name given to open chain hydrocarbon radicals, such as CH_3 (methyl), C_5H_{11} (amyl), etc., that play much the same part in organic chemistry that the metallic elements do in inorganic. Thus, CH_3OH is methyl hydroxide, corresponding to $NaOH$ (sodium hydroxide), etc.

Allada, tn., Dahomey, French W. Africa, 25 m. N. of Whydah. Pop. 10,000.

Allah ('worthy to be adored'), the word used by the Arabs to denote their chief god, and adopted by Mohammed as the name of the one true God. The word forms the substance of the battle-cry of Mohammedans— 'Lā Ilāha Ill-allāh!' (There is no God save Allah).

Allahabad ('the city of God'), city and cap. of United Provinces, Allahabad dist., India,

on the l. bk. of the Jumna, is a municipal town. The fort stands at the angle of the Jumna and the Ganges. The chief features are Government House, the library and museum, and the Muir Central College. A magnificent railway bridge spans the Jumna, and there are two bridges of boats across the Ganges. The city is visited every December and January by a quarter of a million of pilgrims, who come to bathe in the Ganges. The fort and city were founded by Akbar in 1575. In 1857 it was the scene of a massacre of British officers by mutinous sepoys. A celebrated pillar which bears an edict of the great Buddhist emperor Asoka (c. 240 B.C.) stands within the fort. Pop. 176,000; dist., 1,500,000.

Allainval, Léonor Jean Christine Soulas d' (?1700–53), French dramatist, was born at Chartres early in the 18th century. In the course of a life of great poverty he wrote several plays which were performed in Paris, the best of these being *L'Embarras des Richesses* (1725) and *L'Ecole des Bourgeois* (1728). He also published *Ana ou Bigarrures Calotines* (1732-3), *Anecdotes du Règne de Pierre I.* (1745), and an edition of Cardinal Mazarin's letters (1745).

Allamanda, a genus of plants of the Apocynaceæ. Several species introduced from S. America are cultivated as hothouse climbers. The flowers are in general large and bright yellow.

Allan, David (1744–96), painter, known as the 'Scottish Hogarth,' born at Alloa; settled in Edinburgh (1780); anticipated Wilkie in Scottish character-painting, as in *Scotch Wedding*, *Highland Dame*, and *Repentance Stool*. He illustrated Ramsay's *Gentle Shepherd*.

Allan, Sir Hugh (1810–82), founder of the Allan line of steamships; born at Saltcoats, Ayr-

shire; died at Edinburgh. In early life he settled in Canada, where his firm reached an eminent position. He was one of the projectors of the C.P.R., and was knighted in 1871.

Allan, Robert W. (1852), Scottish painter of seascapes, a pioneer of the modern 'Glasgow school,' studied in Paris (1875–80), and was strongly influenced by Bastien-Lepage. He settled in London (1881), and made his mark with *The Funeral of Carlyle.* See the *Studio,* vol. xxiii. p. 223.

Allan, Sir William (1782–1850), Scottish historical painter. After nine years of travel in Russia and Turkey, he settled in Edinburgh (1814), was elected R.A. (1835), P.R.S.A. (1838), succeeded Wilkie as 'Limner to the Queen' for Scotland (1841), and was knighted in 1842. Among his best known works are *Peter the Great Teaching his Subjects Shipbuilding* (painted for the Czar), *The Stirrup Cup* (in the National Gallery, Edinburgh), and *John Knox Admonishing Mary Queen of Scots* (engraved by Burnet).

Allan, Sir William (1837–1903), Liberal M.P. for Gateshead (1893–1903), was born in Dundee, where he served an apprenticeship to an engineer, afterwards engaging himself as a sea-going engineer, in which capacity he sailed in a blockade runner during the American civil war, when he was captured and imprisoned. For fifteen years he was manager of N.E. Marine Engineer Company on the Tyne, which he left to carry on business at Scotia Engine Works, Sunderland. In Parliament he was best known as a determined opponent of the use of tubular boilers in the navy. He was knighted in 1902. He wrote several volumes of poems, including *Lays of Leisure* (1883), *Sunset Songs* (1897), *Songs of Love and War* (1900), and also a *Guide to the Marine Engine* (1880).

Allan Line, British steamship company (the Allan Line and State Line of Steamers Company, Limited), was originally called the Montreal Ocean Steamship Company. It dates from 1852. Since 1859 there has been a weekly service with the chief Canadian ports, as well as with New York, Boston, Philadelphia, and several ports in S. America. The company owns a fleet of twenty-eight steamers, aggregating 147,593 tons, including the *Victorian* and the *Virginian,* the first Atlantic steamers to be propelled by turbines. London offices: 103 Leadenhall Street, E.C.

Allantiasis. See FOOD POISONING.

Allantoin, $C_4H_6N_4O_3$, a crystalline solid decomposition product of uric acid, prepared by heating glyoxylic acid with urea, and found in fœtal fluids.

Allantois, an important fœtal membrane by means of which the embryos of reptiles and birds breathe, while in most mammals it is partially converted into the placenta, the organ by which the developing young both feed and breathe. At a very early stage in the embryo of reptile, bird, and mammal, the allantois appears as a bud from the posterior part of the food-canal, and, rapidly increasing in size, grows out of the embryo into a space provided for it by the amnion. It becomes richly supplied with blood-vessels, and in birds and reptiles comes to lie close beneath the egg-shell, through whose pores the respiratory interchange occurs. The early stages of development are the same in mammals; but in all except monotremes and marsupials, the allantois and its blood-vessels later form a connection with the maternal blood-vessels of the uterine wall, thus constituting the placenta. At birth or hatching, when the lungs come into play, the extra-embryonic portion of the allantois becomes functionless, and is cast off; but the internal portion may persist as the urinary bladder. This last fact is a link in the chain of proof which shows that the allantois has been developed from the urinary bladder of amphibians.

Allardyce, ALEXANDER (1846-1896), author, born in Aberdeenshire; was sub-editor of the *Friend of India* (1868-75), afterwards editing the *Ceylon Times.* From 1877 to 1896 he was reader to the Blackwoods, contributing political and literary articles and short stories to *Maga.* Novels—*City of Sunshine* (1877), *Balmoral* (1893), *Earlscourt* (1894). He wrote also *Memoir of Viscount Keith* (1882), and edited in 1888 (from the Ochtertyre MSS.) *Scotland and Scotsmen in the 18th Century,* and *Letters from and to Charles Kirkpatrick Sharpe.*

Allariz, tn., Spain (N.W.), prov. of and 12 m. S.S.E. of Orense. Pop. 9,000.

Alleghany Mountains. See APPALACHIANS.

Allegheny. (1.) City, Allegheny co., Pennsylvania, U.S.A., on r. bk. of Allegheny R., at its junction with the Monongahela to form the Ohio. It has iron and steel rolling mills, car and locomotive works, machine shops, foundries, woollen and flour mills, etc. It is the seat of numerous educational and philanthropic institutions, and has an observatory. Pop. (1900) 129,896, of which the foreign-born numbered 30,216. In Dec. 1907 Allegheny and Pittsburg, on the opposite side of the river, were consolidated as one city. (2.) River of the E. United States, one of the head streams of the Ohio. It rises in W. New York, and flows 300 m. in a general s.w. course to its junction with the Monongahela R. at Pittsburg, above which it is navigable for small steamers for 150 m.

Allegiance is the duty of every subject to obey the lawful authority of his sovereign. It is either natural or acquired. The former arises at the birth of a subject; the latter is due from an alien who has become a naturalized subject. There is also local allegiance—*e.g.* the obedience which a British subject in a foreign country is bound to render to the laws of that country so long as he is there; and, conversely, that which a foreigner for the time being resident in Britain must render to her laws. See OATH.

Allegory (Gr. *allos*, 'other;' *agoreuo*, 'I speak'), a form of composition in which one series of events or qualities is treated as typical of another series of events or qualities expressed or understood. The difference between allegory and fable is a very clear and definite one. The fable exists for the sake of its moral; it is an exemplification of some truth of practical life; and the more unexpected the quarters from which this exemplification is brought, the greater its merit as a fable. Allegory, on the other hand, need not convey any moral. It is a typical representation of life, and is valued in proportion as its details correspond with the details of actual existence; while its chief interest consists in the orderly development of the analogies between the type and the thing typified. As a rule, allegory is used in order to impart some human interest to metaphysical and abstract subjects. Hence religious or moral teaching has been its usual theme in all ages, but this connection is not a necessary one. Nor is its use confined to literature, for such pictures as Holman Hunt's *Light of the World* are as much allegories as Bunyan's *Holy War*. The allegorical reference may, moreover, be double as well as single, though only at the risk of

its effectiveness. Thus, in Spenser's *Faërie Queene*, Arthur stands for the virtue Magnificence in general, with a particular reference at times to Leicester, and at other times to Sidney; while Britomart signifies both Chastity and Queen Elizabeth. The parables of Christ are sometimes allegories of the best type, as that of the prodigal son; but others, such as the picture of the Pharisee and the publican who went up to the temple to pray, are merely vivid transcripts of contemporary or universal life and character. A good example of the allegorical method is contained in St. Paul's reference to the armour of faith (Eph. 6 : 13-17).

The origins of allegory in European literature are to be sought in the writings of Plato, who used it in its simpler forms in order to provide his pupils with a convenient means of passage from the world of appearance to the world of ideas or of reality. From him the method descends through Philo Judæus (B.C. 20-54 A.D.), who applied it to the interpretation of the Hebrew Scriptures; to Origen (A.D. 185-254), who popularized it in connection with Christian theology; while its employment by Pope Gregory the Great in his commentary on Job stamped it with the approval of authority. A further stage is indicated by Martianus Capella's *Marriage of Mercury with Philology* (439 A.D.), where it is employed to illustrate the mediæval scheme of education. But its real flourishing dates from the composition of the *Romaunt of the Rose*. This celebrated work consists of two parts, the first of which, written by William de Lorris (c. 1240), is an elaborate exposition of the chivalric idea of love; while the second, by Jean de Meung (1260-1320), is an ironical travesty of the whole system. This work, which was translated and imitated by Chaucer, influenced

through him the whole course of English poetry for two centuries, supplying not only its main motives, but the very details of its poetical machinery. For these two hundred years our poets do little but repeat the story of the dream, the garden, the siege of the castle of love, and the temple with the names of faithful lovers inscribed on it. It is only possible here to indicate the names of Lydgate, Henryson, James I. of Scotland, Gavin Douglas, William Dunbar, and Stephen Hawes. (See articles under these names.) Meanwhile, however, Langland, in his *Vision of Piers Plowman* (1362), had adapted allegory to the purpose of moral and social satire. The form now passed under the hands of Spenser, who, in his *Faërie Queene* (1590), applied it to the description of Aristotle's twelve virtues. A new school branches off from Spenser, the most prominent productions of which were Giles Fletcher's *Christ's Victory and Triumph* (1610), and Phineas Fletcher's *Purple Island* (1633), the latter being an elaborate description of the human body. Meantime allegory had run its course in the drama. Allegorical figures had always appeared in the miracle plays, and the separation of the allegorical from the historical elements in these resulted in the morality plays of the early Elizabethan era, which discuss problems of human life by means of such highly generalized figures as Juventus, Mundus, Freewill, etc. The morality in turn, when its brief course was run, handed over its allegorical machinery to the masque, with such changes as the transition from moral teaching to court compliment rendered indispensable. Since the decay of the Spenserian school we have had no regular English school of allegory; but the numerous independent works of this species which have appeared embrace some of the finest compositions of the class in the world, and well exemplify its range of application. We have the allegory of religious experience in Bunyan's *Pilgrim's Progress* (1678) and his *Holy War* (1682); the allegory of political satire in Dryden's *Absalom and Achitophel* (1681), and of religious debate in his *Hind and Panther* (1687); and the allegory of scholastic and ecclesiastical satire respectively in Swift's *Battle of the Books* and *The Tale of a Tub* (1704). Of later examples we have had Addison's *Vision of Mirza* (*Spectator*, No. 159), and Thomson's *Castle of Indolence* (1748); while, in our own day, Tennyson's *Idylls of the King* is meant to contain beneath its appearance of a heroic poem a representation of the eternal war between flesh and spirit in human life. Maeterlinck's fairy play, *L'Oiseau Bleu* (1909) ('The Blue Bird'), which represents man in his search for human happiness, assisted by the material necessaries of life, such as bread, sugar, milk, etc., who take an active part in the play—as opposed to the elemental forces of Nature, who hinder him in his quest—is one of the most beautiful examples of the allegory in modern literature. See Courthope's *History of English Poetry*, i. (1895); Saintsbury's *Flourishing of Romance and Rise of Allegory* (1897).

Allegretto, an indication of *tempo* in music, is a diminutive of *allegro*, and signifies a slower movement than *allegro*, but not so slow as *andante*.

Allegri, ANTONIO. See COR-REGGIO.

Allegri, GREGORIO (*c.* 1590-1652), composer, born in Rome, is remembered solely for a famous *Miserere* for nine voices which is still sung during Holy Week in the Sistine Chapel. It was this

piece that Mozart, when a boy of fourteen, wrote down from memory after hearing it only once.

Allegro, a musical term signifying a quick, lively rate of movement, nearly intermediate between *andante* and *presto*, is frequently modified by the addition of other words, such as *allegro vivace, allegro molto, allegro con brio*, etc. Also used for the name of a piece of music, such as Chopin's *Allegro de Concert*, Op. 46, or for the first movement of a symphony.

Alleine, JOSEPH (1634-68), nonconformist divine, especially noteworthy for his *An Alarm to the Unconverted* (1672, reprinted as *A Sure Guide to Heaven* in 1675); born at Devizes, but laboured chiefly at the Church of St. Mary Magdalene, Taunton, from which he and the rector (George Newton) were ejected in 1662. Released two years later, he continued his ministrations amidst much persecution.

Alleine, RICHARD (1611-81), Puritan clergyman, and author of many books on practical religion; born at Ditcheat, Somerset; was for twenty years rector of Batcombe, and after being ejected in 1662, faithfully preached as occasion offered. His chief work is *Vindiciæ Pietatis* (1663).

Alleine, WILLIAM (1614-77), younger brother of the above, was for many years cruelly persecuted by the Cavaliers, and was ejected in 1662 when vicar of Blandford, but continued his work in Bristol, and in Yeovil, Somerset, where he died. Among Alleine's works are two books on the millennium, which reflect his modesty, piety, and learning. See Hutchins's *Researches at Blandford and Yeovil and Ditcheat.*

Alleluia. See HALLELUJAH.

Allemande, one of the movements of a musical composition termed a suite. It is usually in common time, and consists of two parts—frequently of equal length, but the second may be longer—each of which is repeated. Also a German national dance, of Swabian origin, in triple time, as well as of another form of dance in double time; but neither of the latter bears any relation to the allemande of a suite.

Allen, BOG OF, large tract of red bog in the centre of Ireland, stretching east of the Shannon. In its more restricted application the name refers to the peat lands of King's Co. and Kildare. The peat, 20 or 30 ft. deep, varies in character from the moss of the surface to the lignite of the deepest strata. Stumps of oak ('corkers') and pine trunks are found in the lower layers, their roots being in the underlying clay.

Allen, LOUGH, a pear-shaped lake between the counties of Roscommon and Leitrim, Ireland, in the course of the Shannon, chiefly in Roscommon. Length, about 5 m.; greatest breadth, about 3 m.

Allen, CHARLES GRANT BLAIRFINDIE, best known as 'Grant Allen' (1848-99), novelist and scientist, was born at Alwington, near Kingston, Canada. He was for a short time professor of mental and moral philosophy in a negro college in Jamaica; but the college proving a failure, he returned to London, where he devoted himself to literature. His early publications, chiefly scientific works, had little or no sale, and he was compelled to turn to fiction, publishing over thirty novels in fifteen years—light and easy in style, and displaying a keen insight into life and character. In magazine articles Grant Allen displayed a happy knack of conveying scientific instruction in a popular and lively manner. *The Woman Who Did* (1895), a 'problem' novel, was eagerly read by the public, but soon sank into oblivion. Among his other works

are *The British Barbarians* (1896), a satire on the existing social system; *Postprandial Philosophy* (1894); *Evolution of the Idea of God* (1897); *The Lower Slopes* (1894). His *Life* was written by E. Clodd (1900).

Allen, ETHAN (1738–89), American revolutionist, was born at Litchfield in Connecticut; present at the capture of Fort Ticonderoga in 1775; accompanied Montgomery to Canada, where he was taken prisoner, and not released till 1778. He wrote *Narrative of Colonel Ethan Allen's Captivity* (1779) and *Reason the only Oracle of Man* (1784). See *Life* by De Puy (1853) and Hall (1892).

Allen, JAMES LANE (1849), novelist, born in Kentucky, U.S.A., was professor of Latin and higher English at a West Virginian college, but devoted himself entirely to literature after 1886. His stories, which are distinguished by exquisite perception, and deal chiefly with scenes and characters of Kentucky, include *The Kentucky Cardinal* (1894), *Aftermath* (1895), *A Summer in Arcady* (1896), *The Choir Invisible* (1897), which has been dramatized; *The Mettle of the Pasture* (1903), *The Bride of the Mistletoe* (1909), and numerous short stories.

Allen, JOEL ASAPH (1838), naturalist, born at Springfield, Mass., U.S.A.; accompanied Agassiz to Brazil (1865); assistant in ornithology at Cambridge (U.S.A.) Museum of Comparative Zoology (1870), and curator in New York Museum (1885); author of *The American Bisons* (1875), *Bulletin and Memoirs* (1889–1907), and works on American Rodentia and Pinnipedia. He was a founder and president of the American Ornithological Union, and for a time editor of its publication the *Auk.*

Allen, JOHN (1771–1843), author; made himself indispensable to Lord Holland by aiding him with historical material for his speeches. His chief writings are on C. J. Fox, and on constitutional history; the best known is an *Inquiry into the Rise and Growth of the Royal Prerogative in England* (1830). Contributed political and historical articles to the *Edinburgh Review.* See Princess Marie Liechtenstein's 'Holland House,' *Gent. Mag.,* xx. (1843).

Allen, KARL FERDINAND (1811–71), Danish historian; after three years of European travel for purposes of historical research, returned to Copenhagen to become in 1851 *privat-docent,* and in 1862 professor of history and archæology of N. Europe at the university. His democratic opinions gained wide influence through his *Haandbog i Fädrelandet's Historie*—'Manual of Danish History' (1840). His *History of the Three Northern Kingdoms, 1497-1536,* is of great value.

Allen, RALPH (1694–1764), English philanthropist, known as 'the man of Bath;' made a fortune by devising and farming a postal system from town to town in England and Wales (1720). Up to 1764 his profits from this source averaged £12,000 a year. He was the friend of Pope and of Fielding. The latter used him as the prototype of Squire Allworthy in *Tom Jones,* and dedicated *Amelia* to him. He was one of the most benevolent men of his time.

Allen, THOMAS (1542–1632), mathematician, philosopher, and antiquary; born at Uttoxeter; was a great collector of MSS. on astronomy, astrology, etc., some of which are preserved in the Ashmolean collections in the Bodleian Library. The vulgar of his time regarded him as a magician.

Allen, WILLIAM (1532–94), cardinal, had to flee from England owing to his zeal for the Roman Church. He founded (1568) the R.C. Theological English College

in Douay, at which he became a professor (1570), and by which a regular mission was maintained in England. He supported Philip II. of Spain in his pretensions to the English throne, and was made a cardinal in consequence (1587). See *Records of the Eng. Catholics* (1878–82).

Allende. See SAN MIGUEL DE ALLENDE.

Allenstein, tn., prov. of E. Prussia, 81 m. by rail s. of Königsberg, with sawmills, breweries, etc. Pop. 27,500.

Allentown, city, Pennsylvania, U.S.A., the county seat of Lehigh co.; situated on Lehigh R., about 60 m. N. by W. of Philadelphia. It is a large manufacturing place, with furniture factories, iron foundries, blast furnaces, silk and woollen mills, shoe factories, etc. Here are Muhlenberg College (1867) and Allentown College for Women. Up to 1838 it was known as Northampton. Pop. 52,000.

Alleppi, AULAPOLAI, or ALLAPALLI, chief seapt. in the Travancore State, Madras, India, 33 m. s. of Cochin. Its exports are coffee, cardamoms, ginger, pepper, cocoanuts, and coir (cocoa fibre). Pop. 25,000.

Allerion, a heraldic term denoting a bird—an eagle or a martlet (martin or martinet)—without beak or claws, with wings expanded.

Allestree, RICHARD (1619–81), English royalist divine, who took up arms in the civil war. After the restoration he was made chaplain to the king and professor of divinity at Oxford (1663), and in 1665 provost of Eton. He wrote *Privileges of the University of Oxford* (1647), and some *Sermons*.

Alleyn, EDWARD (1566–1626), actor, and founder (1619) of Dulwich College, was born in London. As an actor, as an owner and builder of theatres, and as bearmaster to the king, he acquired great wealth, by means of which he raised himself to a distinguished social position. See Collier's *Memoirs of Edw. Alleyn* (1841), and *Alleyn Papers* (1843) corrected by Warner's catalogue of MSS. and muniments at Dulwich College (1881).

All Fools' Day, the 1st of April, when it is customary to play tricks on one's friends, such as sending them on fruitless or impossible errands. In Scotland the victim is called a *gowk* (cuckoo), in France *un poisson d'Avril* (an April fish). The custom is of unknown antiquity.

Allgemeine Zeitung. This newspaper, which is one of the most widely reputed in Germany, is published daily in Stuttgart, Sunday included. It was founded in 1778, by the publisher Johann Friedrich Cotta. In 1803 the issue of the paper was forbidden by the Herzog of Würtemberg, and Cotta transferred the publishing office to Ulm, and in 1810 from Ulm, which had become part of the state of Würtemberg, to Augsburg. It was in the latter city that the *Allgemeine Zeitung* first attained the influential position which it still commands. In later years the headquarters of the journal were changed again—to Munich in 1882, and back to Stuttgart in 1889, when the whole publishing business of the house of Cotta passed into the hands of the Kröne Brothers. Huber, the first editor, died in 1804, and was succeeded by Karl Stegmann (1804–37), Gustave Kolb (1837–1863), A. Altenhöfer (1863–70), Otto Braun (1870–89), and Hugo Jacobi, the present editor. The *Allgemeine Zeitung* began as an organ of independent Liberal opinion; but though it still has pronounced opinions on political and religious questions, its tendencies are no longer distinctively Liberal. A prominent and much-valued feature of the paper is the scientific supplement published twice a

week, to which the most distinguished German authors and men of science have contributed.

All-hallows-tide. See ALL SAINTS' DAY.

Allia, a trib. of the Tiber. The Gauls routed the Roman army on its banks in 390 B.C., before their capture of the city. The *dies Alliensis* ('day of the Allia') was always an unlucky day in the Roman calendar.

Alliaceous Plants (Lat. *allium*, 'garlic') have the characteristic smell and taste of the onion or garlic — *e.g.* onion, garlic, leek, shallot, chives.

Alliance, tn., Stark co., Ohio, U.S.A., on the Mahoning R., 15 m. N.E. of Canton; has iron and steel works. Pop. 9,000.

Alliance (INTERNATIONAL), a name given to a union between nations of independent rank for the purpose of offence or defence, and usually contracted by specific treaty or agreement. The objects of the combined action are usually stated definitely, and the word 'alliance' is not applied to an indefinite mutual understanding which does not bind the contracting powers to active interference on behalf of each other. The chief alliances mentioned in history are: (1) the Triple Alliance (1688) of Britain, Sweden, and the Netherlands against France; (2) the Quadruple Alliance (1718) of Britain, Holland, France, and Austria against Spain; (3) the Holy Alliance (1815) of Russia, Austria, and Prussia against possible revolutions; (4) the Alliance (1854) of Britain, France, Sardinia, and Turkey against Russia. Among existing political combinations there are the Triple Alliance of Germany, Austria, and Italy, and the Dual Alliance of France and Russia, nominally for the purpose of ensuring the peace of Europe; while the most recent alliance is that between Britain and Japan (1902) for securing combined action

in China and maintaining the territorial integrity of that empire and of Korea. An *entente* is an understanding between two powers which is not formally embodied in a definite document. Such are the existing *ententes* between Britain and France, and Britain and Russia. See ANGLO-JAPANESE TREATY and TREATIES.

Alliance Israélite Universelle, a society founded in 1860, in Paris, for the protection of persecuted Jews and the education of the children of Jews in the east of Europe, N. Africa, and Asia Minor. Amongst other things, it administers a fund of £400,000 left by Baron and Baroness Hirsch to maintain schools in Turkey, and conducts three agricultural schools—one near Jerusalem, another near Smyrna, and a third in Tunis. The society is managed by a central committee resident in Paris, who convene a meeting at uncertain intervals and present a report. An Anglo-Jewish association in connection with the alliance was founded in 1871.

Alliaria, in botany, a genus of Cruciferæ. The variety most widely known is *Alliaria officinalis*, or, according to some botanists, *Sisymbrium Alliaria*. A white-flowered biennial, it grows about two and a half feet high. It is popularly known as 'Sauce-alone' and 'Jack-by-the-hedge.'

Allibone, SAMUEL AUSTIN (1816–89), American bibliographer, and compiler of the well-known *Dict. of English Literature and British and American Authors* (3 vols. 1854–70–71). A supplement (2 vols. 1891) was issued by Dr. John Kirke. His other works include *Poetical Quotations* (1873) and *Prose Quotations* (1876).

Allier. (1.) Dep. (2,850 sq. m.) of Central France; contains some of the most fertile districts of France. All cereals, fruits, and roots of the temperate zone grow well; there are rich

meadows, large forests, and good fishing. Coal is mined at Commentry, Doyet, and other places; iron, manganese, antimony, and copper in other parts. The celebrated mineral waters of Vichy come from this department. Pop. 418,000. Cap. Moulins, 163 m. s.s.w. of Paris. (2.) River, rises among the mountains of Lozère, flows N. and joins the Loire. Length, 233 m.

Allies, THOMAS WILLIAM (1813–1903), ecclesiastic and author, took orders in the English Church, but in 1850 became a convert to Rome. His marriage excluded him from reordination, and he was appointed secretary to the Catholic Poor School Committee, a post which he held till 1890. His most important work is *The Formation of Christendom* (8 vols. 1865–96). See *Memoir* by his daughter (1907).

Alligator, a near ally of the crocodile, from which it is distinguished by the short, broad head; the fact that the so-called canine (fourth tooth) of the lower jaw bites into a pit in the upper instead of into a groove; that the union of the two halves of the lower jaw is short; that the hind limbs have no fringing membrane, and the toes are incompletely webbed. The alligators are confined to America, except for one Chinese species.

Alligator Fish, the *Podothecus acipenserinus*, is about a foot in length, with a compressed tapering body; found in Strait of Fuca, Puget Sound, and other inlets along the N.E. Pacific coast.

Alligator Lizard. This term includes a number of species of the genus Sceloporus. The reptiles, especially the males, are brightly coloured below, chiefly on the throat. The back is usually dull in colour, with a few markings. The head lacks spines, and the scales are flat. They are found in abundance in S. and Central America.

Alligator Pear, or AVOCADO PEAR, a juicy, edible fruit about the size of a large pear, obtained from a small tree of the laurel family. It is a native of the W. Indies.

Alligator River Blacks, aboriginal Australian race living around Van Diemen's Gulf, N. Australia. The designs on their baskets of woven grass indicate some idea of picture-writing. See descriptions by R. Etheridge, jun., in *Macleay Mem. Vol.* (Linn. Soc., N.S.W.), 1893.

Alligator Wood, the timber of the W. Indian tree *Guarea grandifolia*.

Allin, REAR - ADMIRAL SIR THOMAS (1612–85), was born at Lowestoft. An ardent royalist, he was in command of a ship in Prince Rupert's squadron (1649–1650). In 1665 Allin successfully engaged a large Dutch convoy from Smyrna off Cadiz; and in the following year served in the first battle off the North Foreland, and in the 'St. James's Fight.' In 1669 he reduced the Barbary States to subjection. Allin became Controller of the Navy in 1670.

Allingham, HELEN PATERSON (1848), water-colour painter of English pastoral scenery and rural life, was on the staff of the *Graphic*. In 1874 she married the Irish poet William Allingham; was elected to the Royal Society of Painters in Water - Colours (1875). Her drawings were much admired by Ruskin. Mrs. Allingham has published *Happy Homes* (1903) and *The Homes of Tennyson* (1905). See Ruskin's *Art Notes for 1875*.

Allingham, WILLIAM (1824–89), Irish poet, was first a bank clerk, and then an officer of the Customs. In 1850 he published his first volume of verse; and he had early and close associations with most of the pre-Raphaelite brotherhood, with Browning, Clough, Carlyle, and many others. In 1870 he retired from the civil service to become

sub-editor of *Fraser* under Froude, whom he succeeded as editor in 1874. His longest poem was *Laurence Bloomfield, or Rich and Poor in Ireland* (1864); but his lyric talent is best seen in some of his *Day and Night Songs* (1855). His works were collected in 6 vols. in 1890. See *Letters of D. G. Rossetti to William Allingham* (1854-70), ed. by Birkbeck Hill (1897), and *Diary*, ed. by H. Allingham and D. Radford (1907).

Alliteration is the recurrence of the same letter at the beginning of several words in a composition. As a method of procuring emphasis it has been much favoured among Teutonic and Finno-Ugrian peoples, and constantly recurs in English popular phrases like 'kith and kin,' 'bed and board,' etc. In all old Teutonic poetry alliteration is the prevailing metrical distinction, as in ancient Gaelic poetry it is combined with assonance. The normal Anglo-Saxon verse, which may be taken as a type of purely alliterative measures, consists of two hemistichs, each containing two accents. The first hemistich generally contains two alliterating words, and the second one, *e.g.*—

> 'Fyrst forth gewat ;
> Flota waes on ythum.'

'Time went by; the ship was on the waves' (Beowulf, 210). In the case of vowels, alliteration was made by the recurrence of *different* letters. Outside Anglo-Saxon times, the only work of first-rate importance in which this measure is employed in English is the *Piers Plowman* of Langland, and his use of it is, from a metrical point of view, very licentious. In popular estimation, however, both in romances, such as *Gawain and the Green Knight*, where it is combined with an elaborate stanzaic arrangement, and in popular character-sketches, such as Dunbar's *Twa Marriit Wemen and the Wedo*,

it survived even into Elizabethan times. Most of the Elizabethan critics, and many of its greatest writers, such as Sidney and Shakespeare (in *Love's Labour's Lost*), ridicule its indiscriminate employment. 'E.K.,' the first editor of Spenser's *Shepherd's Calendar*, speaks with contempt of the 'ragged rake-helly rout that hunt the letter;' but his own master makes frequent use of the device. *Cf.*—

> 'In woods, in waves, in wars she wonts
>   to dwell,   [pain'
> And will be found with peril and with

(*Faërie Queene*, bk. ii. canto iii. line 41). And perhaps no more perfect example of its use can be produced than Shakespeare's 'Full fathom five thy father lies.' The use of alliteration is not confined to poetry, however. In Anglo-Saxon prose, the homilies of Ælfric contain long passages where alliteration is consistently employed. It was also one of the distinctive features of the euphuism which Lyly made fashionable at the court of Elizabeth, but it has never been extensively employed in English prose. (See Guest's *Eng. Rhythms*, ed. Skeat, 1882; and reprint of the Percy *Folio*, 1868, vol. iii.) Alliteration in rhyme and folk sayings is also a strong characteristic of Finno-Ugrian speech. (See p. 169 of Hunfalvy's *Ethnographie von Ungarn*, Schwicker's German trans., 1877.) In modern German literature it has been used with good effect by Goethe, Heine, W. Jordan, and Richard Wagner. See Jordan's *Der Epische Vers der Germanen und sein Stabreim* (1868); also Saintsbury's *History of English Prosody from 12th Century to the Present Day* (1907).

Allium, the onion genus of the order Liliaceæ. The plants are herbs with bulbous stems and grasslike leaves. The flowers are arranged in dense heads or umbels; and bulbils, which may fall

off and develop new plants, often replace many of the flowers. The cultivated species (chives, garlic, leek, onion, shallot, etc.) possess a sulphurous volatile oil, giving the acrid taste and garlic smell of the genus.

Allman, GEORGE JAMES (1812–1898), zoologist; regius professor of botany in Dublin University (1844–1855); regius professor of natural history and keeper of Natural History Museum, Edinburgh (1855–70); president of the British Association (1879); was a brilliant student of the lower forms of animal life. Wrote *A Monograph of the Fresh-water Polyzoa* (1856), *A Monograph of the Gymnoblastic Hydroids* (1871–2).

Allmers, HERMANN (1821–1902), poet and author, born at Rechtenfleth, near Bremen; published the *Marschenbuch* (1858; 4th ed. 1902), an entertaining description of Frisian peasant life, in the style of Riehl; also *Dichtungen* (1860; 4th ed. 1900) and *Römische Schlendertage* (1869; 10th ed. 1902). His works were published in 6 vols. (1891–5). See *Life* by Bräutigam (1891).

Alloa, seapt. tn. on the N. bk. of the Forth, in co. Clackmannan, Scotland, 6½ m. S.E. of Stirling. Shipbuilding is carried on, coal is exported, and there are breweries, distilleries, worsted factories, pottery works, and glass and iron manufactures. Pop. 15,000.

Allobroges, a tribe of ancient Gaul, who dwelt between the Rhodanus (Rhone) and the Isara (Isère), as far north as the Lacus Lemannus (L. Geneva). Their chief town was Vienna (Vienne). They were conquered in 121 B.C., but not finally pacified until Julius Cæsar settled the country.

Allocution, the formal address or exhortation by a Roman general to his soldiers; hence the public addresses of the Pope to his clergy or to the church generally. The Pope's allocutions are affixed to the door of the Vatican.

Allodial. In England, land which is held of no overlord is called allodial. There has been no such property there from the 12th century, since when all land is held of the king. In Scotland the term is applied to (1) movables; (2) crown and church property; (3) certain 'udal' property in the Orkneys and Shetlands; (4) land purchased under the Lands Clauses Consolidation (Scotland) Act, 1845, s. 80. Among the ancient Scandinavians in Norway and Sweden, though not in Denmark, *odal* (*i.e.* allodial) land was quite common. Such land could not be alienated from the family. If sold, the family had the right to redeem it for sixty years after the date of the sale. There were six ways of converting land into odal property; they are defined in s. 270 of the Gulathing Law, where the whole subject is treated of at length.

Allogamy, cross-fertilization in plants. See FLOWER; SEX.

Allopathy, the mode of curing diseases by using medicines which produce in the system a condition contrary to that of the disease. The term was first used by Hahnemann, the founder of homœopathy, to indicate the methods of orthodox medicine.

Allori, CHRISTOFANO (1577–1621), Florentine painter; studied under his father, Alessandro Allori (1535–1607), and under Santo di Tito. His chief work, *Judith with the Head of Holofernes*, in which the beautiful Judith is the portrait of his mistress, and the head of Holofernes that of himself, is in the Pitti Gallery in Florence. He painted admirable portraits of distinguished contemporaries: a *Portrait of a Florentine Lady* is in the National Gallery, London.

Allotments. The word allotment means either the process of allotting or the share which is allotted, and is used in both these senses in connection with shares

in joint-stock companies and several other matters. But the more general application of the word is to the system of dividing a field into small lots, to be cultivated by labourers or cottagers in their spare time and on their own account. The latter system was favourably reported on by a committee of the House of Commons, and in 1819 and 1831 acts were passed to promote it. In the Inclosure Act, 1845, which dealt with the enclosure of commons, special provisions were inserted for the making of allotments for the use of the labouring poor. Between 1709 and 1869 thousands of acres of commons and waste grounds were enclosed in Britain, depriving the rural labourer of the immemorial privilege of grazing his cow, pig, geese, etc., free of charge. The consciousness of this, added to the depopulation of rural districts during the last quarter of the 19th century, has led to recognition of the need of giving the labourers some direct interest in the land; and one result has been a series of Allotments Acts, now consolidated in the Small Holdings and Allotments Act, 1908. Under these enactments, taken in conjunction with recent Local Government Acts, local authorities have powers, and in certain circumstances a duty, to acquire land for small holdings or allotments. The system has been extended to Scotland by the Allotments (Scotland) Act, 1892, and by certain sections of the Local Government (Scotland) Act, 1894. The Allotments Rating Exemptions Act, 1891, has also done much to promote it. The size of allotments is usually about a quarter of an acre, but varies considerably in different localities. Spade cultivation is, of course, generally adopted, and allotments are among the most highly cultivated lands in their various districts. A small holding is defined as an agricul-tural holding of from one to fifty acres. See the Earl of Onslow's *Landlords and Allotments* (1886); J. L. Green's *Allotments and Small Holdings* (1896); and Earl Carrington's account of his Lincolnshire experiments in *XIXth Century* (March 1899).

Allotropy, the faculty possessed by certain chemical elements of existing in forms that possess entirely different properties while still being composed of the same kind of atoms. Phosphorus, sulphur, carbon, silicon, and oxygen exhibit this property in a striking degree. Two kinds of phosphorus are well known—one a colourless waxlike solid, exceedingly poisonous and spontaneously inflammable; the other a red powder, neither poisonous nor spontaneously inflammable. Each can be converted into the other without adding to or taking from it; they are both composed only of phosphorus, and when burned, equal weights of them yield the same weight of phosphorus pentoxide. Lamp-black, graphite, and diamonds consist solely of carbon; yet no substances could appear more different. Allotropy is believed to be due to a difference in the arrangement of the atoms in the molecule; this is known to be the case in the intimately related oxygen and ozone, of which the former molecule contains two atoms (O_2), the latter three (O_3). There is also a different energy content, as different forms give out a different amount of heat when burned. Similar phenomena in compound substances are known as polymerism and polymorphism.

Alloway, vil. on N. bk. of 'Bonnie Doon,' 2½ m. s. of Ayr, Ayrshire, Scotland; contains the cottage, now converted into a museum, in which Robert Burns was born. The 'haunted kirk,' now in ruins, where Tam o' Shanter saw the dance of the

witches, stands a quarter of a mile from the poet's birthplace. The 'Auld Brig' and a new one cross the Doon, and there is a monument to Burns. See Mac-Bain's *Burns's Cottage: the Story of the Birthplace of Robert Burns* (1904).

Alloys are mixtures of metals, though in some cases, such as that of steel, a metal may be mixed with a non-metal such as carbon, or with a compound of carbon. Some alloys, especially of the precious metals, occur in nature; but they are usually prepared artificially, by fusing the components together in order to impart special properties, such as to increase hardness, fusibility, or toughness, to alter colour, or to give a definite electrical resistance. Carbon and manganese harden iron; tin and bismuth lower the melting-point of lead; arsenic toughens copper, and aluminium increases its tenacity. Sometimes a second metal makes the first cast sounder; thus, aluminium is added to steel, and phosphorus to copper. Alloys are either (1) mechanical mixtures which may be considered to be solidified solutions of one or more components in each other; (2) definite chemical compounds; or (3) mixtures of these two classes. Some metals unite with evolution of heat, others with absorption: aluminium-copper, platinum-tin, and bismuth-lead belong to the former class; lead-tin to the latter. The sp. gr. of an alloy generally differs from the mean sp. gr. of its constituents; increased density indicates contraction and probable chemical interaction. Some important alloys are as follows:—Iron and manganese unite in all proportions; steel with 14 per cent. manganese is very hard, tenacious, and ductile; ferro-manganese is cast-iron with 30 to 85 per cent. manganese. Up to 7 per cent.

nickel increases the tenacity of steel; from 8 to 15 per cent. the alloys are brittle; from 20 per cent. upwards alloys are tough, malleable, and almost non-corrodible. Steel with 2 per cent. chromium is hard, and resists penetration to a high degree; ferro-chrome may contain 80 per cent. chromium and 11 per cent. carbon. From 1 to 2 per cent. aluminium hardens steel; in pig-iron it causes separation of graphite; in steel it helps to produce good castings; ferro-aluminium generally has 10 per cent. of the latter. Copper and zinc unite in all proportions, forming alloys (brass) from red to yellow and white: with over 65 per cent. copper they are very malleable, ductile, and tough, but cannot be rolled hot; with 55 to 64 per cent. they are close-grained, can be rolled hot, are harder, and generally have higher tenacity but less ductility than the former; with less than 55 per cent. they are crystalline and brittle. From 2 to 4 per cent. iron, with the second of these classes of brass, gives a very hard and tenacious metal. Gun metal (90 per cent. copper, 10 per cent. tin) is a typical bronze, but the tin is often partly replaced by zinc; bell metal is 80 copper and 20 tin; aluminium-bronze is 90 to 95 copper and 10 to 5 aluminium; manganese-bronze is brass with 2 to 3 per cent. manganese. German-silver is about 60 copper, 5 to 30 nickel, and the rest zinc. Cupro-nickel for bullets is 80 copper and 20 nickel. Bearing-metal is 70 to 85 copper, 5 to 20 tin, and the rest zinc; white bearing-metal is 76 lead, 18 antimony, 6 tin. Britannia metal is 90 tin, 8 antimony, and 2 copper. Pewter is 80 tin and 20 lead. Soft solder is 50 tin, 50 lead; best solder, 66 tin, 34 lead; plumbers' solder, 34 tin, 66 lead. Type metal is 70 lead, 18 antimony, 10 tin. Fusible

alloys are composed of bismuth, lead, tin, cadmium, in the following proportions: Newton's, 50, 31, 19, 0; Rose's, 50, 28, 22, 0; Wood's, 50, 24, 14, 12; Sipowitz's, 50, 27, 13, 10. British coinage: gold is 91·66 gold, 8·33 copper; silver is 92·5 silver, 7·5 copper; bronze is 95 copper, 4 tin, 1 zinc. In jewellery, gold is represented in carats: 24 carat is pure, 22 carat contains 22 parts gold and 2 of other metals. See Hiorns's *Mixed Metals;* Roberts-Austen's *Introduction to Metallurgy; Cantor Lectures* (Roy. Soc. of Arts); and Mathiessen's *Alloys* (Trans. Chem. Soc. 1867).

Allport, SIR JAMES JOSEPH (1811–92), manager of the Midland Ry. from 1853, united several small local lines to form that system, which extends from London to Carlisle. He was the first to run third class carriages on all trains (1872) and to abolish the second class (1875). See Acworth's *Railways of Eng.* (1900).

All Saints' Day (Nov. 1), called also ALL - HALLOWS - TIDE and HALLOWMAS, dedicated to all the saints collectively, became a festival of the Roman Church early in the 7th century, and was definitely instituted in 835. See HALLOWEEN.

All Souls' Day (Nov. 2), a festival of the Roman Church, on which prayers are offered for the faithful dead; instituted in 998, in the monastery of Clugny, from which the observance quickly spread over the whole Catholic world.

Allspice Tree (*Eugenia pimenta*), or Jamaica pepper, of the order Myrtaceæ, or myrtle family, is a native of the W. Indies. It grows thirty feet high, and has evergreen leaves and sweet-scented flowers. The dried fruit, of the size of a small pea, is pimento or allspice, so named because of its supposed comprehensive flavour, resembling that of other spices, as cinnamon, nutmeg, cloves. Odour and taste are aromatic and hot.

Allston, WASHINGTON (1779–1843), painter and poet, called 'the American Titian' because of his love of strong colours. A native of S. Carolina, he studied in London, Paris, and Rome. Elected A.R.A. in 1818. Among his chief works are *Dead Man Touching Elisha's Bones,* now in Philadelphia; *Spalatro's Vision of the Bloody Hand,* in the Taylor-Johnston collection, New York; *Portrait of Coleridge,* in the National Portrait Gallery, London. His *Lectures on Art,* edited by Dana, appeared in 1850. He also published a vol. of *Sonnets, The Sylphs of the Seasons* (1813), and a novel, *Monaldi* (1842). See Flagg's *Life* (1892).

All the Talents, MINISTRY OF (1806–7), formed, on the death of William Pitt, by Lord Grenville. See *Political History of England,* ix. 3 (1906).

All the Year Round, a weekly periodical edited by Charles Dickens; previously called *Household Words* (1850–7).

Alluvion, new land formed by the action of flowing water. Both in England and in Scotland, small accretions, slowly made, belong to the owner of the adjacent land. In England, large additions, rapidly produced, belong to the crown; in Scotland, to the person from whose property the earth was displaced.

Alluvium, a geological term used to indicate formations which are taking place now. It may be (1) restricted to all stream deposits, such as accumulations of sand, mud, shingle, gravel, boulders, etc., in river beds and at the foot of mountain slopes, deposits left by inundation of flood-plains, lacustrine deposits, river bars, lagoon barriers, and river deltas; or (2) extended to include all kinds of quite recent deposits, such as (in addition to the above) dune formations along the seashore, turf, coral reefs, disintegration clays, laterite (de-

composed igneous and schistose rocks), volcanic products (lava, ash, etc.), and the screes formed by landslips and mountain slides.

Allyl, $CH_2CH CH_2$, is an unsaturated organic radical, from which are derived an alcohol and other compounds. Allyl alcohol is prepared by heating glycerin and oxalic acid, and is a pungent-smelling liquid. Mustard oil is allyl isothiocyanate.

Alma, riv. of Russia, rises in the Chatyr-dagh, flows w., and falls into the Black Sea near Cape Lukul, 17 m. N. of Sebastopol harbour. This river was forced by the Anglo-French army on Sept. 20, 1854. See CRIMEAN WAR.

Almack's. A Scotsman named M'Caul opened a gaming club in Pall Mall (c. 1763), known as Almack's Club (from a transposition of MacCaul). It was famed for high play, and included among its members the Duke of Portland and C. J. Fox; also, later, Gibbon and W. Pitt. The London club now known as 'Brook's' was started by Almack before 1763. In 1765 M'Caul opened large Assembly Rooms in King Street, St. James's, London, where fashionable subscription balls were held during more than seventy years. He died wealthy in 1781, bequeathing the rooms to his niece, after whom they were called 'Willis's.' They were closed in 1890, but have been reopened as a restaurant. See *Notes and Queries*, series iii., vols. 9, 10, 12; and Timbs's *Clubs and Club Life in London* (1873).

Almada, tn., dist. Lisbon, Portugal, on the l. bk. of the Tagus, opposite Lisbon. Pop. 8,000.

Almaden, tn., prov. Ciudad Real, Spain, 48 m. w.s.w. of Ciudad Real, on Ciudad Real and Badajoz Ry. Rich quicksilver mines. Pop. 7,500.

Almagest, the Arab title of the principal work of Ptolemy, the Alexandrian astronomer. This monumental treatise, composed between 140 and 150 A.D., is divided into thirteen books. The first two contain introductory matter, and lay down as postulates the sphericity of the earth, and its immobility at the centre of the revolving stellar sphere. The third treats of the length of the year, and of solar theory. The fourth deals with the theory of the moon, and announces the discovery of an inequality in its motion. (See EVECTION.) The fifth book explains the construction and use of the astrolabe, and the method of determining lunar parallax. The sixth discusses solar and lunar eclipses. The seventh and eighth include an exposition of precession, and a catalogue of 1,028 stars. The concluding five books are occupied with the theories of the several planets, and give the improvements in epicyclical machinery by which the Ptolemaic system was laboriously perfected. The *Almagest* is the great codex of Greek astronomy. It embodies nearly all that was worth preserving, and maintained its authority during fourteen centuries. The standard edition is a critically revised Greek text, with a French translation by the Abbé Halma (1813–16).

Almagra, the Arabic name of an ochreous earth of a fine deep-red colour, used in India for staining the skin, in Spain for colouring tobacco, and generally, under the name of Indian red, as a paint, and as a powder for polishing silver.

Almagro, tn., Spain, prov. of and 12 m. S.E. of Ciudad Real. Lace industry. Pop. 8,000.

Almagro, DIEGO D' (?1464–1538), Spanish conquistador, associated with Pizarro and Hernando de Luque in the conquest of Peru. He reached that country in 1533, attacked Chile in 1536, and, on his return in the following year, relieved Cuzco, which was besieged by the Peruvians. Pizarro re-

fused to recognize his claim to this town and to Lima, defeated him at Las Salmas, April 26, 1538, and had him executed. See Prescott's *Conquest of Peru*.

Almain (Fr. *Allemagne*), an old name for Germany. See ALEMANNI.

Al-Mamun, or MAMOUN, called also ABDALLAH (786–833), one of the Abbaside dynasty of caliphs, son of Haroun-al-Raschid, attained the throne of Bagdad after a war with his elder brother, Al-Amin, in 813. He continued the illustrious traditions of his father Haroun; patronized learning; procured Arabic translations of numerous Greek works on philosophy, astronomy, medicine, etc.; and encouraged practical science, especially astronomy, causing a degree of the meridian to be measured on the plain of Shinar. He died in Cilicia during a campaign against the Greek emperor Theophilus.

Almanac, probably from Ar. *almanakh,* 'the diary' (root *manah,* 'to count'), a year-book of dates with a calendar of days and months, fasts and feasts, the age of the moon, the tides, and the exact time of the sun's rising and setting. Under astronomical information, the eclipses of the sun and moon are always given, with notes of the position of the planets throughout the year. Many almanacs include lists of names and tables of statistics to suit their various classes of readers. The first important book of this character to be printed was one written in Latin, and issued by Regiomontanus in 1475 *et seq.* The widely-known *Almanach de Gotha,* printed both in German and French, is a marvellous compression in over 1,000 pages of statistical information on the politics, boundaries, extent, population, income and expenditure, army, navy, etc., of every state, besides enumerating the sovereigns and their relatives, and giving obituaries of distin-guished persons, tabular returns, etc. The most authoritative almanac in Britain is the *Nautical Almanac,* with a very different scope from that printed in Gotha. Its information is indispensable in navigation and astronomy, and the accuracy of its tables (issued four years regularly in advance) renders it a principal book of reference all over the world. It contains full details of astronomical phenomena, especially the elements used in finding a ship's longitude, the exact time at which the principal stars cross the meridian of Greenwich, etc. Much of it, in fact, is necessary for the compilation of other important almanacs at home and abroad. The *Nautical Almanac* is published by the Admiralty; the first edition (in 1767) was edited by Dr. Maskelyne, the astronomer royal. In France the corresponding astronomical almanac is the *Connaissance des Temps* (begun 1679), now published by the Bureau des Longitudes; in Germany, the *Berliner Astronomisches Jahrbuch;* and in United States of America, the *American Ephemeris and Nautical Almanac,* first published in 1853. Perhaps the most popular almanac now in England is Whitaker's, a solid mass of statistical knowledge, edited up to date. In Scotland the *Edinburgh Almanac* of the 18th century developed in 1837 into the famous 'Oliver and Boyd's,' indispensable to any writer dealing with the statistics of N. Britain. For facts connected with Ireland the analogous book of reference is Thom's *Irish Almanac,* somewhat larger than the *Edinburgh Almanac.* (See *Companion to the British Almanac,* 1829, 1839, 1840, and 1846.) Prophetic almanacs of the type of Old Moore's, Poor Robin's, Zadkiel's, were published under the patronage (from the reign of James I.) of the Universities of Oxford and Cambridge.

the Archbishop of Canterbury, and the Stationers' Company. Swift had a stinging hit at Partridge, the almanac-maker of the Stationers' Company, in his *Predictions of Isaac Bickerstaffe* (1708).

Almansa, city, prov. Albacete, Spain, 40 m. E. by S. of Albacete; produces grain, saffron, and sheep. Famous for the great battle (Apr. 25, 1707) which practically decided the war of the Spanish Succession in favour of Philip V., Duke of Anjou. Pop. 11,000.

Al-Mansur ('The Victorious'), name assumed by ABU-JAFAR (c. 707–775), second caliph (754) of the dynasty of the Abbasides, and founder of Bagdad (764); a cruel and treacherous prince, and persecutor of Christians. He crushed his subjects under a heavy load of taxation, but was a patron of learning. He failed to retain Spain and Africa under his rule.

Almas (Baes-Almas), tn., Baes-Bodrog co., Hungary, 16 m. w. of Marie Theresiopol. Pop. 10,000.

Alma-Tadema, SIR LAWRENCE (1836), historical and archæological painter, born in Friesland; studied under Wappers in Antwerp, and in Brussels under Baron Leys. He settled in London (1870), and became a naturalized British subject in 1873. Elected A.R.A. (1876), R.A. (1879), and to the Royal Society of Painters in Water-Colours (1875). In 1905 he received the Order of Merit. As a painter of genre—highly and carefully finished—in oils and water-colours, he is unrivalled. His great merit is to have utilized his archæological knowledge in the reconstruction of the antique world through the medium of an intense feeling for modern realism. Among his chief works are *Sappho* (1886), *The Vintage* (1870), *The Sculpture Gallery* (1875), *The Silent Greeting* (Tate Gallery), *The Picture Gallery* (1875), *The Roses of Heliogabalus* (1888), *The Apodyterium* (1886), *The Four Seasons* (1877; engraved by Aug. Blanchard), *Hadrian in Britain* (1884), *Spring* (1895), *Gold Fish* (1900). He has frequently exhibited in the Paris Salon, and many of his works have been engraved. See Ruskin's *Art of England* (1884); Zimmern's *L. Alma-Tadema* (1886); C. Monkhouse's *Brit. Contemporary Artists* (1899); and R. Dircks's *The Later Work of Alma-Tadema* (1910).

Almeida, fortress, prov. Beira, Portugal, between the riv. Coa and the Spanish frontier. It was taken by the Spaniards in 1762, and by the French in 1810. When Massena retreated into Spain in the following year, the French blew up the fortifications; but these were at once rebuilt by the British. Pop. 2,300.

Almeida, EMANUEL (1580–1646), Portuguese Jesuit, lived at the Abyssinian court (1622–34), and left valuable accounts in his *Historia general de Ethiopia a alta* (ed. by Balthazar, 1660).

Almeida, FRANCESCO D' (d. 1510), son of the second Count of Abrantes, was a famous soldier and founder of empire. For his services against the Moors he was made (1505) viceroy of the Portuguese possessions in the E. Indies. He fortified existing Portuguese factories, or established new ones, at Cannanore, Cochin, and Quilon, and in Ceylon and Mauritius. The most important events of his administration were the conclusion of a commercial treaty with Malacca, and the discovery of Madagascar and the Maldive Is. by his son. When Albuquerque arrived from Portugal with orders to supersede him, Almeida refused at first to give way; but in 1509 he sailed for Europe, and was slain in an engagement in Saldanha Bay, S. Africa.

Almeida, NICOLÃO TOLENTINO D' (1741–1811), Portuguese poet, whose satires—written in the pure national form of *quintilhas*—are
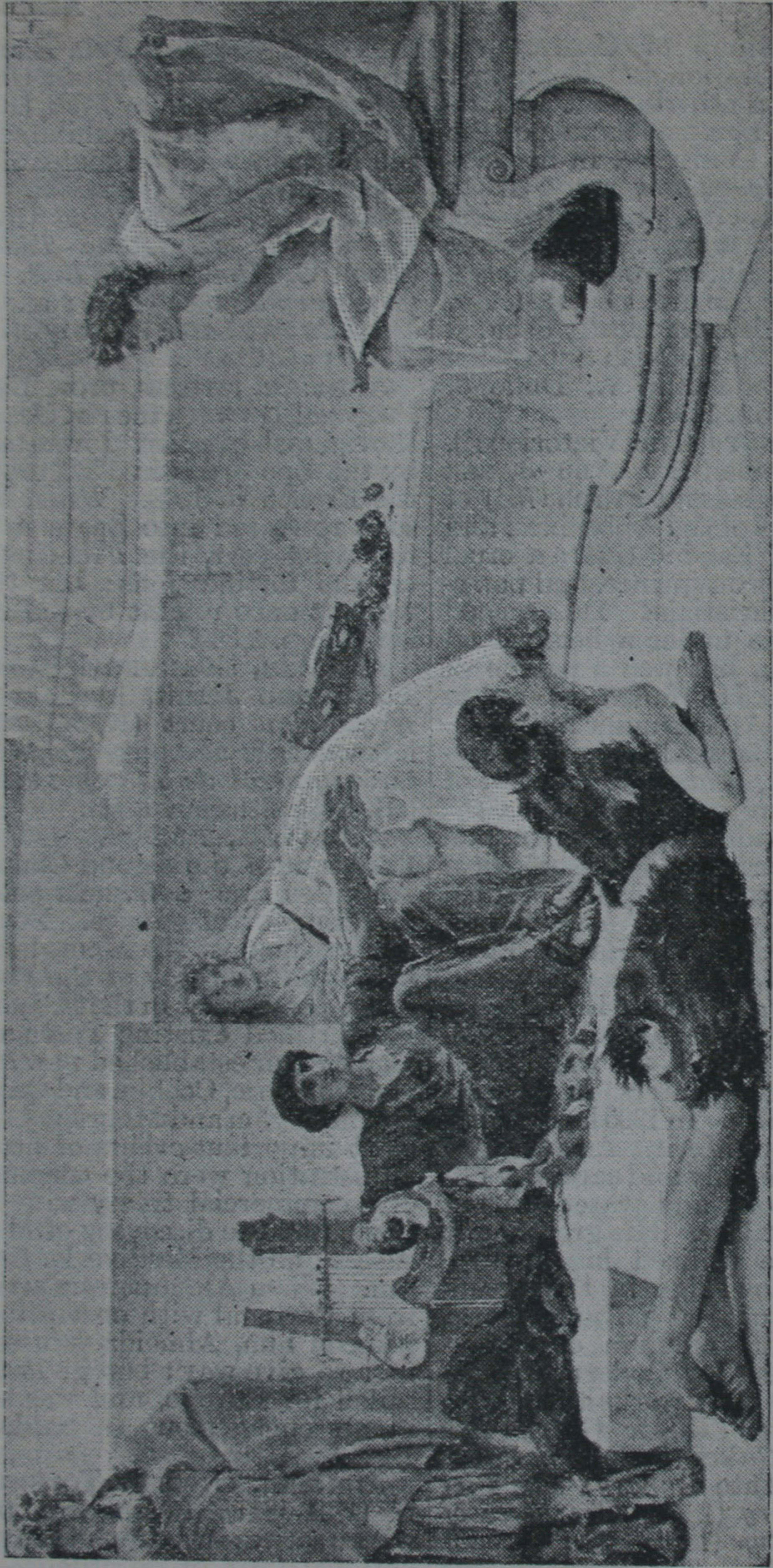
A Reading from Homer. By Sir Lawrence Alma-Tadema.
(Selected by the Artist for reproduction in this Work.)

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remarkable for their ingenuity and elegance. See his *Obras Poeticas* (1802).

Almeida-Garret, João Baptista da Silva Leitão d' (1799–1854), Portuguese poet, dramatist, and politician, born in Oporto; took an active part in the liberal movement of 1820. He is the author of some of the best dramas of modern Portuguese literature—*e.g. Auto de Gil Vicente* (1838); *Dona Filippa de Vilhena* (1840); *Alfageme de Santarem* (1841); *Frei Luiz de Sousa* (1844); *Camoens* (1825), a poem in which he sings the praises of the famous poet of his fatherland; the epic *Dona Branca* (1826); the poems *Bernal-Francez* (1829) and *Lirica de João Minimo* (1829); *Romanceiro* (3 vols. 1851–3), a collection of Portuguese folk-tales; *Folhas Cahidas* (1852), a volume of lyrics, and his finest production. His collected works were published in 25 vols. (1854–77).

Almeirim, tn., Santarem, Portugal, 42 m. N.E. of Lisbon; formerly the summer residence of the kings of Portugal. Pop. 6,000.

Almelo, tn., prov. Overyssel, Netherlands, 21 m. by rail N.E. of Deventer, with manufacture of linen. Pop. 10,000.

Almendralejo, tn., prov. Badajoz, Spain, 31 m. E.S.E. of Badajoz. Grain, oil, and wine; vast pastures upon its downs. Pop. 13,000.

Almeria. (1.) Prov. of S.E. Spain, on slopes of Alpujarras range to the Mediterranean. Intersected by rivers Almeria and Almanzora. Produces fruit, wine, olives, etc. Arid and sub-tropical climate. Area, 3,300 sq. m. Pop. 360,000. (2.) Cap. of above prov.; port on Mediterranean, with fine harbour. Exports grapes and other fruits, iron, zinc, and copper ore, esparto, salt, etc., to the value of £1,000,000 annually. Under the Moors it was a flourishing town with a pop. of 150,000. Pop. 50,000.

Almissa (Slav. *Olmis*), tn., Austria, on the Dalmatian coast, 13 m. S.E. of Spalato. Vineyards and wine industry. Pop. 15,000.

Almodovar del Campo, tn., prov. Ciudad Real, Spain, 22½ m. S.W. of Ciudad Real; important mining district. Pop. 12,500.

Almogia, tn., prov. Malaga, Spain, 10 m. N.W. of Malaga. Wine, figs, almonds, and raisins, mats, etc. Pop. 6,500.

Almohades, a dynasty of Berber princes who expelled the Almoravides, and reigned over a large part of N.W. Africa and the southern half of Spain during the 12th and 13th centuries. Founded as a Moslem sect by Mohammed-ibn-Abdallah, the Almohades conquered Morocco under Abd-ul-Mumen, and extended their power to Spain after a victory over the Castilians at Alarcos (1195). After the defeat of Yakub Almansur by the kings of Aragon, Castile, and Navarre, at the battle of Navas de Tolosa (1212), the Almohades lost Spain; but continued in Morocco until 1269, when the revolt of the nomad tribes put an end to their rule. See Slane's French trans. of Ibn-Khaldun's *Histoire des Berbères* (1854), and Dozy's *Histoire des Almohades* (1881).

Almon, John (1737–1805), the friend of John Wilkes; a London bookseller and journalist, born in Liverpool. Establishing himself in Piccadilly as a book and pamphlet seller, and publisher to the opposition *Coterie Club*, he edited and issued numerous miscellaneous publications, among which were the *Parliamentary Register* in 1774, and the *General Advertiser* in 1784. In 1770 he was fined for selling a paper containing a reprint of Junius's *Letter to the King*. His acquaintance with Wilkes began in 1761, and lasted till the latter's death in 1797. His works include *The Remembrancer* (1775–83); *Biographical, Literary, and Political Anecdotes* (1797); and

The Correspondence of the late John Wilkes (5 vols. 1805).

Almond. (1.) Riv., Linlithgow and Midlothian cos., Scotland; enters Firth of Forth at Cramond; length, 24 m. (2.) Riv., Perthshire, Scotland; enters the Tay 2 m. above Perth; length, 30 m. Glenalmond College is on its banks.

Almonds, OIL OF. The oil of sweet almonds is very similar in composition to olive oil, and is prepared by crushing and pressing the almonds. The essential oil of almonds, or oil of bitter almonds, is benzaldehyde, C_6H_5 CHO. The bitter almond contains a glucoside amygdalin ($C_{10}H_{27}NO_{11}$), which, by the action of a ferment (emulsin) in the almond, and in the presence of water, breaks up into oil of bitter almonds, prussic acid, and glucose. If the mixture is now distilled, the oil and prussic acid distil over, and form the crude essential oil of almonds which is used as a flavouring agent. It is poisonous from the presence of prussic acid, though the purified oil is not poisonous. A large proportion of the oil of bitter almonds now used in commerce is prepared artificially from coal-tar, the toluene of which is chlorinated, and the product heated with lime and water under pressure.

Almond Tree (*Prunus amygdalus*) belongs to the order Rosaceæ. It is a native of Persia and Syria, and is found wild throughout Europe. When grown out of doors in Britain it rarely bears fruit, except in the south of England. Almonds are grown commercially in California. The fruit is dry, fibrous, and velvety when ripe. The kernel within the stone is the seed—the almond of commerce. There are two varieties, the sweet and the bitter: the former is the larger; the latter, when crushed, has the characteristic odour of bitter almonds.

Almoner, an official charged with the dispensing of gifts and alms. Of monastic origin, the office afterwards extended to the households of sovereigns, feudal lords, etc., and to public institutions such as hospitals. In the royal household of Britain there are a hereditary grand almoner, a lord high almoner, and a sub-almoner.

Almonte, tn., Huelva prov., Spain, 35 m. s.w. of Seville. Pop. 7,000.

Almonte, tn., Lanark co., Ontario, Canada, 30 m. s.w. of Ottawa. Pop. 3,500.

Almora, chief tn., Kumaun dist., India, on a ridge in the Almora Hills, 5,494 ft. above sea-level. For centuries it was the stronghold of native rulers. During the Gurkha war of 1815 it came into the possession of the British. The Ramsay College is at Almora; and at Lohaghat, in the neighbourhood, a sanatorium has been established. Pop. 8,600.

Almoravides, a Berber dynasty which reigned over N. Africa and S. Spain during the 11th and 12th centuries. Originating in a sect founded by Abdallah-ibn-Yasin, the Almoravides, led by Abu-Bekr, conquered the kingdoms of Fez and Morocco (1054). Under Yusuf-ibn-Tashfyn they crossed to Algeciras (1086), and defeated Alfonso VI. at Zalaca; and when Yusuf died (1106), after a reign of forty years, his son Ali succeeded to a kingdom stretching from the Sahara to the Ebro. But the ceaseless attacks by Christian armies, and the growing power of the rival Almohades, broke the dynasty of the Almoravides, which came to an end with Ali's son, Tashfyn. See Slane's French trans. of Ibn-Khaldun's *Histoire des Berbères* (1854), and Dozy's *Histoire des Musulmans d'Espagne* (1861).

Almqvist, KARL JONAS LUDVIG (1793-1866), Swedish author, after

a short official career withdrew into the forests of Vermland, where he lived for two years like a backwoodsman; became rector of a large 'gymnasium' (1829); fled to N. America (1851–63) on suspicion of attempted murder; on his return (1865) lived at Bremen as Professor Westermann. He wrote very much that is worthless, but his collection of romantic poems, *Törnrosens Bok*, is one of the finest things in Swedish literature. He wrote several novels, some dealing with peasant life (*Skällnora Qvarn*), some novels with a purpose (*Tre Fruar i Småland*), the poetic novels *Kapellet* and *Palatset*, and the fine *Det går an*, a bold attack on marriage. See *Valda Skrifter* (1874–8).

Almshouse (in Scotland, 'hospital'), a house for the charitable support of persons suffering from old age or poverty, built and supported by private endowment; the inmates are therefore not paupers. The abuses which marked the management of endowed almshouses were put an end to by the appointment of the Charity Commissioners (1853).

Almucantar consists of a small telescope carried by a float swimming in a tank of mercury, and revolving round an imaginary perpendicular axis, so as to describe a small horizontal circle passing through the pole of the heavens. The transits of stars cutting this circle in different azimuths give the means of determining instrumental and clock corrections, the right ascensions and declinations of the stars, as well as the latitude of the place of observation. The method is compromised by fewer risks of error than that of meridian determinations, to which it serves as an alternative. Two instruments of the kind were erected in 1900—one at Durham University, England; the other at Case College, Cleveland, Ohio. In both a plane mirror is employed as an auxiliary to a horizontal telescope six inches in aperture. This name was also given to an instrument invented and perfected between 1879 and 1884 by Dr. S. C. Chandler. See *Annals of Harvard College Observatory*, vol. xvii.

Almuñecar, seapt., Granada prov., Spain, 40 m. E. of Malaga; has fine Moorish remains. Pop. 8,000.

Alnus. See ALDER TREE.

Alnwick, par. and mrkt. tn. in Northumberland, England, 19 m. N. of Morpeth. It took a prominent part in the Scottish wars, and was frequently besieged by the Scots between 1083 and 1448. On the s. bk. of the river stands the castle of Alnwick, the residence of the dukes of Northumberland; about a mile to the w. is Alnwick Abbey, supposed to have been founded in 1147 by Eustace Fitz-John. Pop. 7,000. See Tate's *Hist. of Alnwick* (1866–9).

A.L.O.E. See TUCKER, CHARLOTTE MARIA.

Aloe, a genus of Liliaceæ. The plants are natives of warm countries, especially of the karroo in Cape Colony. The species are very variable, with thick fleshy leaves, many of which have spiny margins; often grown in conservatories in Britain. The drug bitter aloes is the inspissated juice of the leaves, and is a powerful aperient with an intensely bitter taste, owing its principal properties to the active principle aloin ($C_{16}H_{16}O_7$). In the mouth and stomach aloes, in medicinal doses, stimulate the secretions and act as bitter tonics. Their cathartic action is on the colon and rectum, and they also stimulate the flow of bile. Care is necessary to avoid the production of hæmorrhoids by excessive doses, through congestion of the pelvic vessels. Externally, the tincture has been recommended for painting over ulcers after cleansing with antiseptic lotion. For American aloe, see AGAVE.

Aloes Wood, or EAGLE WOOD, called also LIGN (*lignum*) ALOES, is the heart-wood of species of Aquilaria—trees related to the laurel, found in tropical Asia. It was formerly medicinal, but is no longer officinal. When burnt, it diffuses a sweet aromatic odour, and is used to perfume clothing and apartments. The fragrance continues for years.

Aloidæ, ALŒIDÆ, or ALOADÆ, in Greek mythology, Ephialtes and Otus, the gigantic sons of Iphimedia and Poseidon. They made war on the gods, and attempted to pile Mt. Ossa upon Olympus and Pelion upon Ossa.

Aloin. See ALOE.

Along, ALLONG, or HALONG, a bay of the Gulf of Tong-king, to the N.E. of the Red R. delta; is sheltered from all seaward winds by the island of Kak-Ba on the s., and a series of calcareous islets on the E.

Alopecia. See HAIR, DISEASES OF.

Alora, tn., prov. Malaga, Spain, 20 m. N.W. of Malaga; stn. on ry. to Cordova. Picturesque situation on riv. Guadalhorce, and interesting mediæval ruins. Great fruit centre, and especially famed for 'Manzanilla' olives. Its mineral springs are highly valued. Pop. 10,500.

Alosno, comm., Spain, prov. of and 22 m. N.W. of Huelva; has copper and lead mines. Pop. 8,200.

Alost (Flem. *Aalst*), fort. tn., prov. of E. Flanders, Belgium, 16 m. by rail S.E. of Ghent. Linen, silk, and cloth are woven, and there is a trade in hops. Pop. 32,000.

Aloysia. See VERBENA.

Aloysius. ST. See GONZAGA, LUIGI.

Alpaca, the *Auchenia paco*, is a member of the camel family, known only in a semi-domesticated state, but believed to have been derived from the wild gua-naco (*A. huanacus*). It is smaller than the llama, and, like it, was domesticated in S. America prior to the Spanish conquest, and was described by the early Spanish writers as a sheep. It is not used as a beast of burden, but is prized for its long, fine fleece, which is largely imported into Europe. The colour is usually black, but there is considerable variation. It lives in flocks on the higher slopes of the Andes, and is essentially a mountain animal. The material manufactured from its wool is used for clothing, and to a large extent for covering umbrellas. It is cool, light, and durable, with a dull shine. Much, however, of the so-called alpaca is a mixture of silk and wool, woven to resemble the alpaca wool.

Alp Arslan, 'Valiant Lion' (1029-72), second sultan of the Seljuk dynasty of Persia, whose name, Mohammed - ibn - Daoud, was assumed on his conversion to Islam, became ruler of Khorassan (1059), and of Persia (1063), his kingdom extending from the Tigris to the Oxus. He captured Cæsarea in Cappadocia (1067-8), and conquered Georgia and Armenia. In his attempts against the Byzantine empire he was thrice defeated by the Emperor Romanus Diogenes, but obtained a decisive victory in 1071, and captured the emperor. Alp Arslan then marched upon Turkestan, but was killed by a prisoner whom he had condemned to death.

Alpena, city, Michigan, U.S.A., co. seat of Alpena co.; is on the w. coast of Lake Huron, 112 m. N. by E. of Saginaw; has important lumber industry, and manufactures machinery and cement. Pop. 12,500.

Alpenhorn, or ALPHORN, a long bugle-horn made of wood used by Swiss peasants, who by means of this communicate with each other from an astonishing distance.

Alpenstock, a stout staff, iron-tipped, used by mountain climbers. The names of the peaks ascended are often branded on its shaft.

Alpes, BASSES. See BASSES-ALPES.

Alpes, HAUTES. See HAUTES-ALPES.

Alpes Maritimes, the most S.E. dep. (area, 1,482 sq. m.) of France, on the Mediterranean; known as the French Riviera. It surrounds the independent state of Monaco. The dep. is roughly triangular in shape; its most northerly and at the same time its highest point is the Cime de Tinibras. One of the most mountainous districts of France, its climate varies according to locality, the genial winter of the coast contrasting greatly with the severity of the highlands a few miles inland. The mistral (N.N.W. wind), which prevails in the winter months, brings intense cold, except to sheltered places. Large herds of sheep are pastured in the Alps in summer; olives, vines, and fruits are cultivated on the littoral; in the Plaine de Grasse large quantities of flowers are grown for the manufacture of perfumes. Cap., Nice. Popular health resorts are Cannes, Antibes, and Mentone. The department was created in 1860. Pop. 335,000. See Fornier's *Histoire des Alpes Maritimes* (1890), and Bosio's *La Province des Alpes Maritimes* (1902).

Alph, 'the sacred river' of Coleridge's *Kubla Khan*, is an imaginary stream, although placed by the poet in a real locality, the 'Xaindu' mentioned in *Purchas his Pilgrimage* (1626, p. 418) as the site of the summer palace erected by Kubla, Khan of Tartary, in the 13th century.

Alpha and Omega, the first and the last character of the Greek alphabet, a name applied to the Deity, who is the 'beginning and the ending' (Rev. 1 : 8).

Alphabet. *Introductory.*—Alphabetic writing is almost universally employed by modern peoples, and no other system of writing has had so extensive a history. This does not imply that alphabets are easily invented, or have originated independently many times over. The prevalence of the system is explained by the ease with which it is transmitted and differentiated into new forms. Most alphabets are members of the same family, and modern discovery and research are steadily reducing the number of apparently disconnected alphabets. It is premature to maintain categorically that certain undeciphered alphabets, and others, are not offshoots of this family. (Ogham writing employs symbols which appear to be independent of the Greek or Latin models, by which it was influenced. The Persian cuneiform 'alphabet' is half a syllabary.) In any case, the invention of an alphabet is a rare achievement. It is the simplicity and adaptability of alphabetic writing which has secured its triumph over the earlier and more varied systems of ideographic and syllabic writing. The vast majority of alphabets are descended from one, which is the earliest known, and was in existence about 1000 B.C.

Many causes unite to transform alphabets which have a common origin. Their differences may be classified as differences (1) in the number of the letters; (2) in the forms of the letters; (3) in their values or pronunciation.

1. The letters of a borrowed alphabet are rarely added to at the time of transmission. The numerical limitation imposed by the old alphabet is remarkable. The distinctive sounds of the borrowing language are sometimes provided for by letters whose sounds it does not possess; or a single letter may be taken to rep-