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Handwritten mark

SCHEME OF SOUND SYMBOLS

FOR THE PRONUNCIATION OF WORDS.

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Note.—(·) is the mark dividing words respelt phonetically into syllables; (ˈ), the accent indicating on which syllable or syllables the accent or stress of the voice is to be placed.

—————

Sound-symbols employed in Respelling.	Representing the Sounds as exemplified in the Words.	Words respelt with Sound-symbols and Marks for Pronunciation.
<i>ā</i> ...	mate, fate, fail, aye.....	<i>māt, fāt, fāl, ā.</i>
<i>ă</i> ...	mat, fat.....	<i>măt, făt.</i>
<i>á</i> ...	far, calm, father.....	<i>fár, kám, fá'thēr.</i>
<i>ã</i> ...	care, fair.....	<i>cār, fār.</i>
<i>aw</i> ...	fall, laud, law.....	<i>faul, lawd, law.</i>
<i>ē</i> ...	mete, meat, feet, free.....	<i>mēt, mēt, fēt, frē.</i>
<i>ě</i> ...	met, bed.....	<i>mět, béd.</i>
<i>é</i> ...	her, stir, heard, cur.....	<i>hēr, stēr, hērd, kēr.</i>
<i>ī</i> ...	pine, ply, height.....	<i>pīn, plī, hīt.</i>
<i>ï</i> ...	pin, nymph, ability.....	<i>pīn, nīm̄f, ä-bīl'ï-tē.</i>
<i>ō</i> ...	note, toll, soul.....	<i>nōt, tōl, sōl.</i>
<i>ö</i> ...	not, plot.....	<i>nöt, plöt.</i>
<i>ó</i> ...	move, smooth.....	<i>mōv, smōtñ.</i>
<i>ö</i> ...	Goethe (similar to <i>e</i> in her)...	<i>gö'téh.</i>
<i>ow</i> ...	noun, bough, cow.....	<i>noun, bow, kow.</i>
<i>oy</i> ...	boy, boil.....	<i>boy, boyl.</i>
<i>ū</i> ...	pure, dew, few.....	<i>pūr, dū, fū.</i>
<i>ÿ</i> ...	bud, come, tough.....	<i>būd, kūm, tūf.</i>
<i>ú</i> ...	full, push, good.....	<i>fúl, púsh, gúd.</i>
<i>ü</i> ...	French plume, Scotch guid.....	<i>plüm, güd.</i>
<i>ch</i> ...	chair, match.....	<i>chär, mäch.</i>
<i>ch</i> ...	German buch, Heidelberg, Scotch loch (guttural).....	<i>bóch, hī'del-bērēh, löch.</i>
<i>g</i> ...	game, go, gun.....	<i>gām, gō, gūn.</i>
<i>j</i> ...	judge, gem, gin.....	<i>jūj, jēm, jīn.</i>
<i>k</i> ...	king, cat, cot, cut.....	<i>kīng, kăt, kōt, kūt.</i>
<i>s</i> ...	sit, scene, cell, city, cypress.....	<i>sīt, sēn, sēl, sīt'ī, sī'prēs.</i>
<i>sh</i> ...	shun, ambition.....	<i>shūn, äm-bīsh'ūn.</i>
<i>th</i> ...	thing, breath.....	<i>thīng, brēth.</i>
<i>th</i> ...	though, breathe.....	<i>thō, brēth.</i>
<i>z</i> ...	zeal, maze, muse.....	<i>zēl, māz, mūz.</i>
<i>zh</i> ...	azure, vision.....	<i>äzh'er, vīzh'ñ.</i>

KATAHDIN—KATKOFF.

KATAHDIN, *ka-tâ'dîn*, or KATADN, *ka-tâ'dn*: mountain in Piscataquis co., Me.; 6 m. n.e. of the Penobscot river, 80 m. n. by w. of Bangor, 130 m. n.e. of Augusta; 5,385 ft. above the sea; highest mountain in the state. It is composed wholly of granite, has a few dwarf specimens of vegetation on its summit, is difficult of approach on account of the numerous falls in the river, and its summit affords a splendid view of wild scenery.

KATER, *kâ'tér*, HENRY: physicist of remarkable experimental skill: 1777, Apr. 16—1835, Apr. 26; b. Bristol, England. At his father's desire, he began the study of the law, but relinquished his legal studies 1794, and obtained a commission in the 12th regt. of foot, stationed in India. During the following year, he was engaged in the trigonometric survey of India; and on his return 1808, became a student in the senior dept. at Sandhurst, and was shortly afterward promoted to a company in the 62d regiment.

His contributions to science are chiefly in *Philosophical Transactions*, to which, 1813-28, he contributed 15 papers. The most important of these memoirs are those relating to his determination of the length of the seconds' pendulum at the latitude of London; and those which describe his 'floating collimator,' an instrument for aiding the determination of the horizontal or zenith points, for which he received the gold medal of the Royal Astronomical Society. He was jointly with Dr. Lardner, author of 'A Treatise on Mechanics' in *Cabinet Cyclopædia*. His memoirs on the verification and comparison of the standards of weights and measures of Great Britain and Ireland, induced the emperor of Russia to employ him to construct standards for the weights and measures of that country; and for these labors he received the order of St. Anne, and a diamond snuff-box. He died at London, from an affection of the lungs.

KATHAY', or CATHAY. See CHINA.

KATHETOMETER, n. *kâth'ê-tôm'ê-tér* [Gr. *kathêtôs*, perpendicular height; *metron*, a measure]: an instrument for measuring small differences of perpendicular height.

KATKOFF, *kât-kof'*, MICHAEL NIKIFOROVITCH: 1820—1887, Aug. 1; b. Moscow: journalist. He graduated at the Univ. of Moscow 1838, continued his studies in the universities of Königsberg and Berlin, was appointed prof. of philosophy at the Univ. of Moscow on his return; entered journalism as editor of the *Russkij Wiestnik* 1856, and established the famous *Moskovski Vedomosti* or *Moscow Gazette* 1861. He soon abandoned his liberal views, made his paper the organ of the old Russian party, advocated the most vigorous political measures, denounced the liberal educational system that he had helped to establish, and was instrumental in having it supplanted by one of military pedagogism, was appointed a privy councillor 1882, and had a remarkable influence over Alexander

KATMANDU--KATTYWAR.

II. and his successor, as well as the aristocratic class of Russians.

KATMANDU. See KHATMANDU.

KATRINE, LOCH, *loch kăt'rîn*: one of the most celebrated of Scottish lakes; near the s.w. border of Perthshire. It is eight m. in length, and three-quarters of a m. in mean breadth; greatest depth, 78 fathoms; height above the sea, about 370 ft. Its shape is serpentine, and displays great variety of shore and background. Ben Venue and Ben An are on its banks. It contains several islets, one of which, Ellen's Isle, is the centre of the action of the *Lady of the Lake*. Several also of Wordsworth's lyrics are on subjects suggested in this locality.

KATSURA, TARO, *kâts-wê'râ*, General Count: Japanese prime minister 1847; b. Choshu. As a young samurai he fought in the war of 1868 which overthrew the shogun and restored the imperial power of the Mikado, and was one of the warriors selected for military training in Germany. He was one of the active forces in placing the Japanese army on a modern basis; became vice-minister of war in 1886-91; in the Chino-Japanese war of 1894-95, commanded the 3d army corps, among brilliant exploits taking New-chwang; in 1896, was appointed first Japanese governor of Formosa; in 1898-1900, minister of war, and in 1901, prime minister. He was at the helm of state during the perilous season of the Russo-Japanese war of 1904-05, but resigned 1906, Jan. 6.

KATTE, *kăt'ê*, WALTER: an American civil engineer; b. in England 1830; came to the United States and entered the railway service in 1850; was resident engineer of the canals of Pennsylvania 1857-58; in the U. S. military engineering service 1861-62; superintended the erection of the St. Louis steel arch bridge; and was civil engineer and afterward consulting engineer of the New York Central & Hudson River, the New York & Harlem, and the West Shore railroads.

KATTIMUN'DOO, or CUTTIMUN'DOO. See CUTTEAMUNDU.

KATTYWAR, or CATTYWAR, *kăt-ê-wâr'*: term originally applied to one of the ten districts of the peninsula of Guzerat, but gradually extended, as a collective name, to the whole of them. In this larger sense, it stretches in n. lat. 20° 41' to 23° 8', and in e. long. 68° 56' to 72° 20'; 20,559 sq.m. This province of India, touching on part of its e. frontier the dist. of Ahmedabad, is everywhere else bounded by water—the Runn and Gulf of Cutch, the Arabian Sea, and the Gulf of Cambay. Politically, the country is divided among 188 chiefs, some paying tribute to the Guicowar of Guzerat, and the rest to the British govt., but all under the protection of the latter since 1820. These petty princes have a total revenue of £865,270 sterling, and a force of about 4,000 cavalry and 8,000 infantry. The climate is unhealthful;

KÂTYÂYANA—KATZBACH.

the surface is generally undulating. The principal crops are millet, maize, wheat, sugar, and cotton. Total pop. 2,327,500.

KATYÂYANA: name of great celebrity in the literary history of India. It belongs probably to several personages renowned for contributions to the grammatical and ritual literature of the Brahmanical Hindus; but it is also among the names of the chief disciples of the Buddha, S'âkyamuni.—The most celebrated personage of this name is Kâtyâyana, critic of the great grammarian Pân'ini; and he is probably the same with the Kâtyâyana who wrote the grammatical treatise *Prâtis'âkhya* of the white Yajurveda (see VEDA). Prof. Goldstücker, in *Pân'ini, etc., his Place in Sanskrit Literature* (London 1861), has shown that Kâtyâyana cannot have been a contemporary of Pân'ini, as was generally assumed; and in a paper read by him before the Royal Asiatic Soc. 1863, Feb., he proved that this Kâtyâyana lived at the same time as the great grammarian Patanjali, whose date he had previously fixed B.C. 140—120. See PATANJALI.

KATYDID, n. *kā'tī-dīd* (*Platyphyllum concavum*): species of grasshopper (q.v.) of pale-green color, native of N. America, very plentiful in parts of the United States, where its peculiar note is always heard during summer from evening twilight till midnight. This note is almost like a shrill articulation of the three syllables kat-y-did, following each other in quick succession, after which there is a pause of two or three minutes. The organ of sound is a transparent elastic membrane in a strong oval frame, in each of the wing-covers; these membranes, by the overlapping of the wing-covers, can be made to rub against one another, and the sound is produced by the friction.

KATZ'ER, FREDERIC XAVIER: American Roman Catholic archbishop: b. Ebensee, Austria, 1844, Feb. 7; d. Fond du Lac, Wis., 1903, July 20. He came to this country in 1864, and was ordained to the priesthood in 1866. Until 1875 he was a professor in the Seminary of St. Francis in Milwaukee, when he became pastor of the cathedral at Green Bay and secretary of Bishop Krautbauer. After four years of labor in this capacity, he was appointed vicar-general of the diocese of Green Bay, and on the death of Bishop Krautbauer, in 1885, Dec., became administrator, and in 1886, May, bishop of Green Bay. In 1900, Dec., he was chosen archbishop of Milwaukee.

KATZBACH, *kätz'bach*: a small river in the Prussian province of Silesia, falling into the Oder at Parchwitz; famous from the battle on its banks 1813, Aug. 26, between the French troops under Marshal Macdonald, and the Prussians under Blücher, in which the latter were completely victorious. The French lost in the battle of

KAUAI—KAULBACH.

the Katzbach 5,000 killed, and 18,000 wounded and prisoners, with 103 cannons, two eagles, and 250 ammunition wagons.

KAUAI'. See SANDWICH ISLANDS.

KAUFFMANN, *kowf'mân*, ANGELICA (MARIA-ANNE-ANGELICA-CATHARINE KAUFFMANN): painter and royal academician: 1740 (or 41), Oct. 30—1807, Nov. 5; b. at Coire, in the Grisons. From 1754 till 69, she was much in Italy, and became mistress of the art of fresco-painting. But it was in London, whither she was induced to go by Lady Wentworth in 1765, that she became famous. She had great personal charms, knew several languages, and excelled as a musician. Sir Joshua Reynolds was her intimate and helpful friend: he often speaks of her as 'Miss Angel.' In 1773, she was appointed one of the decorators of St. Paul's. She returned to Rome 1782, married the Italian painter Zucchi, and lived through nearly a quarter of a century for her art in a circle of distinguished artists, poets, and scholars. Her paintings are numerous and well known, many being portraits and drawings from the antique. She is noteworthy for grace and color more than for correctness of drawing, or originality. Her figures have monotony of expression; and one critic declared that 'her men are masculine women.' Her best work was portraiture of the distinguished beauties of her time; especially in England her work in this line was greatly prized.

KAUKAUNA, *kaw-kaw'na*: city; Outagamie co., Wis.; on the Fox river and the Chicago & Northwestern railroad; 7 m. n.e. of Appleton and 21 m. s.w. of Green Bay City. The river with a fall of 50 ft. in one mile here, supplies abundant water power, and a govt. ship canal around the rapids affords commercial transport facilities. The principal industry is the manufacture of paper and paper bags from wood pulp, and there are large railroad repair and construction shops. The city has good schools, churches, banks, etc. The place was first settled in 1790 by Dominick Ducharme, and was incorporated as a town in 1850. It was chartered as a city 1885, Apr. 5. Pop. 5,300.

KAULBACH, *kowl'bach*, WILLIAM VON: 1805, Oct. 15—1874, Apr. 7; b. Arolsen, principality of Waldeck; German painter, conceded to be one of the leaders in modern art. In his 17th year he entered the Acad. of Arts at Düsseldorf and became one of Cornelius's best pupils. Among his first important productions (1828-9), were six symbolical figures, the best known of which is *Apollo among the Muses*. To the same period belongs a work of wholly different and even opposite character, *The Madhouse*, conceived and executed in the most vigorously realistic spirit. It added immensely to Kaulbach's reputation, and King Ludwig of Bavaria employed him to decorate Duke Maximilian's palace in Munich.

KAUNITZ—KAUTZ.

For this he executed, in the strictly antique style, 16 frescoes illustrating the fable of Psyche and Cupid. His designs from Klopstock, Goethe, and Wieland, for the same monarch, also are worthy of mention. In 1837, Kaulbach completed his *Battle of the Huns*, which was regarded as the culmination of the new German school. His patient study of Hogarth is visible in his illustration of Schiller, of Goethe's *Faust*, and *Reineke Fuchs*. In 1846, Kaulbach completed what is probably his chef-d'œuvre, the *Destruction of Jerusalem by Titus*—a marvelous mixture of history and symbolism. In 1849, Kaulbach succeeded Cornelius as director of the Bavarian Acad. of Arts. In 1859, he finished his *Battle of Salamis*. The *grisaille* cartoon (in oil) of Peter Artries is one of his latest and most characteristic works.

KAUNITZ, *kow'nitz*, WENZEL ANTON, Prince VON, Count of Rietberg: Austrian statesman: 1711, Feb. 2—1794, June 26; b. Vienna. He studied at Vienna, Leipsic, and Leyden; travelled in England, France, and Italy; and being the head of an ancient and honorable family, soon received important political appointments from Emperor Charles VI. He continued to fill important situations under Maria Theresa. He gained great fame as a diplomatist 1748, at the congress of Aix-la-Chapelle. He was afterward Austrian ambassador at the French court; and 1753, was appointed court and state chancellor, and 1756 chancellor also for the Netherlands and Italy, and for almost 40 years had the principal direction of Austrian politics. The project of the partition of Poland originated with him. He had so much to do in the management of the political affairs of Europe, that he was jocularly called the European coach-driver.

KAURI, or KOWRIE, or KAURI PINE, *kow'ri* (*Dammara australis*): species of Dammar (q.v.), native of New Zealand; a tree of great size and beauty, said sometimes to attain a height of 140 ft. or more, with whorls of branches, the lower of which die off as it becomes old. The timber is white, close-grained, durable, flexible, and very valuable for masts, yards, and planks. It is much used for masts for the British navy, no other being considered equal to them. The Fiji Islands, New Hebrides, and Australia produce other species, the timber of all of which is sold under the name of *K. Pine*, although there are differences of quality. All are trees of dark dense foliage, and produce a resin called *K. RESIN*, or *K. GUM*, and sometimes Australian Copal and Australian Dammar, of which large quantities are exported to Britain and N. America, chiefly from New Zealand.

KAUTZ, *kowtz*, ALBERT: an American military officer; b. in Georgetown, O., 1839, Jan. 29; d. Florence, Italy, 1907, Feb. 5. He was graduated at the U. S. Naval Academy and appointed a midshipman 1859, June 11; promoted, passed midshipman and master, 1861; lieu-

KAUTZ—KAYE.

tenant-commander, 1865; commander, 1872; captain, 1885; commodore, 1897; and rear-admiral, 1898; and was retired, 1901. He served on the *Hartford* under Farragut at the capture of New Orleans, where he hauled down the "Lone Star" flag from the City Hall and hoisted the Stars and Stripes on the custom house; and during engagements with the Vicksburg batteries, and was afterward on various stations and duties. In 1898 he was placed in command of the flagship Philadelphia, and after the troubles of the native chiefs at Apia, Samoa, was commended for his conduct there.

KAUTZ, AUGUST VALENTINE: American general; b. Ispringen, Germany, 1828, Jan. 5; d. Seattle, Wash., 1895, Sept. 4. He was a brother of Albert Kautz (q.v.), and his parents settling in Ohio in 1832, he was graduated from West Point in 1852. He served through the civil war in the Federal army, distinguishing himself in several engagements, was promoted colonel in 1874, and brigadier-general in 1891. He published: *The Company Clerk* (1863); *Customs of Service for Non-Commissioned Officers and Soldiers* (1864); and *Customs of Service for Officers* (1866).

KAUTZSCH, *kowch*, EMIL FRIEDRICH: German Protestant theologian; b. Plauen, Saxony, 1841, Sept. 4. He was educated at the University of Leipsic where he became tutor in Old Testament exegesis in 1869, and professor extraordinary in 1871. From 1872 to 1880 he was professor at Basel, at Tübingen 1880-8, and at Halle from the last named date. With Socin and Zimmerman he founded the Palestine Exploration Society of Germany in 1877, and among important works which he has edited are: the 22d to the 26th editions of Gesenius' *Hebrew Grammar* (1878-96); and the 10th and 11th editions of Hagenbach's *Encyklopädia und Methodologie der theologischen Wissenschaften* (1880-4).

KA'VA. See AVA.

KAVASS, n. *kă-väs'* [Turk. *kâwwâs*]: in *Turkey*, an armed constable or policeman.

KA'VERI. See CAUVERY.

KAVI, *kâ'vê*: ancient sacred language of Java (q.v.).

KAW RIVER. See KANSAS RIVER.

KAYE, *kā*, Sir JOHN WILLIAM: author of works on the history of India: 1814-1876, July 24; b. London. After serving in the Bengal artillery, he adopted literature as a profession, and was ultimately sec. of a dept. of the Indian office in London. His chief works are *The History of the War in Afghanistan* (1851-53); *India; Life and Correspondence of Sir John Malcolm*; *History of the Administration of the East India Company* (1853); *A History of the Sepoy War in India* (1857-8; London 1864-75), a comprehensive narrative of the celebrated Mutiny down to the fall of Delhi; *Lives of Indian Officers* (1867); *Essays of an Optimist* (1870).

KAYLE—KEAN.

KAYLE, or KAIL, n. *kāl* [Ger. *kegel*, a cone, a nine-pin]: the game of nine-pins or nine holes. See KEEL.

KAZAN, *kâ-zân'*: town of Russia, cap. of the govt., and ancient cap. of the kingdom of Kazan, on the river Kazanka, four m. from the n. bank of the Volga, 200 m. e.s.e. of Nijni-Novgorod. It was founded 1257 by a Tartar tribe, and after various vicissitudes, was made cap. of an independent kingdom, by the Khan of the Golden Horde, which flourished in the 15th c. In 1552, the Russians, under Iwan the Terrible, carried the town after a terrible siege, and put an end to the kingdom. Kazan contains 30 churches, 9 convents, and 16 mosques; a university attended by 450 students, and with a library of 80,000 vols. There are 126 factories in Kazan, the chief manufactures being soap and leather. Pop. about 135,000.

KAZBEK, *kâz'bĕk*, or CASBECK, *kâs'bĕk*: second highest of the peaks of the Caucasus, 16,600 feet.

KEA (*Nestor notabilis*, or Mountain Nestor): New Zealand parrot which formerly fed on fruits and seeds; now it not only eats offal at sheep stations, but sometimes kills and devours live sheep.

KEAN, *kĕn*, CHARLES JOHN: 1811, Jan. 18—1868, Jan. 22; b. Waterford, Ireland; second son of Edmund Kean. He was educated at Eton. When his father fell into ill-health, he adopted the stage as a profession. He was popular in the provinces and in the United States before he achieved reputation in London. He married, 1842, Miss Ellen Tree, and till his death they acted together. He became lessee of the Princess's Theatre, London, 1850, and was director of the royal theatricals. His management at the Princess's Theatre was distinguished chiefly by the splendid manner in which certain plays were produced. The utmost pains was expended on scenery and dress, and as much care was taken to avoid anachronisms as to secure good acting. *Sardanapalus*, produced 1853, was perhaps the most striking of these 'restorations,' as they are called. Kean attempted the parts in which his father shone, but did not succeed in being more than a comparative to the superlative which the elder generation of playgoers remembered. In a lower line of character, and in such pieces as the *Corsican Brothers*, *The Wife's Secret*, and *Louis XI.*, he was more at home than in the world of Shakespeare.

KEAN, EDMUND: tragedian: 1787, Nov. 4—1833, May 15; b. London. His father was a stage-carpenter; his mother an actress. From infancy, the glare of the foot-lights was as familiar to him as the light of common day. While a child, he made his appearance on the boards, and on one occasion gave a recitation before George III. at Windsor Castle. In 1803, he joined a strolling company in Scotland, and for 11 years performed in country theatres. He went to London 1814, in which year he ap-

KEAN—KEARNEY.

peared as Shylock in Drury Lane, his immense popularity filling the coffers of the managing committee, and enriching him. All London flocked to hear him; and Hazlitt, Hunt, and Lamb, who were constantly in the pit, declared that his acting was like 'teaching Shakespeare by a flash of lightning.' He twice visited America, made meteoric visits to the provinces, and ever in the heyday of his powers 'the pit rose at him,' to use his own expression.

KEAN, *kēn*, ELLEN (TREE): actress: 1805-1880, Aug. 20; b. London; wife of Charles John Kean. She appeared on the stage first in London as Olivia in *Twelfth Night* 1823, played successfully in Edinburgh and Bath in comedy and tragedy, opened an engagement at Drury Lane, London, as Violante in *The Wonder*; became attached to the Covent Garden, opening as Lady Townley in *The Provoked Husband* 1829; played in the United States and Canada 1836-39; married Charles John Kean 1842, and retired from the stage on the death of her husband 1868. She was the original Mariana in Sheridan Knowles's *The Wife*, Myrrha in Lord Byron's *Sardanapalus*, and the Countess in Knowles's *Love*; but was best known as the Rosalind and Viola of Shakespeare.

KEANE, *kēn*, JOHN JOSEPH, D.D.: ecclesiastic and educator; b. Killbarn, Donegal, Ireland, 1839, Sep. 12. He accompanied his parents to St. John, N. B., 1848; removed to Baltimore 1850, received a secular education in Calvert Hall, was engaged in mercantile business several years, studied for the Rom. Cath. priesthood in St. Charles's College and St. Mary's Seminary, and was ordained 1866, July 2. He was consecrated bishop of the diocese of Richmond and vicar-apostolic of N. C. 1878, Aug. 25, and appointed first rector of the Cath. Univ. of America in Washington, D. C., 1886; resigned 1896; became arch-bishop of Dubuque, Ia., 1900.

KEANG-SI, *kā-âng'se'*: inland province of China, immediately n.w. of the maritime province of Fo-kien. See CHINESE EMPIRE.

KEANG-SU, *kā-âng'só'*: important maritime province of China, the wealthiest and most densely peopled district of the empire. See CHINESE EMPIRE.

KEARNEY, *kār'nī*, a city and cap. of Buffalo co., Neb.; on the North Platte river and the Burlington and Missouri River, the Kearney & B. H., and the Union Pacific railroads; 180 m. s.w. of Omaha. It is the seat of the State Normal School, the State Industrial School for Boys, a high school, a public library, and a military academy; is a farming, stock-raising and manufacturing trade center; has cotton, flour and oatmeal mills, foundry and machine shops, bottling works; and also manufactures furniture, brick, cigars, suspenders and leggings. The power and irrigation canal, furnishing an artificial water-power equal to 4,500 horsepower, is the chief feature of

KEARNY.

local interest. The first settlement was made in 1871; it was incorporated in 1872, and received its city charter in 1889. The government is vested in a mayor who holds office two years, and in a council of eight members, elected annually. Pop. (1910) 6,202.

KEARNY, N. J.: town in Hudson co.; on Newark bay, between the Passaic and Hackensack rivers, and on the Pennsylvania, the Lehigh V., the Erie, and the Delaware, L. & W. railroads; opposite the city of Newark. The first permanent settlement was made in 1765, by Germans, and the place was called New Barbadoes. Later it became a part of Harrison, but in 1871 it was incorporated and named in honor of Gen. Philip Kearny (q.v.), who once lived in the place, and whose residence still stands within the limits of the town. It has several manufacturing establishments, the chief of which are linoleum works, celluloid works, and thread works. Other manufactures are golf balls, metal bedsteads, roofing material, and brass novelties. The town has a State Soldiers' Home, the Sacred Heart Industrial School for Boys, public and parish schools, and nine churches. In Arlington, or the third and fourth wards, there are many fine residences with large and well kept grounds. The government is vested in an alderman-at-large, practically a mayor without veto power, and a council of eight members, elected every two years. Pop. 1910) 18,659.

KEARNY, *kâr'nĭ*, LAWRENCE: 1789, Nov. 30—1868, Nov. 29; b. Perth Amboy, N. J.; naval officer. He was appointed midshipman in the U. S. navy 1807; promoted lieut. 1813; served effectively off the coast of the s. states during the war 1812-15; dispersed the W. Indian and Gulf coast pirates, captured their vessels, and destroyed their rendezvous 1826; performed the same service against the Greek pirates in the Levant 1827; promoted captain 1832; appointed commander of the E. Indian squadron 1841; took part in suppressing opium smuggling, and secured from the Chinese govt. a pledge of commercial facilities for Americans similar to those about being guaranteed to the English, which led to the treaty of 1845 between the United States and China; protested at Honolulu against the proposed transfer of the Hawaiian Islands to Great Britain 1843; and after holding several offices on home stations was retired with the rank of commodore 1867.

KEAR'NY, PHILIP: soldier: 1815, June 2—1862, Sep. 1; b. New York; nephew of Gen. Stephen Watts Kearny. He graduated at Columbia College 1833; began studying law; accepted a lieut.'s commission in the 1st U. S. dragoons, of which his uncle was col., 1837; was sent to Europe by the war dept. to examine and report on the French cav. service 1839, entered the cav. school at Saumur, served as a volunteer with the 1st chasseurs d'Afrique in Algiers, and won the cross of the Legion of

KEARNY—KEARSARGE.

Honor by his daring exploits; and returned to the United States 1840. He was aide-de-camp on the staff of Gen. Alexander Macomb, commanding the army, 1840-1, and of Gen. Winfield Scott 1841-44, accompanied his uncle on the celebrated march to the S. Pass 1845; was promoted capt. of dragoons and equipped his co. with uniforms and horses from his private means 1846; served through the Mexican war on the staff of Gen. Scott; lost his left arm in the first assault on Mexico city, was the first man to enter the city at its subsequent occupation, and was brevetted maj. for his gallant services. After the war he commanded an expedition against the Indians on Rogue river, Or., resigned his commission 1851, and made a voyage round the world. In 1859 he returned to France to take part in the war in Italy, rejoined the chasseurs d'Afrique, was volunteer aide on the staff of Gen. Maurier at Magenta and Solferino, and was again decorated with the cross of the Legion of Honor. On learning of the outbreak of the war of secession he hastened home; volunteered his services to the govt., and after a humiliating delay was appointed brig. gen. 1861, May 17, and given command of the 1st N. J. brigade. He served in the early Peninsula and Rapidan campaigns, was promoted maj. gen. 1862, July 7, repulsed Gen. Thomas J. Jackson's corps at the second Bull Run, and was killed inside the Confederate lines at Chantilly, while reconnoitering after placing his div. for the next day's fight. It is said that at the time of his death his commission as commander of the Army of the Potomac was on Pres. Lincoln's desk awaiting his signature.

KEAR'NY, STEPHEN WATTS: soldier: 1794, Aug. 30—1848, Oct. 31; b. Newark, N. J.; second cousin of Lawrence Kearny. At the outbreak of the war of 1812-15 he left his studies at Columbia College, and entered the army as 1st lieut., 13th U. S. inf.; was promoted capt. 1813, lieut. col., 1st U. S. dragoons 1833, brig. gen. 1846, June, and maj. gen. 1846, Dec., and appointed gov. of Cal. 1846-7, milit. and civil gov. of Vera Cruz 1847, Mar., and of Mexico city 1848, May. At the beginning of the Mexican war he took possession of N. M., established a provisional civil govt. in Santa Fé, and was twice wounded in engagements in Cal., which territory he had been ordered to occupy. He wrote: *Manual for the Exercise and Maneuvering of United States Dragoons* (1837); *Organic Law; Laws for the Government of New Mexico* (1846). See FREMONT, JOHN C.: STOCKTON, ROBERT FIELD.

KEARSARGE, *kēr'sârj*: mountain in Carroll co., N. H., immediately n.e. of N. Conway; lat. 44° 6' 20" n., long. 71° 5' 40" w.: height 3,250 ft.; from it the U. S. steamer *Kearsarge*, which sank the Confederate cruiser *Alabama* 1864, June 19, was named.—Also, mountain in Merrimac co., about 22 m. n.w. of Concord, height 2,950

KEARSARGE—KEATS.

ft., variously known as Kearsarge, Kyar-Sarga, Pequawket, and Cowissewashook.

KEARSARGE, THE: a ship of the United States navy which played a conspicuous part in the only sea-fight of the civil war. See ALABAMA, THE.

KEARY, *kē'ri*, ANNIE: English novelist; b. Bitton, near Wetherby, Yorkshire, 1825, March 3; d. Eastbourne, Sussex, 1879, March 3. Beginning a literary career with books for children, she made her reputation with stories of Irish life and became very popular, *Castle Daly* (1875) being her best work. Among other fictions by her are: *Clemeney Franklyn* (1866); and *A Doubting Heart*, left unfinished at her death and completed by Mrs. Katherine Macquiod. She also published such historical works as *Early Egyptian History*, and *The Nations Around*.

KEARY, CHARLES F.: English novelist and antiquarian writer. He was educated at Cambridge University and beside the novels *A Mariage de Convenience* (1889); *Herbert Vanlennert* (1895); *High Poliey* (1902); etc., has published *Outlines of Primitive Belief* (1882); *The Mythology of the Eddas* (1882); *The Vikings in Western Christendom* (1890); *Norway and the Norwegians* (1892); *Riegel: an Autumn Mystery* (1903); etc.

KEASBEY, *kēs'bi*, LINDLEY MILLER: American political economist; b. Newark, N. J., 1867, Feb. 24. He was graduated from Harvard in 1888 and went abroad to study at Strasburg. He was appointed professor of political science at the University of Colorado in 1892, where he remained for two years, and in 1894 became professor in the same department at Bryn Mawr. He has written a number of monographs and magazine articles, also *The Nicaragua Canal and the Monroe Doctrine* (1896); and has translated *The Economic Foundations of Society*, from Loria.

KEATS, *kēts*, GWENDOLINE, 'ZACK': English novelist; b. Devonshire. She first attracted notice by a series of dialect tales appearing in *Blaekwood's Magazine*, and in 1898 acquired sudden fame by her volume, *Life is Life*, consisting of 12 stories delineating with skill and vigor the more painful and hopeless side of existence. Later books by her include: *On Trial* (1899); *Tales of Dunstable Weir* (1900); *The White Cottage* (1901); *The Roman Road* (1903).

KEATS, JOHN: English poet: 1795, Oct. 29—1821, Feb. 23; b. London. He was educated at Enfield, and was afterward apprenticed to a surgeon. Certain of his sonnets were published in the *Examiner*, then edited by Leigh Hunt, and received his cordial admiration. He published 1817 his first volume of poems; and in the following year *Endymion* appeared, dedicated to the memory of Thomas Chatterton. This poem was severely handled in the *Quarterly Review* and in *Blaekwood*.

KEB—KEBLE.

He published a third volume of poems, containing *Lamia*, *Isabella*, *Eve of St. Agnes*, the fragment of *Hyperion*, and the odes to the *Nightingale* and the *Grecian Urn*. His health was at this time delicate; and shortly after the publication of his book he went to Italy, and died at Rome. His grave is close to Shelley's. There is an admirable memoir of Keats by Monckton Milnes (Lord Houghton), also an edition of his poems (1877). In 1883, appeared a complete ed. of Keats's works, poems, and prose, 4 vols., edited by Buxton Forman.

Keats's early poems are disfigured by conceits and affectations and drew savage criticism; but his latest place him among the masters of his art. A few of them are actually unrivalled in literature for pure beauty and faultless melody. The *Eve of St. Agnes* is as melodious as any portion of the *Faery Queen*; *Hyperion* has something of the organ-tone of Milton. His influence is strikingly apparent in the subsequent efforts of the English muse—Browning has his color without his melody, Tennyson has his color and his melody both.

KEB. See KED.

KEBBERS, n. plu. *kěb'běrz* [Dut. *kippen*, to pick out, to cull]: in *prov.* and *OE.*, inferior or refuse sheep taken out of the flock.

KEBBUCK, or KEBBOCK, n. *kěb'bŭk* [Gael. *cabag*, a cheese]: in *Scot.*, a cheese.

KEBLAH, n. *kěb'lā* [Ar. *kiblah*, anything opposite]: term designating the point of adoration; the point toward which a Mohammedan turns his face in prayer, being the direction of the temple at Mecca.

KEBLE, *kěb'l*, JOHN: clergyman of the Church of England: devout poet: 1792, Apr. 25—1866, Mar. 29; b. Fairford, Gloucestershire; son of the Rev. John Keble of Coln St. Alwynds, Gloucestershire, and Sarah Maule, a lady of Scotch descent. The elder Keble, a divine of the school of Ken, educated his son at home, and with such success, that at the early age of 15, he was elected scholar of Corpus Christi, Oxford, then a small college composed wholly of members on the foundation, but numbering among its scholars such names as Sir J. T. Coleridge and Arnold of Rugby. In 1811 Keble was elected to a fellowship at Oriel, one of the highest honors in the university. In 1812, he gained both the Latin and English prize essays; was ordained deacon 1815, priest 1816. Neither the prospect of emolument at Oxford, nor the intellectual attractions of the Oriel common-room of which Whately and Copleston were then members, and to which Arnold, Pusey, and Newman were soon afterward added, could charm him from his first love, the life of an English parish priest. For a while he remained at Oxford as a tutor and examiner, but soon took active clerical duty, principally assisting his father. In 1827 June, in deference to the wishes of his friends,

KECKSY—KECSKEMET.

he published *The Christian Year, or Thoughts in Verse for the Sundays and Holydays throughout the Year*, portions of which had been written as early as 1819. The success of the small volume, and its influence on religious thought in England, can hardly be over-rated. The number of editions sold (some of 3,000 copies) is marvellous. Although of unequal merit, many of the pieces being evidently written to complete the original plan, it is a work of genuine inspiration, combining with rare depth and fulness of religious feeling, the tenderest sensibility, and a poet's appreciation of nature in her more sympathetic and human aspects. In 1831, Keble succeeded Milman as professor of poetry. His official prelections are ingenious in theory, and composed in elegant Latin prose. But the time had come when he must quit the pleasant paths of poesy for the tumult of theological controversy. It was a period of peril for the English Church. Within, was apathy and want of spiritual life, save only in the extreme Evangelicals, from whose defects of learning and taste Oxford naturally revolted. Without, a reformed parliament had already suppressed three Irish bishoprics, and seemed not unreluctant to lay hands on the church at home. In his sermon on National Apostasy (1833), Keble gave the signal for the Tractarian movement—a movement remarkable for the learning and ascetic saintliness of its promoters, and whose principles were deep submission to authority, implicit reverence for Catholic tradition, with firm belief in the divine prerogatives of the priesthood, the real nature of the sacraments, and the danger of independent speculation. In 1835, the poet married Miss Charlotte Clark, daughter of an old friend of his father, and quitted Fairford for Hursley, a living in the gift of Sir W. Heathcote, M.P. When Newman seceded to Rome, Keble, less logical perhaps, but with a truer instinct of fidelity to the Anglican Church, remained firm, and amid the general dismay, exerted himself to the utmost to confirm those who wavered. From this period till his death, his influence, though comparatively unseen, was great. His *Lyra Innocentium*, 1846, never equalled *The Christian Year*. Keble died at Bournemouth. He was author of *Life of Bishop Wilson*; an edition of Hooker; and several contributions to periodical literature. A permanent memorial of Keble exists in KEBLE COLLEGE, Oxford, incorporated 1870, June: it provides an academical education, economical living, with Christian training in accordance with the principles of the Church of England. See *Memoir of Keble* by Sir J. T. Coleridge, 1869.

KECKSY, n. *kěk'sĭ*. See under KEX.

KECSKEMET, *kěch-kěm-ăt'*: town of Hungary, 54 m. s.e. of Pesth; station on the railway between that city and Temesvar. It is said to be the greatest market-town in the country, and with its extensive suburbs, its streets,

KED—KEEFER.

straggling and low buildings, may be considered a type of the Magyar town. Agriculture and vine-growing are carried on; but the inhabitants are employed chiefly in rearing cattle, sheep, horses, and swine. Five markets are held here annually; the cattle-market is the most important in Hungary. Pop. 57,812.

KED, n. *kěd*, or KID, n. *kĭd*, or KEB, n. *kěb*: in *Scot.*, the tick or sheep-louse. See TICK.

KEDGE, n. *kěj*, or KEDGE-ANCHOR [*Scot.* *kedge*, to toss about: *Icel.* *kaggi*, a cask fastened as a float to an anchor to show where it is: prov. Sw. *keka*, to tug or drag at a thing that comes but slowly]: a small anchor used in large ships to keep the bow of the vessel clear of the bower, or principal anchor. Another use of the kedge is to move the ship from mooring to mooring in a harbor; for this purpose, it is conveyed to a distance in a boat, then dropped, and the vessel hauled up toward it by a cable attached. KEDGE, v., to move a ship by means of a kedge, as in a river; in *OE.*, to stuff one's self in eating as full as a *keg*. KEDG'ING, imp. KEDGED, pp. *kějd*. KEDG'ER, n. *-ér*, a small anchor used in a river; a kedge. KEDGE-BELLY, or KEDGE, in *OE.*, a glutton, who stuffs himself as full as a keg or cask.

KEDLACK, n. *kěd'lak* [a corruption of *OE.* *kerlock*]: a troublesome wild plant in our fields. See CHARLOCK.

KED'NEY, JOHN STEINFORT, A.M., S.T.D.: American Episcopal clergyman; b. Essex co., N. J., 1819, Feb. 12. He was graduated from Union College in 1838 and from the General Theological Seminary, New York, in 1841. After taking orders in the Episcopal Church he was rector of several churches until 1871, when he became professor of divinity in Seabury Divinity School, Faribault, Minn. He has published: *Catawba River and Other Poems* (1846); *The Beautiful and the Sublime* (1884); *Hegel's Æsthetics* (1886); *Christian Doctrine Harmonized* (1888); *Mens Christi* (1890); *Problems in Ethics* (1899); etc.

KEDRON, *kě'dron*, or KIDRON, *kĭd'ron*: small stream, rising between one and two m. n.w. of Jerusalem, flowing through a gorge between Mount Olivet and Mount Moriah, and emptying into the Dead Sea.

KEECH, n. *kěch* [*It.* *caicchio*, a barrel]: in *OE.*, a solid lump or mass.

KEEFER, *kě'fēr*, SAMUEL: Canadian engineer; b. Thorold, Ontario, 1811, Jan. 22. He is a brother of T. C. Keefer (q.v.). In 1841-53 he was chief engineer of the government board of public works, in 1853 was appointed resident engineer of the Grand Trunk railway, and in 1857-64 was government inspector of railways and deputy commissioner of public works. He completed in 1869 the Niagara Falls suspension bridge, then the longest existing single-span structure. His design

KEEFER—KEEL.

and description of the bridge received a gold medal at the Paris exposition of 1878.

KEEFER, THOMAS COLTRAIN: Canadian engineer; b. Thorold, Ontario, 1821, Nov. 4. He is a brother of Samuel Keefer (q.v.). He was educated at Upper Canada College (Toronto), began practice as a civil engineer in 1838, and in 1850 was appointed by the government to survey the rapids of the St. Lawrence and explore the region between the headwaters of the St. John and the St. Lawrence. In 1851 he became engineer-in-chief of the Toronto and Kingston section of the Grand Trunk railway, and made surveys at Montreal for the present Victoria bridge across the St. Lawrence. He was chief commissioner for Canada at the Paris exposition of 1878. He wrote: *The Philosophy of Railways* (1849); and an essay on *The Influence of the Canals of Canada on her Agriculture* (1850), which won a prize offered by the Earl of Elgin.

KEEK, v. *kēk* [Norw. *kika*; Dut. *kijcken*, to peep; Lap. *kiket*, to shine]: in *Scot.* and *OE.*, to peep; to look slyly and cautiously.

KEEL, n. *kēl* [F. *quille*, a skittle, nine-pins—from O.H.G. *chegil*, or *kegil*, a pin or peg; Ger. and Dut. *kegel*, a pin; Dan. *kegle*, a cone; *kegler*, nine-pins]: in *OE.*, skittle; nine-pins. KEEL-ALLEY, a bowling-alley. See KAYLE.

KEEL, v. *kēl* [AS. *cēlan*, to cool; *cól*, cool]: in *OE.*, to cool; to keep the pot from boiling over by stirring its contents. KEEL'ING, imp. KEELED, pp. *kēld*. *Note.*—In the line, 'while greasy Joan doth *keel* the pot,' *keel* is said by Wedgwood to mean 'to scour,' and not 'to cool,' as in the F. patois we have *quilland*, polished, shining; *acquiller*, to scour.

KEEL, n. *kēl* [Icel. *kiölr*; Dut. *kiel*; O.H.G. *kiol*, a keel; F. *quille*, keel of a ship—from Sp. *quilla*: Gael. *cul*, the bottom, the lower part]: the principal and lowest timber in a ship, extending from stem to stern, and supporting the whole frame; a low flat-bottomed vessel used on the Tyne; a ship or boat; in *bot.*, a projecting ridge, rising along the middle of a flat or curved surface; the two lowermost, and more or less combined, petals of a papilionaceous corolla: V. to navigate; to turn keel upwards. KEEL'ING, imp. KEELED, pp. *kēld*: ADJ. furnished with a keel. KEEL'AGE, n. *-āj*, port-dues; dues payable by ships for using a harbor. KEELSON, n. *kēl'sūn* [Dan. *kiol-svin*]: the piece of timber lying upon the keel into which the mast is stepped. It passes inside the vessel, from stem to stern, as the keel does outside. The floor-timbers are passed below it, each being bolted through the keel, and alternate ones through the keelson. Like the keel, the keelson is composed of several massive timbers scarfed longitudinally together. FALSE-KEEL, a strong piece of timber bolted to the bot-

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tom of the real keel. KEEL-HAULING, punishment formerly in use, for sailors in the Dutch and in the British navy. The culprit was suspended from one yard-arm, and attached to him was a rope passing beneath the keel to the yard-arm on the opposite side of the ship: the punishment consisted in dropping the man suddenly into the water, and hauling him beneath the keel up to the yard-arm on the other side.

KEELER, *kē'ler*, JAMES EDWARD: American astronomer; b. La Salle, Ill., 1857, Sept. 10; d. San Francisco, Cal., 1900, Aug. 12. He was graduated from the Johns Hopkins University in 1881, was appointed assistant to Prof. S. P. Langley (q.v.) in the Mount Whitney (Cal.) expedition (1881), was in 1881-3 at the Allegheny Observatory, and after study in Germany (1883-4), was appointed assistant at Lick Observatory (1886), and later astronomer there (1888). In 1891-8 he was active at the Allegheny Observatory as its director and professor of astrophysics in the Western University of Pennsylvania, and from 1898 until his death was director of the Lick Observatory. His spectroscopic work included valuable studies of the nebula in Orion and of Saturn's rings.

KEELEY, *kē'lē*, LESLIE E.: an American physician; 1842-1900, Feb. 21; b. in New York; was graduated at Rush Medical College, 1864; was in the volunteer service in the civil war; founded the Keeley Institute system for the cure of inebriety and the use of narcotics; and was the author of *The Morphine Eater: or, From Bondage to Freedom*; etc.

KEELY, *kē'lē*, JOHN ERNST MORRELL: an American imposter; 1837, Sept. 3—1898, Nov. 18; b. in Philadelphia, Pa.; became interested in music and claimed that the tuning fork suggested to him a new motive power, which he declared he had discovered. For twenty-five years he succeeded in deceiving the people of Europe and the United States in claiming that he had discovered the hidden force moving universe, being able to use it in machine known as the Keely motor.

KEELING, *kē'līng* (or Co'cos), ISLANDS: group in the Indian Ocean, lat. 12° 5' s., long. 90° 55' e.; about 600 m. s. of Sumatra, comprising Harsburgh, Direction, Prison, Rice, South, Long, West or Ross, and a number of smaller islands. The group furnished Darwin the typical example of an atoll or lagoon island. They have good water and abound in cocoa palms. William Keeling discovered them 1609. Alexander Hare settled on one of them 1823, the Dutch govt. claimed them from 1829, the English govt. assumed a protectorate 1856, and they were attached to the govt. of Ceylon 1878.

KEEN, a. *kēn* [Ger. *kühn*; Dut. *koen*, daring, bold: O.Sw. *kyn*, quick, daring: Icel. *kænn*, wise]: eager; sharp; fine-edged; piercing; bitter; acute. KEEN'LY, ad.

KEEN—KEENE.

-kē. KEEN'NESS, n. *-nēs*, acuteness of mind; eagerness; sharpness; rigor.—SYN. of 'keen': vehement; penetrating; cutting; acrimonious.

KEEN, *kēn*, WILLIAM WILLIAMS, LL.D.: American surgeon; b. Philadelphia, 1837, Jan. 19. He was graduated at Brown University in 1859, and from Jefferson Medical College in 1862; and during the civil war period was an assistant surgeon in the Federal army. He then studied in Europe 1864-6, was at the head of the Philadelphia School of Anatomy 1866-75; and at the same time lecturer on pathological anatomy at Jefferson Medical College. From 1875 to 1890 he was professor of artistic anatomy at the Pennsylvania Academy of Fine Arts and also of surgery at the Women's Medical College 1884-9, and of surgery at Jefferson Medical College, becoming professor emeritus of the last institution in 1907. His specialty was the surgery of the nervous system. In 1890 he published experiments with the injection of filtered air for determination of rupture of the bladder and in 1891 proposed relieving spasmodic wry-neck by the exsection of the nerves supplying the posterior rotator muscles of the head. He has published: *Keen's Clinical Charts* (1870); *Early History of Practical Anatomy* (1870); etc., and became honorary fellow of the Royal College of Surgeons of England in 1900.

KEENAN, *kē'nan*, HENRY FRANCIS: American novelist; b. Rochester, N. Y., 1850, May 4. He served in the Federal army during a portion of the civil war, and was engaged in journalistic work 1868-82. He has published: *The Money Makers: a Social Problem*; *Trajan*; *The Aliens*; *The Iron Game*; *The Players*; *Conflict with Spain* (1898); *Fortune Wreckers and a Yankee Crusoe*; etc.

KEENE, *kēn*: city, cap. of Cheshire co., N. H.; on the Ashuelot river, and on the Boston & M., and the Fitchburg railroads; 42 m. n.w. of Fitchburg, 50 m. s.w. of Concord, 65 m. n. of Springfield, 92 m. n.w. of Boston. It occupies a wide plain surrounded by lofty hills, is handsomely laid out and ornamented, has a central square from which the principal avenues radiate, and is supplied with water from Silver Lake by an aqueduct 3 m. long. It has several churches, high and graded public schools, co. court-house, city-hall, public library, banks, and several daily and weekly newspapers. The industries comprise locomotive and car-works, steam tanneries, woolen and flannel mills, iron-foundry, granite quarries, pottery, and furniture and carriage factories. The city, known as Upper Ashuelot, was settled in 1734 and incorporated in 1753 when it took the name of Keene. It received its city charter in 1874. Pop. (1910) 10,068.

KEENE, LAURA: 1830-1873, Nov. 4; b. Chelsea, England: actress. She made her appearance on the stage first at the Lyceum Theatre, London, 1845, and achieved

KEENER—KEEP.

remarkable success in light comedy. 1852, Oct. 20, she gave her first American performance in Wallack's Theatre, New York, and played in the principal n. and e. cities till 1854, when she went to Cal. and thence to Australia. Returning to the United States, she opened the Metropolitan Theatre, New York, 1855, and the Varieties—afterward the Olympic—1856, and first produced the celebrated comedy *Our American Cousin*, supported by Joseph Jefferson (q.v.) as Asa Trenchard and Edward A. Sothorn as Lord Dundreary, 1858, Oct. 18. She subsequently organized a stock company; and it was while witnessing its performance of *Our American Cousin* in Ford's Theatre, Washington, 1865, Apr. 14, that President Lincoln was shot. She acted till within two years of her death.

KEENER, *kē'nēr*, JOHN CHRISTIAN, DD., LL.D.: American Methodist bishop; b. Baltimore, 1819, Feb. 7. After entering the Methodist ministry in 1841 he preached in Alabama till 1848 and was pastor and presiding elder in New Orleans 1848-61. He edited the *New Orleans Christian Advocate* (1865-70), and in the year last named was appointed a bishop of the Methodist Church, South. He has published: *Studies of Bible Truths* (1899); *The Garden of Eden and the Flood* (1900).

KEEP, v. *kēp* [AS. *cēpan*, to take, to hold, to catch, to observe: Fris. *kijpen*, to look; comp. Gael. *ceap*, to catch, to intercept: Scot. *kep*, to receive, to catch]: to hold; to retain, as a thing in one's power or possession; to hold in charge; to protect; to support; to feed; to have in one's pay; to remain undecayed or untainted, as food; to have the care of; to solemnize, as a day; to detain; to observe; to conceal; to remain in any state; to be durable; to adhere strictly to: N. condition, as in good *keep*; in *mediaeval fortification*, the central and principal tower of building of a castle, the stronghold to which the garrison retired as a last resort when the outer ramparts had fallen (See CASTLE): a fine specimen of the ancient keep is extant amid the ruins of Rochester Castle. KEEP'ING, imp.: N. care; custody; just proportion or harmony; in *painting*, an attention to the proper subserviency of tone and color in every part of a picture. KEPT, pt. and pp. *kēpt*: ADJ. held; maintained; supported. KEEP'ER, n. -*ēr*, one who or that which keeps; a plain, flat, gold ring worn by married women next the wedding-ring as a guard or keeper to it. KEEP'ERSHIP, n. the office of a keeper. KEEP'SAKE, n. a gift to be kept for the sake of the giver. TO KEEP BACK, to withhold; to restrain. TO KEEP COMPANY WITH, to associate with. TO KEEP DOWN, to restrain; to hinder. KEPT DOWN, in *painting*, subdued in tone or tint. TO KEEP FROM, to abstain; to withhold from. TO KEEP HOUSE, to be detained at home, as by ill-health; to act as housekeeper. TO KEEP ON, to go forward. TO KEEP TO, to adhere strictly to. TO KEEP IN,

KEEPING THE PEACE—KEEWATIN.

to conceal; to restrain. To KEEP OFF, to bear to a distance; not to admit. To KEEP ONE'S BED, to remain in bed for a time from sickness. To KEEP UP, to maintain; to continue; to remain unsubdued. To KEEP A DAY, to observe it; to be intent upon it. To KEEP ONE'S WORD, to observe it. To KEEP UNDER, to oppress; to subdue; to keep within limits or easy control. IN KEEPING WITH, in harmony or correspondence with other parts or details. KEEPER OF THE GREAT SEAL, an officer of high dignity in the English Constitution, who is a lord in virtue of his office—whose duties are now generally merged in those of the lord chancellor, the speaker of the house of lords. *Note.*—KEEP, the AS. *cépan* is a derivation from AS. *ceáp*, traffic, barter, price, and is thus connected with *cheap* and *cheapen*.—SYN. of 'keep, v.': to reserve; guard; restrain; hold back; tend; care for; preserve; continue; practice; maintain; sustain; remain in; dwell; withhold; debar from; last; be durable; dwell; adhere to; support; in *OE.*, to regard; attend;—of 'keeping': charge; preservation; guard; maintenance; support.

KEEPING THE PEACE: term in law including usually the avoidance of some specified offense. When a person has been assaulted, or is apprehensive of an assault, he may apply to justices to order the assaulting or threatening party with sureties to keep the peace. This is done by the justice ordering the party to enter into recognizances for his good behavior.

KEEVE. n. *kēv* [AS. *cyf*; Ger. *kufe*; Sw. *kyp*]: a large vessel for fermenting liquors; a mashing-tub: V. to set in a keeve for fermentation; to tilt a cart. KEEV'ING, imp. KEEVED, pp. *kēvd*.

KEEWATIN, *kē-wâ'tîn*, properly KEEWAYDIN: Indian name for the n.w. wind, but now adopted for the territory in Canada, lying west and south of Hudson Bay, and extending north from Ontario and Manitoba to the Arctic ocean. Keewatin comprises 470,416 sq. m.; by the act of 1876, Apr. 12, this piece of land was detached from the N. W. Territories, and erected into the 'District of Keewatin.' The southern portion exhibits some splendid scenery, cliffs rising hundreds of feet—in the case of Thunder Cape, to the height of 1,350—and in every variety of form. The country in the interior is rugged, but large portions are covered with fine timber. Rocky ledges, swamps, lakelets, patches of good arable land, larger areas of good or sandy soil, lakes and rivers teeming with fish, with many a fall, are its leading features. The northern part of Lake Winnipeg and its outlet, Nelson river, are in Keewatin. There are a large number of small lakes, all of which belong in the basin of Hudson bay. The Severn, Churchill, and Ferguson rivers cross the district and enter Hudson bay. Very rich mines have been discovered and are being

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worked, and in their neighborhood villages have sprung up, particularly Silver Islet and Prince Arthur's Landing on Thunder Bay, and Fort William on the Kaministiquia river, which has been selected as the eastern terminus of the Canada Pacific railway. The portion w. of Lake Winnipeg is, however, low and fertile.

KEG, n. *kěg* [Icel. *kaggi*: Norw. *kaggje*, a small cask: Scot. *cog*, a hooped wooden vessel: Gael. *cogan*, a small drinking-dish]: a small cask or barrel; formerly and more properly written *cag*.

KEHUL, n. *kě'hül*: powdered antimony and rosin, used by the Arab women in darkening their eyelids and eyebrows.

KEI, *kā*, RIVER, GREAT: important stream formerly dividing British from Independent Kaffraria; now inside the British frontiers. The Kei with its branches, all rising in the Stormbergen, drains a basin of about 7,000 sq. m. It is very rugged in its lower course, and its mouth, like all other Kaffrarian rivers, is hopelessly barred.

KEIFER, *kī'fēr*, JOSEPH WARREN: An American lawyer; b. in Clark co., O., 1836, Jan. 30; was educated at Antioch College; practiced law in Springfield, O., in 1858; served in the volunteer army during the civil war as major, lieutenant-colonel, colonel, and brevet brigadier-general and major-general; was a member of the Ohio senate 1868-70, and of the U. S. congress 1877-83; and was speaker of the house 1881-83. In the war with Spain he was a major-general of volunteers.

KEIR, or KIER, n. *kēr* [see *kir*, vat]: a bleaching-vat.

KEISKAMMA, *kīs-kām'mā*, RIVER: formerly the boundary between the Cape Colony and British Kaffraria (incorporated 1865); rises in the Amatola, and with its branches, the Chumie and Gaga, waters a fertile country.

KEIL, or KEEL, n. *kēl* [Gael. *cil*, keil: F. *chaille*, a rocky earth]: ruddle or red clay of a fine deep red, used for marking sheep, etc.; decomposed ironstone, forming a red chalk or ochre: V. to mark with ruddle. KEEL'ING, imp. KEELED, pp. *kēld*. See REDDLE.

KEITH, *kēth*, FRANCIS EDWARD JAMES, best known as MARSHAL KEITH: 1696, June 14—1758, Oct. 14; b. at the castle of Inverugie, Aberdeenshire; second son of William, ninth Earl Marischal of Scotland, and Lady Mary Drummond, daughter of the Earl of Perth. He and his elder brother, George, Earl Marischal, had for their preceptor their kinsman, Robert Keith, afterward a bishop in the Scottish Episc. Church, and author of two valuable historical works. The brothers took part, on the side of the House of Stewart, in the insurrection of 1715, and after its suppression, were attainted. Having effected his escape, Keith remained in France several years, improving his knowledge of the military profes-

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sion, and waiting for an opportunity of obtaining service. In 1719, with his brother and other Scottish noblemen, he sailed on the fleet fitted out by Cardinal Alberoni and the Spanish court for the invasion of Scotland. The Jacobites were defeated at Glenshiel by the royal army, under Gen. Wightman, and forced to retreat. The Spanish auxiliaries were ready to renew the battle, but the Highlanders dispersed, and Keith, after lurking among the mountains, crossed the country to Peterhead, and escaped to the continent. He continued in the Spanish service, but all his expectations of promotion were disappointed, in consequence of his firm attachment to the Prot. Episc. Church. Consequently he applied for admission to the Russian service, and received from Czar Peter II. a commission as major-general. He distinguished himself in the wars with the Turks and Swedes, but finding the Russian service in various respects disagreeable, he entered that of Prussia 1747. King Frederick knew his merits, and gave him the rank of field-marshal. From this time his name is associated with that of the king of Prussia, who relied as much on the military genius of Keith as on the diplomatic ability of his brother the Earl Marischal. Keith's talents became still more conspicuous on the breaking out of the Seven Years' War. He shared the doubtful fortunes of the king before Prague, and was present at the great victory of Rossbach, and at the retreat from Olmütz. His last battle was not distant. The Austrians under Daun, and the Prussians under their king, met at Hochkirch 1758, Oct. 14, Keith commanding the right wing. The Prussian army was beaten, and Keith, surrounded and overwhelmed by numbers while endeavoring to force his way at the bayonet-point, was shot through the heart. His body was recognized by Count Lacy, formerly his own scholar in the art of war, and was buried at Hochkirch.

KEITH, GEORGE: Scottish Quaker: b. probably in Aberdeenshire about 1639; d. Edburton, Sussex, England, 1716, Mar. 27. He was educated at Marischal College, Aberdeen; became a Quaker in 1662, and in 1677 he accompanied George Fox and William Penn to Holland on a missionary journey; came to Philadelphia in 1689; and was there accused of heresy and interdicted from preaching in 1692. He then held separate meetings of his followers, known first as Keithites and later as 'Christian Quakers.' Disowned by the yearly meeting of 1694, he established a congregation in which the Quaker externals were observed but the Lord's Supper and baptism were administered. In 1700 he conformed to the Anglican Church, in 1702-4 was a missionary in America for the Society for the Propagation of the Gospel, and from 1705 until his death was rector of Edburton, Sussex. Among his writings were: *The Deism of William Penn and his Brethren* (1699); *The Standard of the*

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Quakers Examined (1702); and *A Journal of Travels* (1706).

KELIS, n. *kēl'is* [Gr. *kēlis*, a stain; comp. *chēlē*, a claw or talon]: another name for *keloid*; a disease of the skin presenting a cicatrix-like appearance. KELOID, n. *kēl'oyd* [Gr. *eidōs*, resemblance]: a growth originating in scar tissue and consisting of an extension and hypertrophy of this tissue.

KELLER, *kēl'ler*, GERARD: Dutch writer: b. Gouda, 1829, Feb. 13. His best works are his books of travel, including: *A Summer in the North* (1861); *A Summer in the South* (1864); *Paris Besieged* (1871); *Murdered Paris* (1872); *Europe Sketched in All her Glory* (1877-80); *America, in Image and in Writing* (1887). Among his numerous novels may be named: *Within and Without* (1860); *From Home* (1867); *Over-Perfect* (1871); *The Privy Councillor*; *In Our Days* (1880); *Our Minister* (1883); *Flickering Flames* (1884); *Nemesis* (1885). He is the author also of books for the young, and several dramas.

KELLER, GOTTFRIED: German poet and novelist: b. Zürich, 1819, July 19; d. there 1890, July 16. Original in execution, he was a keen observer, genuinely artistic, and with a strong sense of humor, sometimes extravagantly indulged. In his best vein he goes straight to the heart. To romanticism in *motifs*, processes, and characters, he joined realism in execution. Among his works may be cited: *Der grüne Heinrich* (1854, 16th ed. 1897), his first novel; *Seldwyla Folk*, a collection of short stories (1856); *Romeo und Julie auf dem Dorfe* (1876); *Martin Salander* (1886). His collected poems appeared in 1883. By critics Keller is ranked among the best of German novelists. Consult: Brahm, *Gottfried Keller* (1883); Köster, *Gottfried Keller* (1900).

KELLER, HELEN: the daughter of Major A. H. Keller, was born at Tusculumbia, Ala., 1880, June 27. The most famous case of an educated, blind, deaf-mute. She completed a regular college course without the use of sight or hearing. She was entirely deprived of sight and hearing by a serious illness which she suffered at the age of 18 months. Her other senses remained intact. Her systematic education began just before she was seven years of age. Miss Anne M. Sullivan, her teacher, succeeded soon in leading her to grasp the conception that things had names, and could be asked for by these symbols which were spelled out by the deaf and dumb alphabet on the palm of her hand. In 1890, she was taught oral speech, by feeling how the vocal organs, lips, larynx, etc., were placed, and then trying to duplicate the positions and utter sounds. Her command of her voice is quite as good as that of many deaf-mutes, and yet lacks the frequent modulations and reflections of those who hear. She writes rapidly on the typewriter, and reads and writes

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as do the blind. She entered Radcliffe College, Cambridge, Mass., in 1900, and received the Bachelor of Arts degree in 1904, taking the full college course in the prescribed time. Three years before entering college, she had passed the entrance examinations in German, Latin and French, Ancient History and English. She is the author of *The Story of My Life* (1902); a charming essay, *Optimism*, and numerous magazine articles, all of which show marked literary ability. In connection with her literary work she has felt it her mission to promote the welfare of those who are blind or deaf.

KELLERMANN, *kě'ér-man*, F. *kā-lěr-mōng'*, FRANÇOIS CHRISTOPHE, Duke of Valmy: 1735, May 29—1820, Sep. 12; b. near Rothenburg, Bavaria. He entered the French army, and had risen to the rank of a *maréchal-de-camp* before the Revolution. He warmly espoused its cause, and 1791 became gen. of the army in Alsace. In 1792, he received command of the army of the centre on the Moselle, repelled the Duke of Brunswick, and delivered France by the famous cannonade of Valmy. His splendid bravery inspired his troops to a decisive victory. Yet, on allegation of treason against the republic, he was imprisoned ten months, and liberated only at the fall of Robespierre. He afterward rendered important services in Italy, and on the erection of the Empire he was made a marshal and a duke.

KELLEY, *kě'ī*, BENJAMIN FRANKLIN: American soldier: b. New Hampton, N. H., 1807, Apr. 10; d. Oakland, Md., 1891, July 17. In 1861, he recruited and became colonel of the first Virginia regiment enlisted in the Federal service, on May 17 became brigadier-general, captured Romney Oct. 26, and was for a time, until Jan. 1862, commander of the department of Harper's Ferry and Cumberland. In 1863, July, he was appointed to command the department of West Virginia; in Nov., 1863, destroyed the Confederate camp near Morefield, Va., and in 1864, Aug., defeated the enemy at Cumberland, Md., and New Creek and Morefield, Va. He was brevetted major-general of volunteers in 1865, and subsequent to the war was from 1876 superintendent of the Hot Springs (Ark.) reservation, and from 1883 an examiner of pensions.

KELLEY, EDGAR STILLMAN: American composer: b. Sparta, Wis., 1857, Apr. 14. He was graduated from the Stuttgart Conservatory of Music in 1880, and returning to this country settled in San Francisco, composing there incidental music to *Macbeth*. He removed later to New York, where he became special instructor in composition in the New York College of Music, and where his opera, *Puritana*, was produced in 1892. He has also composed an orchestral suite *Aladdin* symphony; music to *Prometheus Bound*; music for dramatic production of *Ben Hur* (1899); etc.

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KELLEY, JAMES DOUGLAS JERROLD: American naval commander: b. New York, 1847, Dec. 25. He was graduated from the United States Naval Academy in 1868; became lieutenant-commander in 1893 and commander in 1899. He has published: *The Question of Ships; Our Navy; American Men-o'-War; History of the Naval Experimental Battery; The Navy of the United States; A Desperate Chance; American Yachts; The Story of Coast Defense;* etc.; and is the naval editor of the *New York Herald*.

KELLEY, WILLIAM DARRAGH: 1814, Apr. 12—1890, Jan. 9; b. Philadelphia; statesman. He learned the printer's and jeweller's trades in Boston, and while following the latter began studying law and contributing to the newspapers. He returned to Philadelphia 1840, was admitted to the bar 1841, was attor.gen. of Penn. 1845-6, judge of the Philadelphia court of common pleas 1846-56. In 1860, he was a delegate to the national republican convention, and was elected representative in congress from the 4th district of Penn. as a republican. He served on some of the most important committees of the house, and received the popular sobriquet of 'Pig-Iron Kelley,' because of his constant efforts to promote the iron interests of his state. For some years he was senior of the house. Among his publications are: *Letters on Industrial and Financial Questions* (1872); *Letters from Europe* (1880); *The New South* (1887).

KEL'LEY'S ISLAND: principal of a group in Lake Erie, constituting a tp. of Erie co., Ohio, 3 m. from the mainland, 12 m. from Sandusky; 6—80 ft. above the lake level; 3,000 acres. It was known first as Island No. 6, then as Cunningham's; was purchased by Datus and Irad Kelley 1833-4, made a tp. 1840, first utilized for viniculture 1842, and produced its first wine 1850. Since then it has attained wide repute for grape-growing and wine-making, the principal grape being the Catawba. The basis of the soil is Devonian limestone, which rises close to the surface and is used largely for a variety of building purposes. On the island are numerous mounds and remains of earth-works containing early Indian relics, and on its n. side is the celebrated rock pronounced by Schoolcraft to be the most extensive, well sculptured, and best preserved inscription of the antiquarian period ever found in America. The island has been almost wholly denuded of its original growth of red cedar and other valuable trees. Mail, steamboat, and telegraph communications are maintained with Sandusky, and about 400 vessels annually enter and clear there in the grape, wine, and limestone trade. Pop. 1,174.

KELLOGG, kĕl'ōg, AMAS MONKHAM, A.M.: American educator: b. Utica, N. Y., 1832, June 5. He was graduated from the Albany (N. Y.) State Normal School in 1851 and was instructor there 1852-6. Since then he has

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held other educational posts and has edited the *School Journal* from 1874. He has published: *School Management*; *Life of Pestalozzi* (1891); *How to be a Successful Teacher* (1901); *Best Primary Songs* (1893); *Elementary Psychology* (1894); *Nature Study* (1900); etc.

KELLOGG, CLARA LOUISE: singer: b. Sumterville, S. C., 1842, July 12; daughter of George Kellogg, inventor and manufacturer. The family removed to New Haven 1843, and thence to New York 1856, where Miss Kellogg pursued a musical education with Millet, Rivarde, Manzochi, and Albites, supplemented by a course of lessons in London with Arditi. She made her first appearance at the Acad. of Music, New York, 1861, as Gilda in *Rigoletto*, and was well received at all her performances that season. In 1864, she achieved her first great success, as Marguerita in Gounod's *Faust*, which had never been given in the United States, and with it made her first tour of the principal American cities. This success led to a London engagement 1867, during which she sang at the Handel festival in the Crystal Palace. In 1868, she made a concert-tour of the United States, 1869-71 appeared in Italian opera in New York, 1872 sang at Drury Lane, London, with Christine Nilsson (q.v.), and at a private concert given by Queen Victoria; and on her return to the United States organized an English opera company. In 1876, she organized an Italian opera company, and at the close of her engagements with it retired from the operatic stage. Excepting a flattering engagement for Vienna and St. Petersburg 1880, she has since sung in concert only.

KELLOGG, EDGAR ROMEYN: an American military officer; b. in New York, 1842, Mar. 25; entered the volunteer service at the beginning of the civil war; transferred to the regular army; promoted 2d lieutenant 1862, Apr. 7; 1st lieutenant May 3 following; captain 1865, Feb. 16; major 1888, June 30; and brigadier-general 1899, Dec. 5; and was retired Dec. 15 following; distinguished himself in the battle of Murfreesboro, the Atlanta campaign, and at Jonesboro, Ga. At the beginning of the war with Spain he was in command of the 10th Infantry at the battle of San Juan Hill, Santiago, Cuba.

KELLOGG, ELIJAH: American Congregational minister and writer for the young: b. Portland, Me., 1813, May 20; d. Harpswell, Me., 1901, Mar. 17. He was graduated from Bowdoin College in 1840, from the Andover Theological Seminary in 1843, was pastor of the Congregational Church at Harpswell, Me., in 1844-55, in 1855-65 was chaplain of the Boston (Mass.) Seamen's Friend Society, was later for a time in charge of a congregation at Rockport, Mass., but soon returned to Harpswell, and there devoted himself to literary work. He published over a score of juveniles, including *The Elm Island Series*

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(1868-70); *Pleasant Cove Series* (1870-4); and *Good Old Times Series* (1877-82). But he is best known for his familiar blank verse addresses, *Spartacus to the Gladiators*, *Regulus to the Carthaginians*, and *Pericles to the People*. Consult: Mitchell, *Elijah Kellogg: the Man and His Work* (1903).

KELLOGG, GEORGE: American inventor: b. New Hartford, Conn., 1812, June 19; d. there 1901, May 6. Albert Kellogg, the botanist, was his brother. He was graduated from Wesleyan University in 1837, in 1841 became a manufacturer in Birmingham, Conn., removed in 1855 to New York, was a United States revenue officer in 1863-6, and later was active in manufacturing and experimentation at Cold Spring, N. Y. Among his inventions were a machine for the manufacture of jack-chain, with a capacity of a yard per minute; a type-distributer; an adding apparatus; and a dovetailing machine.

KELLOGG, MARTIN: American Latinist and educator: b. Vernon, Conn., 1828, Mar. 15; d. San Francisco, 1903, Aug. 26. He was graduated from Yale in 1850, from the Union Theological Seminary in 1854; having removed to California about 1855 there held a pastorate at Grass Valley, Nevada county; was professor of Latin and mathematics in the College of California (1860-9); and when the college was merged into the university held the chair of Latin and Greek in the latter institution in 1869-76. In 1876-94, he was professor of Latin language and literature; in 1890-3, acting president, and in 1893-9, president of the university. He resumed his professional duties in 1900. He published: *Ars Oratoria*, an edition of selections from Cicero and Quintilian (1872), and *The Brutus of Cicero* (1889).

KELLOGG, SAMUEL HENRY: American Presbyterian missionary and scholar: b. Quogue, Long Island, N. Y., 1839, Sep. 6; d. Landour, India, 1899, May 2. He was graduated at Princeton College in 1861 and at the Theological Seminary in 1864, and after being ordained to the Presbyterian ministry, went as a missionary to India, where he remained till 1877. He was professor of systematic theology in Western Theological Seminary 1877-86, and pastor of St. James' Square Presbyterian Church, Toronto, 1886-92. He returned to India in 1892 and remained there till his death. His publications include *A Grammar of the Hindu Language* (1876); *The Jews: or, Prediction and Fulfilment* (1883); *The Light of Asia and the Light of the World* (1885); *The Genesis and Growth of Religion* (1892); *From Death to Resurrection* (1885); etc.

KEL'LOGG, WILLIAM PITT: lawyer: b. Orwell, Vt., 1831, Dec. 8. In 1848, he removed to Ill.; 1854, was admitted to the bar; 1856 and 60, was delegate to the republican national conventions, and was republican presidential elector; 1861, was appointed chief-justice of

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Neb., and resigned shortly afterward to become col. of the 7th Ill. cav., and was promoted brig.gen.; 1865, appointed collector of New Orleans; 1868-71, was U. S. senator from La.; 1873, was declared elected gov., which led to an insurrection in New Orleans, federal military interference, a compromise, and his retention of the office; 1876, was unsuccessfully impeached; 1877-83, U. S. senator; and 1883-85, representative in congress.

KELLY, JAMES EDWARD: American sculptor: b. New York, 1855, July 30. He studied at the National Academy of Design, and up to 1881 was known as an illustrator of books and magazines. Since that time he has successfully devoted himself to sculpture, and chosen subjects from American history for treatment by his patriotic chisel; so great has been his success that he has won the title of 'Sculptor of American History.' His well known works include *Sheridan's Ride* (1878); *Paul Revere*, a statuette (1882); *Monmouth Battle Monument*, with five illustrative panels (1883-5); groups for the *Saratoga Monument* (1887); *Grant at Fort Donelson* (1886); *General Devens*, and the *Sixth New York Cavalry Monument* at Gettysburg (1890); *Call to Arms*; colossal figure for the *Troy Soldiers' Monument* (1891); *Buford Monument* at Gettysburg (1895); *Battle of Harlem Heights* (executed for the Sons of the Revolution at Columbia University, 1897); and a colossal monument to commemorate the defense of New Haven. A remarkable series of military portraits has also been produced by him. Forty generals of the civil war, including Grant, Sherman and Sheridan, gave sittings for the sculptor. A series illustrating the leading generals and admirals of the Spanish-American War has followed, witnessing to his skill and industry as a portrait sculptor. Wheeler, Dewey, and Sampson are included in this latter gallery of busts.

KELLY, JOHN: American politician: b. New York, 1821, Apr. 21; d. there 1886, June 1. After a public school education, he was apprenticed to the mason's trade, in 1845 established a successful business of his own, was elected alderman in 1854, in 1855-9 was a democratic representative from New York in the 34th and 35th congresses, and in 1859-62 and 1865-7 was sheriff of New York county. In 1868, he was the candidate of the Democratic Union for mayor, but was defeated by Oakey Hall; and in 1871, assisted Charles O'Connor, Samuel J. Tilden and others in the reorganization of Tammany Hall which followed the Tweed 'ring' troubles. He became comptroller of New York in 1876, but was removed in 1879 by Mayor Cooper. In 1878, he caused the city delegates to bolt the democratic state convention of that year, and was himself nominated for governor by the bolters on an independent ticket in opposition to Robinson, the regular candidate. He received 77,566 votes, and thus caused the election of Alonzo B.

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Cornell, republican. In 1885 and 1886, he was chairman of the Tammany Hall general committee. See TAMMANY HALL.

KELLY, WILLIAM: American inventor: b. Pittsburg, Pa., 1811, Aug. 22; d. Louisville, Ky., 1888, Feb. 11. He early turned his attention to invention, engaged in the forwarding and commission business at Pittsburg, Pa., and from 1846 in the iron business in Kentucky. In 1851, he finally perfected his process in decarbonizing iron by means of a current of air, and thus by a converter directly transforming pig-iron into steel. This method, 'Kelly's air-boiling process,' was the same as that patented by Sir Henry Bessemer in England in 1856 (or 1857), and Kelly asserted that Bessemer had gained knowledge of it through American workmen. Bessemer's application in the United States was refused, and the patent awarded to Kelly. Kelly's interests were safeguarded by a syndicate, and steel was first manufactured under his patents in the foundry at Wyandotte, Mich. He is said to have introduced Chinese labor into the United States.

KELP, n. *kělp* [a probable corruption of *kali*]: seaweed of various kinds. The term is applied also to the crude alkaline matter produced by the combustion of sea-weeds, of which the most valued for this purpose are *Fucus vesiculosus*, *F. nodosus*, *F. serratus*, *Laminaria digitata*, *L. bulbosa*, *Himanthalia lorea*, and *Chorda filum*. These are dried in the sun, then burned in shallow excavations at a low heat. About 20 or 24 tons of sea-weed yield one ton of kelp, which, in commerce, consists of hard, dark-gray or bluish masses which have an acrid, caustic taste and are composed of chloride of sodium, of carbonate of soda (formed by the decomposition of the organic salts of soda), sulphates of soda and potash, chloride of potassium, iodide of potassium or sodium, insoluble salts, and coloring matter. It was formerly the great source of soda (the crude carbonate); but this salt is now obtained at lower price and of better quality from the decomposition of sea-salt. A ton of good kelp will yield about eight lbs. of iodine (which is obtained solely from this source), large quantities of chloride of potassium, and additionally, 'by destructive distillation, a large quantity (four to ten gallons) of volatile oil, four to fifteen gallons of paraffine oil, three or four gallons of naphtha, and one and a half to four cwt. of sulphate of ammonia.'—Ansted's *Channel Islands*, p. 515. Except the iodine and chloride of potassium, none of these substances are obtained under the present treatment.

KELPIE, n. *kělpĩ*: in *Scotch myth.*, a water-sprite; a water-witch of malignant nature.

KELT, n. *kělt*: in *Scot.*, a salmon that has been spawning; a foul fish.

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KELT, n. *kělt*, **KELTIC**, n. *kěl'tík*: other spellings of **CELT** and **CELTIC**, which see.

KEL'TIE, **JOHN SCOTT**: Scottish geographer: b. Dundee, Scotland, 1840, Mar. 29. He has been editor of the *Statesman's Year Book* from 1880, is editor of the *Geographical Journal*, and has written extensively on geographical and scientific topics in newspapers and periodicals. He has published *History of Scottish Highlands and Clans* (1874); *Report on Geographical Education* (1886); *Applied Geography* (1890); *The Partition of Africa* (1894). He is a member of geographical societies all over the world.

KEL'TON, **JOHN CUNNINGHAM**: American soldier: b. Delaware co., Pa., 1828. He was graduated at West Point in 1851, received the commission of lieutenant in the infantry and served for six years in the frontier garrisons of Minnesota, Kansas and Dakota. At the conclusion of that period he was ordered to West Point as instructor in the use of small arms. During the civil war he returned to active service and in 1861 became purchasing agent for the Western Department. The same year he was put in command of the 9th Missouri volunteers, with the commission of colonel. In 1862, he was appointed to the staff of Major-General Halleck, as assistant adjutant-general, and in 1865 brevetted brigadier-general in the regular army. He was appointed after the war a staff colonel and assistant adjutant-general at Washington; and invented improvements in military firearms which met with the acceptance of the Ordnance Department. Among his works on military subjects may be mentioned a *Manual of the Bayonet* (1861).

KELVIN, Lord: title bestowed (1892) on Sir William Thomson (q.v.).

KEMAON', or **KEMAUN'**. See **KUMAON**.

KEMBLE, *kěm'bl*, **ADELAIDE**: singer: 1814—1879, Aug. 6; b. London, England; daughter of Charles Kemble and youngest sister of Frances Anne Kemble. She was educated for the lyric stage, made her first appearance in London, sang at the York festival 1835, appeared at Venice in the opera *Norma* 1839, in the principal Italian cities 1840, and English 1841, achieving success in *Norma*, *Figaro*, *Sonnambula*, and *Semiramide*. She married Edward Sartoris, of Italy, 1843, and retired to private life. She published *A Week in a French Country House*, 1867. Her son, Algernon Charles Sartoris, married Gen. Grant's daughter 1874.

KEMBLE, *kěm'bl*, **CHARLES**: actor: 1775, Nov. 25—1854, Nov. 12; b. Brecknock, in S. Wales; youngest son of Roger Kemble. He received his education, like his brother, John Philip, at Douai; and, 1794, Apr., made his first appearance at Drury Lane in the character of Malcolm. In 1806, July, he married Miss Marie Thérèse De Camp (1774—1838), who had distinguished herself in

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high-comedy. Kemble, on being appointed Examiner of Plays, relinquished the stage 1840, Apr. 10.—He was notable for cultivated conception and for polished humor, in the higher comedy.

KEM'BLE, FRANCES ANNE (MRS. FANNY KEMBLE): actress: 1809, Nov. 7—1893, Jan. 16; b. London, Eng.; daughter of Charles Kemble. She received a seminary education, became an actress to relieve her father from financial embarrassment, made her appearance first at Covent Garden 1829, Oct. 15, as Juliet, and established a lasting popularity the first night. She rapidly increased her Shakespearean repertory till it included Portia, Constance, and Queen Catharine, and supplemented it with Bianca, Belvidere, Camiola, Lady Teazle, Julia in *The Hunchback*, and Juliana in *The Honeymoon*. In 1832, she accompanied her father to the United States, and for two years they appeared together in the large cities. She made her last appearance as an actress in the Park Theatre, New York, 1834, June; and a few days afterward married Pierce Butler in Philadelphia. She retired to private life, lived alternately in Philadelphia and on her husband's estate in Ga.; and in 1846, on account of domestic disagreements, chiefly over her condemnation of slavery, she left her husband's home, and spent a year in Europe. In 1848, husband and wife were divorced to mutual satisfaction, and the latter resumed her maiden name. From 1849 till 1868 she frequently appeared before the public in England and America as a Shakespearean reader. She lived many years in Lenox, Mass., in Philadelphia 1873-77, and afterward in England. She was author of *Francis the First*, drama (London 1832); *A Journal of a Residence in America*, 2 vols. (1835); *The Star of Seville*, drama (1837); *Poems* (1844); *A Year of Consolation*, 2 vols. (1847); *Plays*, translations (1863); *Journal of a Residence on a Georgia Plantation* (1863); *Records of a Girlhood*, 3 vols. (1878); *Records of Later Life*, 3 vols. (1882); and *Notes on Some of Shakespeare's Plays* (1882).

KEM'BLE, JOHN MITCHELL: Anglo-Saxon scholar and historian: 1807—1857, Mar. 26; b. London; eldest son of Charles Kemble. He studied at Trinity College, Cambridge, where he took the degree of B.A. 1830, and afterward M.A. While an undergraduate he spent some time at Göttingen, under Jacob Grimm, which perhaps determined him toward Anglo-Saxon studies. He produced an edition (1833) of the poem of Beowulf (q.v.), to a second edition of which he added a translation, with glossary and notes. He edited for the English Historical Soc. a valuable collection of charters of the Anglo-Saxon period, *Codex Diplomaticus Ævi Saxonici*, 2 vols. (1839-40). His most important work, which contains the chief results of his researches, is *The Saxons in England*, 2 vols. (1849). This work was to have had two more volumes, when he died suddenly. Kemble was for many

KEMBLE—KEMEYS.

years editor of the *British and Foreign Review*; he also held the office of Censor of Plays.

KEMBLE, JOHN PHILIP: tragedian: son of Roger Kemble (1721—1802, strolling actor); b. Prescott, Lancashire, England. He received his education at a school in Worcester, afterward at a Rom. Cath. seminary in Staffordshire, finally at the English college of Douai, in France. On his return to England, he adopted the stage as his profession, making his first appearance at Wolverhampton 1776, Jan. 8. He made his first appearance at Drury Lane, 1783, Sep. 30, in *Hamlet*—always a favorite character of his—and 1790, he succeeded to the management of that theatre. In 1803, he purchased a share in Covent Garden Theatre, of which he also became manager. On the destruction of the building by fire, Kemble raised a new theatre, which was opened 1809, the management of which he retained till the close of his theatrical career. 1817, June, he took leave of his patrons in London; and a few days thereafter a public dinner was given him, under the presidency of Lord Holland. Thomas Campbell made his retirement from the stage the subject of a spirited set of verses. He finally took up his residence in Lausanne, Switzerland, where he died.

Kemble was a great actor—one of the very greatest in his limited range, which was the grave, solemn, or heroic personation of the loftier characters of the drama—kings, prelates, heroes. His figure was commanding, his voice sonorous and well modulated, though he lacked physical capacity for the most vehement or pathetic expression. His style was minutely precise and elaborate, founded on thorough study. He was successful especially in *Brutus*, *Cato*, and *Coriolanus*; and the ancient playgoers, who remembered his intonation and his Roman look, used to find the more modern stage comparatively unworthy of regard. His sister, ELIZABETH (KEMBLE) WHITLOCK (1761—1836), was an actress who gained high favor in the United States, and performed before Gen. Washington at Philadelphia. For his sister, SARAH KEMBLE, see SIDDONS, SARAH.

KEMEYS, EDWARD: American sculptor: b. Savannah, Ga., 1843, Jan. 31; d. 1907, May 11. He was educated in New York and served in the civil war as captain in the artillery. He resigned in 1866 and went west, where he saw something of Indian life, and became familiar with the habits and forms of big game. He returned to New York and worked as a civil engineer in the laying out of Central Park, but did not seriously choose the profession of art until 1870, when he resolved to become a sculptor. He went abroad in 1877 and his exhibits in Paris and London attracted attention, especially his *Fight between a Buffalo and Wolves*, in the Salon of 1878. He made American wild animals his specialty. He was, in short, the American Barye; his *Panther and*

KEMPER—KEMPIS.

Deer, his *Coyote* and *Raven*, are noteworthy for their fidelity to nature and life-like expression, and he was also remarkably successful in his figures of the North American Indian.

KEMPER, *kēm'pēr*, JAMES LAWSON: soldier: b. Madison co., Va., June 11, 1823; d. 1895, Apr. 7. He graduated at Washington College 1842, studied law, served as capt. through the Mexican war, was member of the Va. legislature 10 years and speaker two, was appointed col. of the 7th Va. regt. in the Confederate army 1861, promoted brig.gen. 1862, maj.gen. 1864, was in most of the battles on the peninsula, and at Gettysburg was wounded and captured. He was elected gov. of Va. as a democrat 1873, and after the expiration of his term engaged in farming.

KEM'PER, REUBEN: 1770—1826, Oct. 10; b. Fauquier co., Va.: soldier. He emigrated to Ohio 1800, became a land-surveyor in Mississippi, led a movement for the expulsion of the Spaniards from Florida 1808, was kidnapped by Spanish authority and rescued by U. S. troops, was major and colonel in the insurrectionary expedition against Mexico 1812, joined the U. S. army as a volunteer and rendered Gen. Jackson important service in the defense and battle of New Orleans, and after the war was engaged in cotton planting till his death.

KEMPF, LOUIS: an American naval officer: b. near Belleville, Ill., 1841, Oct. 11; was graduated at U. S. Naval Academy 1861; appointed acting master 1861; lieutenant 1862; lieutenant-commander 1866; commodore 1876; captain 1891; and rear-admiral 1899; participated in the battle of Port Royal, S. C.; was on the flagship *Wabash* and others on the Atlantic and Gulf coast to end of civil war; commanded a howitzer in the expedition against Port Royal ferry; took part in the bombardment of Sewell's Point, Va., and the reoccupation of Norfolk, Va.; commanded the U. S. monitor *Monterey*; the receiving ship *Independence* 1896-99; commandant at Mare Island Navy Yard 1899-1900; on Asiatic station 1900-1901; declined to join foreign admirals in firing on Taku forts, China, 1900; retired in 1903, Oct.

KEMPIS, *kēm'pīs*, THOMAS À [from Kempen in Rhenish Prussia, his birthplace]: family name, Hämerken, latinized *Malleolus*, 'Little-hammer': 1379 (or 80) —1471, Aug. 8. He was educated at Deventer, and in 1400 entered an Augustinian convent in the diocese of Utrecht, of which his brother John was prior. Here he took the vows 1406. He entered into priest's orders 1413, and was chosen sub-prior 1429, to which office he was re-elected 1448. The character of Kempis, for sanctity and ascetic learning, stood very high among his contemporaries, but his historical reputation rests almost entirely on his writings—sermons, ascetical treatises, pious biographies, letters, and hymns. Of these, however, the

KEN.

Only one which deserves special notice is the celebrated ascetical treatise *On the Imitation of Christ*, the authorship of which is popularly ascribed to him. This celebrated book, setting forth the exercises of a most devout, tender, yearning, and loving faith toward the Son of God, has had, next to the sacred Scripture itself, the largest number of readers of which sacred literature, ancient or modern, can furnish an example. In its pages, according to Dean Milman (*Latin Christianity*, VI. 482), 'is gathered and concentrated all that is elevating, passionate, profoundly pious in all the older mystics. No book, after the Holy Scripture, has been so often reprinted; none translated into so many languages, ancient and modern,' extending even to Greek and Hebrew, or so often retranslated. Sixty distinct versions are enumerated in French alone, and a single collection, formed at Cologne within the present century, comprised, though confessedly incomplete, 500 distinct editions. It is strange that the authorship of a book so popular, and of a date comparatively so recent, should still be the subject of one of the most curious controversies in literary history. The book, till the beginning of the 17th c., had been ascribed either to Thomas à Kempis or to the celebrated John Gerson (q.v.), chancellor of the Univ. of Paris, except in one ms., which, by a palpable anachronism, attributes it to St. Bernard; but in 1604, the Spanish Jesuit, Mauriquez, found a ms. in which it is attributed to John Gersen, or Gesen, Abbot of Vercelli, whom he regarded as clearly a distinct person from the Chancellor Gerson. From the time of this discovery, three competitors have divided the voices of the learned — not alone individuals, but public bodies, universities, religious orders, the Congregation of the Index, the parliament of Paris, and even the French Acad.; and the assertors of these respective claims have carried into the controversy much polemical acrimony. Walter Hilton, an English monk, also has been proposed as author; but the learned have now generally come to concede the honor to Kempis. Indeed the question is between him and Gerson, as there is no evidence that the John Gersen (advocated by the Benedictines) ever lived. See Kettlewell's *Authorship of the De Imitatione* (1877). The theology of the *Imitation* is almost purely ascetical, and (excepting the 4th book, which regards the Eucharist, and is based on the doctrine of the real presence) the little book has been used indiscriminately, and has been found spiritually edifying by Christians of all denominations. See Kettlewell, *Thomas à Kempis and the Brothers of the Common Life* (1882).

KEN, v. *kĕn* [Icel. *kenna*; Norw. *kjenna*; Dut. *kennen*, to know, to perceive by sense; Scot. *ken*, to know; *kent*, knew, known]: to see at a distance; to descry: N. view; reach of sight or knowledge. KEN'NING, imp. KENNED, pp. *kĕnd*.

KEN—KENDALL.

KEN, *kĕn*, THOMAS, D.D.: nonjuring Bishop of Bath and Wells, revered for saintly life, gentleness, and firmness. 1637-1711, Mar. 19; b. Little Berkhamstead, Herts. He studied at Oxford, held in succession several small country livings, and 1672 settled in Winchester, as prebendary and chaplain to the bishop. He was chaplain to Princess Mary, wife of William of Orange, for a year; and, 1680, became one of the chaplains of King Charles II. He was consecrated Bishop of Bath and Wells 1685. When James II. issued his *Declaration of Indulgence*, 1688, Ken was one of the seven bishops who refused to read it, and were sent to the Tower in consequence; but, having sworn allegiance to James, Ken found himself unable, in conscience, to take the oath to William of Orange. He was therefore deprived of his bishopric 1691, and subsequently lived in retirement with his friend, Lord Weymouth, at Longleat, in Somerset, where he died. Of his poetical works (4 vols. 1721) the best known are the morning and evening hymns, 'Awake, my Soul,' and 'All praise, my God.' The familiar doxology in long metre, 'Praise God, from whom all blessings flow,' was composed by him. Prose works were: a *Manual of Prayers* (1674), and his *Exposition on the Church Catechism* (1685). See *Life* by Anderdon (2d ed. 1854).

KEN'DAL, MARGARET BRUNTON ROBERTSON: (GRIMSTON), English actress: b. Great Grimsby, 1849, Mar. 15. She was a sister of T. W. Robertson, the dramatist; was known on the stage as 'MADGE ROBERTSON' and made her first appearance in London, as Ophelia, in 1865. She soon gained a reputation as an excellent actress of high comedy. On her marriage to W. H. Grimston (q.v.) in 1869 she assumed with him the stage name of Kendal. The Kendals made several visits to America after 1889 and secured favorable notice wherever they were seen.

KENDAL, WILLIAM HUNTER: (WILLIAM HUNTER GRIMSTON), English actor: b. London, 1843, Dec. 16. After his marriage to Madge Robertson (see KENDAL, M. B. R.) in 1869, he played leading parts with her. He commenced his career on the stage at Glasgow in 1862, where he remained till 1866, supporting such stars as Mr. and Mrs. Charles Kean, Helen Faucit, G. O. Brooks, etc.; made his first appearance in London at the Haymarket Theatre in 1866, in *A Dangerous Friend*; played there such parts as Charles Surface, Captain Absolute, Romeo, Orlando, Pygmalion, and in 1879-88 was lessee and manager with John Hare of the St. James Theatre, where were produced *The Queen's Shilling*; *The Squire*; *Impulse*; *The Ironmaster*; *A Scrap of Paper*; *Lady of Lyons*; and *As You Like It*. He toured with Mrs. Kendal in the United States and Canada in 1889-95.

KEN'DALL, AMOS: American journalist and statesman: b. Dunstable, Mass., 1789, Aug. 16; d. Washington, D. C., 1869, Nov. 11. He was graduated from Dartmouth

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in 1811; studied law at Groton, Mass.; in 1811-14, was admitted to the bar at Frankfort, Ky.; in 1814, was postmaster and editor of the *Patriot* at Georgetown, Ky.; in 1815-6 and in 1816-28, co-editor and part owner of the *Argus of Western America*, at Frankfort. In 1829, he was appointed fourth auditor of the United States treasury, and during the Jackson administration he was extremely influential. He aided in the formation of the President's anti-bank policy (see JACKSON, ANDREW), was a special treasury agent to conduct negotiations with state banks, and is thought to have written several of Jackson's state papers. Appointed postmaster-general by Jackson in 1835, he was retained by Van Buren, but in 1840 resigned because of ill health. He cleared the post-office department of debt, and introduced numerous reforms. He established *Kendall's Expositor*, bi-weekly, in 1841, and the *Union Democrat*, weekly, in 1842, but both journals shortly ceased publication. In 1845, he became associated with S. F. B. Morse (q.v.) in the ownership and management of the Morse electric telegraph patents, and by his able direction ensured their commercial success and a fortune for himself. He gave largely in Washington for philanthropic purposes. Though calling himself a Jackson democrat, he strongly opposed secession. He wrote an incomplete *Life of Andrew Jackson, Private, Military, and Civil* (1843); *Full Exposure of Dr. C. T. Jackson's Pretensions to the Invention of the Electro-magnetic Telegraph* (1867), and an *Autobiography*, posthumously published (1872).

KENDALL, GEORGE WILKINS: American journalist: b. Amherst (now Mount Vernon), N. H., 1809; d. Oak Springs, Tex., 1867, Oct. 22. Settling in New Orleans in 1835, he was one of the founders of the *New Orleans Picayune* in 1837, which became under his direction one of the leading journals of the South. He wrote *Narrative of the Texas Santa Fe Expedition* (1844), an expedition in which he took part; and *The War Between the United States and Mexico* (1851).

KENDALL, HENRY CLARENCE: Australian poet: b. Ulladalla district, New South Wales, 1841, Apr. 18; d. Redfern, near Sydney, 1882, Aug. 1. He became a lawyer's clerk at Sydney in 1860; in 1863, a clerk in the lands department of the New South Wales public service; later was in the colonial secretary's office; in 1869-73, was active as a journalist at Melbourne; and for some time previous to his death was an inspector of forests. His chief volumes are: *Leaves from an Australian Forest* (1869), and *Songs from the Mountains* (1880). He has been called the 'poet of the bush' because of his skilful delineation of the character of Australian landscape. In 1886, appeared a collected edition of his verse, with a memoir.

KENDALL, WILLIAM SERGEANT: American painter:

KENDRICK—KENESAW.

b. Spuyten Duyvil, N. Y., 1869, Jan. 20. He began as a member of the Art Students' League of New York, and subsequently was a pupil of Thomas Eakins of Philadelphia. He went to France and attended the Ecole des Beaux Arts, and also studied under Olivier Merson. He is equally successful in figure, portrait, and landscape, and has received several honors in acknowledgment of his merit as a fine colorist and powerful draftsman. One of his best pictures is *The End of the Day*, in which tender sentiment is united with workmanship of excellence.

KENDRICK, *kĕn'drĭk*; ASAHEL CLARK, D.D., LL.D.: educator; b. Poultney, Vt., 1809, Dec. 7; d. Rochester, N. Y., 1895, Oct. 21. He graduated at Hamilton College 1831, was prof. of Greek in Madison (now Colgate) Univ. 1832-50, and 1851 to 1895 he held a similar chair in Rochester Univ., beside teaching Hebrew and Greek in Rochester Theol. Seminary. He was a member of the American committee on the revision of the New Test., 1872-80, was ordained a Baptist minister, but never held a pastorate. He received the degree D.D. from Union College 1845, LL.D. from Lewisburg Univ. 1870. Besides magazine and review articles, his publications include: *A Child's Book in Greek; Introduction to the Greek Language* (1833); *Greek Ollendorff* (1851); *Echoes, or Leisure Hours with the German Poets* (1855); *Life and Letters of Mrs. Emily C. Judson* (1860); *Our Poetical Favorites*, 3 vols. of selections (1870, 75, 80); *The Anabasis of Xenophon, with Notes and Vocabulary* (1873); *Meyer's Commentary on John*, revised with notes (1885); etc.

KEN'DRICK, JOHN: about 1745-1800; b. Boston: navigator. He was bred to the sea, served as first lieutenant on the Mass. war vessel *Rising Empire* 1776, and commanded a privateer during the remainder of the revolutionary war. In 1787 some Boston merchants fitted out an expedition consisting of the brig *Columbia* and the sloop *Washington* for the exploration of the n.w. coast of America and the islands of the Pacific, and gave Kendrick command, with Robert Gray (q.v.) second. He reached Nootka Sound 1788, Sep., wintered there, made a voyage to China, returned and explored the Nootka region, traversed the strait of Juan de Fuca, and discovered a strait which he named Mass. Sound. In the meantime, having changed vessels with Capt. Gray, the latter discovered the river which he named Columbia from his brig. 1791, May 11, Kendrick was awarded a medal by congress for his discoveries. Late in 1791 he made a voyage to Oceania and the s. seas, and opened a direct sandal-wood trade between Hawaii, China, and the United States.

KENESAW, *kĕn-ĕ-sā'*, MOUNTAIN: a mountain in Georgia, 25 m. n.w. of Atlanta. It is famous as the

KENESAW MOUNTAIN—KENITES.

scene of a battle in the civil war between the Union troops under Sherman, and the Confederates under Johnston.

KENESAW MOUNTAIN, BATTLE OF: On the night of June 18, 1864, Gen. J. E. Johnston fell back before Gen. Sherman's persistent advance and took a new line with Kenesaw Mountain as its salient, his right wing thrown back so as to cover Marietta, and his left covering the railroad back to the Chattahoochee. Sherman worked to the right, threatening the railroad, and was attacked by Hood's corps at Kolb's Farm, June 22. After much study of the ground, Sherman concluded that he had no alternative but to assault Johnston's line or turn his position. Orders were given that on the 27th McPherson should assault near Little Kenesaw and that Thomas should assault about a mile farther south. Kenesaw was strongly intrenched and held by Loring's and Hardee's corps, Loring on the right, opposite McPherson, Hardee on the left, opposite Thomas. About 9 a. m. of the 27th the troops moved to the assault. A part of Logan's Fifteenth corps, formed in two lines, fought its way up the slope of Little Kenesaw, carried the Confederate skirmish-pits, and tried to go farther, but was checked by the rough nature of the ground and the fire of artillery and musketry. Logan's assault failed, with a loss of 600 men, and his troops were withdrawn to the captured skirmish-pits. About a mile to the right Thomas assaulted with Newton's and Davis' divisions. The troops charged up the face of the mountain, drove in the skirmish-line, and reached the main works, but were unable to carry them under the heavy fire of canister and musketry at short range; after heroic effort and the loss of Gens. C. G. Harker and Daniel McCook, commanding brigades, and 1,580 killed, wounded, and missing, fell back and intrenched 75 yards from the enemy's works. The assault was over by 11:30 a. m., and was a failure. It was the most serious reverse sustained by Sherman in the campaign. The entire Union loss was nearly 2,500; Johnston admits a Confederate loss of 808 killed and wounded.

KENIA, *kě-ně'a*, Mt.: great mountain mass in e. Africa, rather more than one degree s. of the equator, and not far n. of Kilimanjaro. It rises far above snow-level and hence is known also as Doenyo Ebor, or White Mountain. Dr. Krapf, the first European to see its two snowy cones, estimated its height 18,000 feet.

KENITES, *kěn'īts*: small nomadic tribe variously regarded as belonging to the Amalekite and Midianite families. They lived in Canaan in Abraham's time, about Sinai during a part of the wandering of the Israelites, near the encampment of the Israelites during the march to Palestine, and afterward in the n. part of Canaan, and in the extreme s. near Judah in Saul's time.

KENNAN—KENNEBUNKPORT.

Both Saul and David befriended them for the kindness of their ancestors to Israel in the wilderness, and David allowed them to live in the cities; but they did not wholly give up their nomadic habits. See Gen. xv. 19; Judg. i. 16; Num. x. 29, xxiv. 21, 22; Judg. iv. 11; I Sam. xv. 6, xxvii. 10, xxx. 29; Ex. iii. 1.

KENNAN, *kĕn'an*, GEORGE: traveller; b. Norwalk, Huron co., O., 1845, Feb. 16. He received a public-school education, studied telegraphy, became asst. chief operator in the Cincinnati office 1864, and made his first long journey to Kamtchatka 1864-5. In 1865 he entered the service of the Russo-American Telegraph Company, and spent three years exploring, locating a route, and constructing a telegraph line between the Okhotsk Sea and Behring Strait in Siberia. In 1870-1 he made extensive explorations in Russia, and 1885-6 explored the Russian Altai and visited all the convict-prisons and mines in n. Russia and Siberia. On his return to the United States he published a series of illustrated articles on Siberia and the Russian exile system in the *Century* magazine (1888-9), which caused the suppression of that publication through Russia 1889. He also lectured on the convict system 1889-90, and accompanied the U. S. scientific party to Martinique after the eruption of Mount Pelee 1902. He has a keen eye as an explorer, and gives evidence of intrepidity and command of resources. He published in book form: *Tent Life in Siberia* (1870); *Campaigning in Cuba* (1890); *Siberia and the Exile System* (2 vols., 1892); *Folk Tales of Napoleon* (1902); *The Tragedy of Pelée* (1902); etc. In 1904 he went to Japan to report the Russo-Japanese war for *The Outlook*.

KENNEBEC, *kĕn-ĕ-bĕk'*, RIVER: rising in Moosehead Lake, in the w. of Maine, and flowing southerly into the Atlantic Ocean, after receiving the Androscoggin, 18 m. from its mouth. On its banks are the important towns of Bath, Gardiner, Hallowell, and the state capital, Augusta. It is navigable by ships to Bath, 12 m.; by steam-boats to Hallowell, 40 m. In its course of 150 m., this river falls 1,000 ft., affording abundant water-power. At Augusta are falls, increased by a dam, 584 ft. long, supplying water to large factories, saw-mills, etc.

KENNEBUNK, *kĕn-ĕ-bŭngk'*: post village and tp. in York co., Me.; on the Kennebunk and Mousan rivers and the Boston and Maine railroad; 3 m. from the Atlantic Ocean, 25 m. s.w. of Portland. The p. v. contains several churches, high schools, library, banks, newspaper, and several ship-yards, has a coasting trade; and manufactures twine, boots and shoes, lumber, leather-board, leatheroid, etc. Pop. (1910) 3,099.

KENNEBUNKPORT, *kĕn-ĕ-bŭngk-pōrt'*: town in York co., Me.; on the Atlantic Ocean at the mouth of the Kennebunk river, and on the Boston & Maine railroad; 4 m. s.e. of Kennebunk, 10 m. s. of Biddeford. The

KENNEDY—KENNICOTT.

town contains several churches, graded schools, and public libraries; has a fine harbor and valuable ship-building and navigation interests; and is a popular summer resort, having good hotels and boarding-houses. It was formerly known as Cape Porpoise, incorporated as Arundel 1717, name changed as at present 1821. Pop. 2,150.

KEN'NEDY, JOHN PENDLETON, LL.D.: 1795, Oct. 25—1870, Aug. 18; b. Baltimore: author. He graduated at the Univ. of Md. 1812; was admitted to the bar 1816; served in the legislature 1820-24; was member of congress 1835-42, presidential elector on the Harrison ticket 1840, and chairman of the house committee of congress on commerce 1841-2; was re-elected member of the legislature and chosen speaker of the house of delegates 1846; was appointed sec. of the navy 1852, and aided in fitting out Com. Perry's Japan expedition and Dr. Kane's second Arctic voyage; was a strong Unionist during the civil war; and at its close spent several years in European travel. His numerous publications include *The Swallow Barn* (1832); *Horseshoe Robinson* (1835); *Rob of the Bowl* (1835); *Annals of Quodlibet* (1840); *Memoirs of the Life of William Wirt* (2 vols., 1849; rev. ed. 1850); and many lectures, addresses, and essays. At his death he was provost of the Univ. of Md., vice-president of the Md. Hist. Soc., chairman of the board of trustees of the Peabody Acad. of Baltimore, and trustee of the Peabody Educational Fund.

KENNEL, n. *kěn'ěl* [Norm. F. *kenil*; F. *chenil*—from mid. L. and It. *canilē*, a place where dogs are kept—from L. *cānis*, a dog: Gael. *coineal*, a place for dogs—from *coin*, dogs]: a house or cot for dogs; a pack of hounds; a haunt; a low or worthless habitation: V. to lodge or dwell as a dog or fox; to keep or confine in a kennel. KEN'NELLING, or KENNELING, imp. KEN'NELLED, or KENNELED, pp. *-ēld*.

KENNEL, n. *kěn'ěl* [OF. *canel*; F. *chenal*, a gutter, a channel—from L. *canālis*, a channel, a water-conduit]: the water-course of a street; a puddle.

KENNICOTT, *kěn'nī-kot*, BENJAMIN, D.D.: eminent Hebraist: 1718, Apr. 4—1783, Sep. 18; b. Totness, Devonshire, England. He was educated at Oxford, where he distinguished himself. He took his degree, M.A., 1750, having been previously elected a fellow of Exeter College; 1767 he was appointed Radcliffe librarian; and 1770, Canon of Christ Church, Oxford, where he died. The whole interest and importance of Kennicott's life are comprised in his great undertaking for the improvement of the Hebrew text of the Old Testament. In 1753, he published a work, *The State of the Printed Hebrew Text of the Old Testament Considered*. This contained, among other things, observations on 70 Hebrew MSS., with an extract of mistakes and various readings; and strongly

KENNY—KENRICK.

enforced the necessity for a much more extensive collation, to ascertain or approximate toward a correct Hebrew text. He undertook to execute the work in the course of 10 years, and labored, until his health broke down, from 10 to 14 hours a day. In spite of considerable opposition from Bishops Warburton, Horne, and other divines, Kennicott succeeded in enlisting the sympathies and obtaining the support of the clergy generally. More than 600 Hebrew mss. and 16 mss. of the Samaritan Pentateuch were collated, with the assistance of English and continental scholars. The first vol. of his edition of the Hebrew Bible (*Vetus Testamentum Hebraicum, cum Variis Lectionibus*) appeared 1776, and the second 1780, accompanied by a very useful and instructive dissertation. The text chosen was that of Van der Hooght, and the various readings were printed at the bottom of the page. The *Variæ Lectiones Veteris Testamenti* (Parma 1784-88), published by De Rossi, is a valuable addition to Kennicott's Hebrew Bible. Jahn published at Vienna (1806) a very correct abridgment, embracing the most important of Kennicott's readings.

KEN'NY, SIR EDWARD: Canadian statesman; b. County Kerry, Ireland, 1800; d. Halifax, N. S., 1891, May 16. He removed to Halifax in 1824, where he engaged in business, and was mayor at one time. He was member for 26 years of the legislative council of Nova Scotia, during 11 of which he was president; served as receiver-general of Canada 1869-79; president of the privy council 1869-70; and senator 1867-70; being knighted in the year last named.

KENOGENESIS, n. *kěn'ō-jěn'ě-sīs* [Gr. *kenos*, void, empty; *genēsis*, origin]: vitiated evolution. KEN'OGENET'IC, a. *-ět'ik*, pertaining to vitiated evolution.

KENOSHA, *kē-nō'sha*: city, cap. of Kenosha co., Wis., on Lake Mich. and the Chicago and Northwestern railroad; 30 m. s. of Milwaukee, 51 m. n. of Chicago. It is on a bluff overlooking a safe and commodious harbor, and is an active trading and manufacturing centre, having steamer communication with many of the ports on the Great Lakes. Its manufactured products include leather, furniture, typewriters, wagons, lamps, machinery, flour, etc. Kenosha contains Kemper Hall School, Simmons Memorial Library, and other institutions, and has municipal waterworks. Pop. (1910) 21,371.

KENRICK, *kěn'rik*, FRANCIS PATRICK, D.D.: 1797, Dec. 3—1863, July 8; b. Dublin: Rom. Cath. archbishop. He was educated in the College of the Propaganda at Rome, ordained a priest and appointed director of the Rom. Cath. Theol. Seminary at Bardstown, Ky., 1821, was theologian to Bp. Flaget at the Baltimore council, and appointed co-adjutor bp. of Philadelphia 1830, founded the Theol. Seminary of St. Charles Borromeo in Philadelphia 1838, became abp. of Baltimore 1851, apostolic

KENSETT—KENT.

delegate to preside at the Baltimore council 1852, and primate of the Rom. Cath. Church in the United States 1859. He was an accomplished linguist, profound theologian, and able controversialist, and was author of numerous publications. His brother, PETER RICHARD KENRICK, D.D., Rom. Cath. archbishop (b. Dublin, 1806, Aug. 17; d. St. Louis, Mo., 1896, Mar. 4), came to the United States, 1833, was appointed coadjutor bp. of St. Louis, 1841, succeeded as bp. 1843, and became the first abp. of the archdiocese of St. Louis 1847.

KENSETT, *kěn'sět*, JOHN FREDERICK: 1816, Mar. 22—1872, Dec. 16; b. Cheshire, Conn.: artist. He studied engraving with Alfred Daggett, went to Europe 1840 and supported himself by engraving while studying painting; exhibited his first picture, *Windsor Castle*, in the Royal Acad. London, 1845; spent two years in Rome, and established himself in New York 1848. In 1849 he was elected a member of the National Acad. of Design, and 1859 appointed a member of the National Art Commission to superintend the decoration of the national capitol. His paintings were almost exclusively landscapes, and excepting his *Windsor Castle*, *View on the Arno*, and *The Shrine*, American in subject. After his death his brother presented 38 of his paintings to the Metropolitan Museum of New York.

KENSINGTON GARDENS, *kěn'sīng-ton*: public ornamental park in London on the w. side of Hyde Park, from which it is partly separated by the Serpentine. It is traversed by walks and ornamented with rows and clumps of noble trees. Near the w. border of the park stands Kensington Palace, an edifice of brick, originally the seat of Heneage Finch, Earl of Nottingham and Lord Chancellor of England, and afterward bought by King William III. William III., Queen Mary, Queen Anne, and George II. all died in this palace, and here Queen Victoria was born. The gardens at first consisted of the grounds attached to the palace, and were only 26 acres in extent, but have been frequently enlarged, and now are two and a half m. in circuit. In South Kensington the chief attractions are the South Kensington or Victoria and Albert Museum, the Indian Museum, the Natural History Museum, and the Imperial Institute.

KENT, *kěnt*, CHARLES FOSTER, PH.D.: American Biblical scholar; b. Palmyra, N. Y., 1867, Aug. 13. He was graduated at the universities of Yale (1889) and Berlin (1892), and the following year became an instructor in the University of Chicago. In 1895 he was elected professor of Biblical literature and history at Brown University, a position which he held until 1901. He is at present Woolsey professor of Biblical literature at Yale University. Among his writings are: *Outlines of Hebrew History* (1895); *The Wise Men of Ancient Israel and their Proverbs* (1895); *History of the Hebrew Peo-*

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ple, the United Kingdom (1896); *History of the Hebrew People, the Divided Kingdom* (1899); *Messages of the Earlier Prophets* (1899); *Messages of the Later Prophets* (1900); *The Messages of Israel's Lawgivers* (1902); *Narratives of the Beginnings of Hebrew History* (1904); *Israel's Historical and Biographical Narratives* (1905); etc. He has also edited numerous works.

KENT, EDWARD AUGUSTUS, DUKE OF: 1767, Nov. 2—1820, Jan. 23; b. England: fourth son of King George III., and father of Queen Victoria. He was educated at Göttingen and Geneva, entered the army 1790, served in the attack on the French W. India Islands, was appointed governor of Nova Scotia and commander-in-chief of the British forces in N. America 1796, became governor of Gibraltar 1802, and married the German princess Maria Louisa Victoria, daughter of the Duke of Saxe-Coburg, and widow of the Prince of Leiningen 1818, May 20, from which marriage Queen Victoria was born 1819, May 24.

KENT, JACOB FORD: an Amer. military officer; b. in Philadelphia, Pa., 1835, Sept. 14; entered the army as 2d lieutenant of the 3d U. S. Infantry, 1861, May 6; promoted 1st lieutenant, July 31 following; captain, 1864, Jan. 8; major, 1885, July 1; lieutenant-colonel, 1891, Jan. 15; colonel, 1895, April 26; and brigadier-general, 1898, Oct. 4; and was retired Oct. 15 following. He served in the volunteer army in the civil war; distinguished himself at the battle of Spottsylvania, Va.; and was active in Cuba and the Philippines.

KENT, JAMES, LL.D.: 1763, July 31—1847, Dec. 12; b. Philippi, Putnam co., N. Y.: lawyer. He graduated at Yale College 1781; was admitted to the bar 1785; settled in Poughkeepsie, was a member of the state assembly 1790-92; removed to New York and became a master in chancery and prof. of law in Columbia College 1793; was re-elected member of the assembly 1796; appointed recorder of New York 1797; judge of the supreme court 1798; chief justice 1804; and chancellor 1814. In 1823 he was retired on reaching the constitutional age-limit, and resumed his professorship. His publications include discussions on the constitutional history of the United States (1797); *Revised Statutes of the State of New York*, of which he was joint editor (1802); *Summary of the First Ten Lectures*, in Columbia College (1824); *Commentaries on American Law* (4 vols., 1826-30, 2d ed. 1832; 6th, 1847; 12th, 1884); *On the Charter of the City of New York and on the Powers of the Mayor, Aldermen, and other Municipal Officers* (1836, repub. 1856); besides numerous special papers and addresses.

KENT, WILLIAM: 1685-1748, Apr. 12; b. Yorkshire, England: landscape gardener. He was apprenticed to a coach painter, went to London to engage in portrait and historical painting, spent 1710-19 studying art in Rome,

KENT ISLAND—KENTUCKY.

and from 1720 till his death was under the patronage of Lord Burlington in England. He is best known as the designer of the Kensington Gardens.

KENT ISLAND: belonging to Queen Anne co., Md., largest island in Chesapeake Bay; 15 m. long. It is very fertile, has 4 churches and valuable oyster fisheries, is the site of the earliest settlement in Md., and was colonized by Wm. Claiborne with several families from Virginia 1631. Pop. 2,525.

KENTLEDGE, n. *kěnt'lěj* [Dut. *kant*, border, edge, and the termination *ledge*]: pigs of iron laid on the floor of a ship for ballast.

KENTON, *kěn'ton*: city, cap. of Hardin co., Ohio, on the Sciota river, and on the Erie, the Toledo & O. C., and the Cleveland, C., C. & St. L. railroads; about 54 m. n.w. of Columbus and 67 m. s. of Toledo. It is situated on the divide which separates the waters of the Ohio river from those of Lake Erie. It was settled in 1833 and incorporated in 1885. The surrounding country is a farming section, with some large forests. The chief manufactures of the city are hardware, agricultural implements, iron, lumber, and dairy products. Its principal public buildings are the armory, jail, courthouse, and the municipal buildings. The mayor holds office two years. The waterworks plant is owned by the city. Pop. (1910) 7,185.

KEN'TON, SIMON: 1755, Apr. 3—1836, Apr. 29; b. Fauquier co., Va.: pioneer. He removed to Ky. 1773, joined a party of hunters, became intimate with Daniel Boone, was a spy against the Indians for the British gov. of Va. 1774-8, was with Gen. Clark at the surprise of Kaskaskia, aided in expelling the British and Indians from Ky., commanded a company under Gen. Clark 1782 and a battalion under Gen. Wayne 1793-4, was appointed brig.-gen. of Ohio militia 1805, and was in the battle of the Thames 1813. He lost the immense tracts of land that he had taken up through not perfecting his title and the invasion of settlers, but the state subsequently confirmed them to him, and congress pensioned him.

KENTUCKY, *kěn-tŭk'v*: a state; one of the United States of America; 2d in order of admission into the Union. The name is from the Iroquois *Kentake*, meaning 'Meadow Land,' or Prairie-land, and was probably suggested to the Indians by what the pioneers called the 'Barrens,' an extensive tract between the Salt and the Green rivers, covered with grass and devoid of trees. The signification 'Dark and Bloody Ground,' often given to the name, is without authority; these words are attributed to an Indian chief who, at the treaty of Watauga 1775, told those to whom his nation had sold the country that 'It was bloody ground and would be dark and difficult to settle.'

Location and Area.—Kentucky is in the east central

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section of the Mississippi valley, in latitude $36^{\circ} 30'$ — $39^{\circ} 6'$ n., long. $82^{\circ} 2'$ — $89^{\circ} 40'$ w.; bounded n. by the Ohio river, separating it from the states of Ohio, Indiana, and Illinois, e. by Virginia and the Big Sandy river, separating it from West Virginia, s.e. and s. by Virginia and Tennessee, w. by the Mississippi river, separating it from Missouri; extreme length e. to w. about 500 m.; extreme breadth n. to s. about 180 m.; 41,263 sq. m. (26,408,320 acres). Cap. Frankfort.

Topography.—The surface is largely an elevated plateau sloping gently from the mountains on the e. to the rivers on the w. at a descent of about two ft. to the mile, with average elevation about 800 ft. above sea-level. Descending from an elevation of 1,000 to 1,500 ft. at the foot of the Allegheny Mts., an elevation of 300 to 500 ft. is reached on the Mississippi and Ohio rivers. On the e. border are the the only mountains worthy of the name. In the mountainous s.e. corner is the valley through which the upper Cumberland river has cut its way, which is 1,000 to 1,500 ft. above sea-level, and is overlooked by mountain peaks 1,500 to 2,500 ft. higher. This valley, 75 m. long, 15 m. wide, contains the counties of Bell and Harlan, covering nearly 500,000 acres, with the cities of Middlesborough and Pineville, the former at Cumberland, the latter at Pine Gap. These two gaps were formerly the gates by which the pioneers entered Kentucky through the mountains along the old wilderness road from Virginia. Walled in as this valley is by the Cumberland Mountains on the e. and the Pine Mountains on the w., it presents in its lofty isolation a wild and rugged scenery rarely surpassed for picturesqueness.

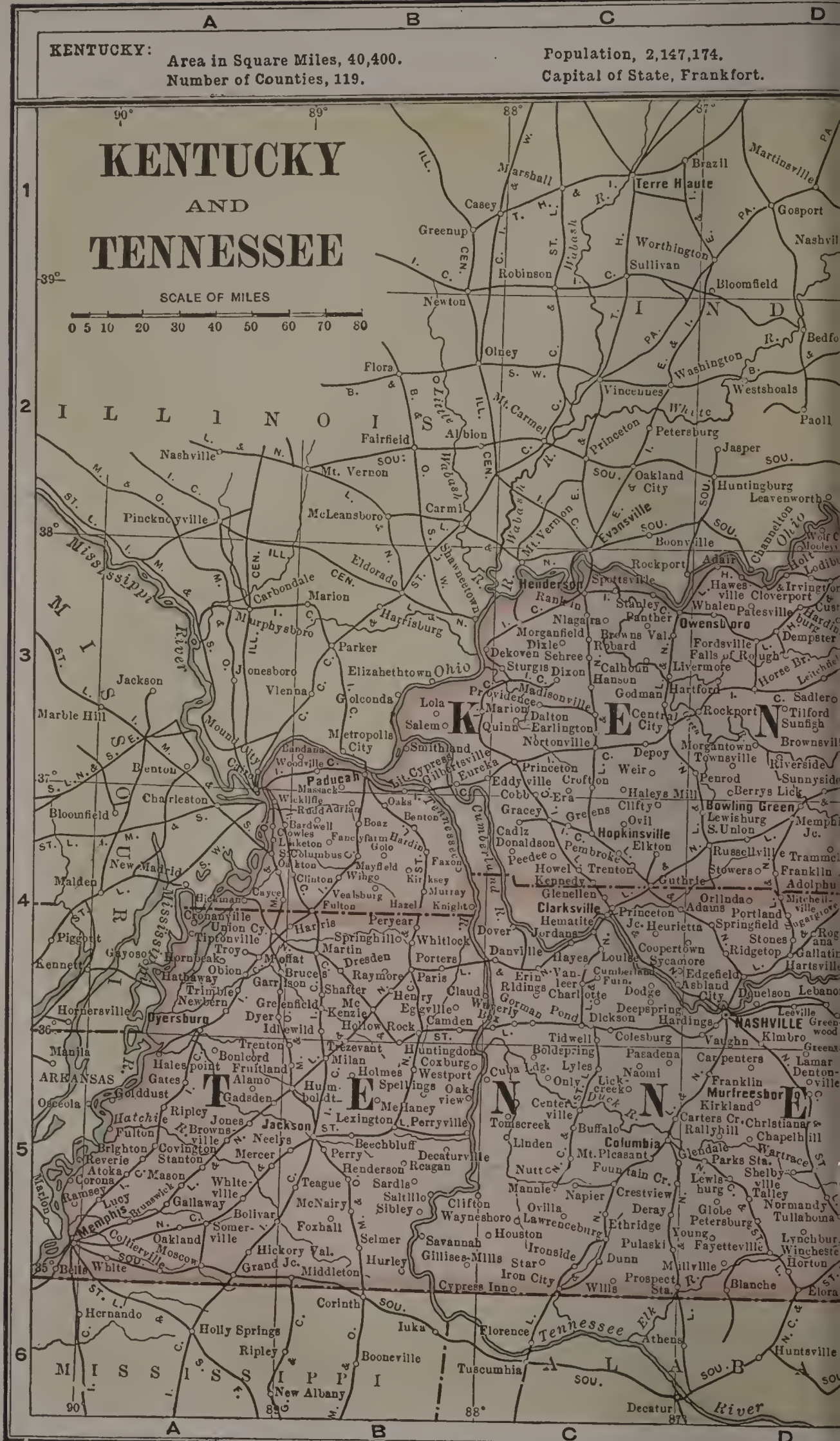
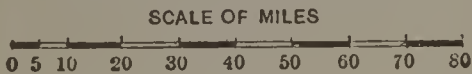
Except the Ohio and the Mississippi, all the principal rivers connected with Kentucky have their sources in this mountain region. The Big Sandy, with 216 m. of navigable water, the Licking 30 m., the Kentucky 200 m., the Salt 25 m., the Green 268 m., the Cumberland 250 m., and the Tennessee 60 m., all flowing from these mountains, cut deep channels through the state from e. to w., and empty into the Ohio. If, to their combined navigable length are added 653 m. for the Ohio, 100 for the Mississippi, 40 for the Tradewater, 25 for the Pond, and 15 for the Rough, the total length is 1,882 m. One of these rivers, the Kentucky, has cut its channel to a marvellous depth through solid rock; and in some places its perpendicular banks 300 ft. high remind the observer of the cañons of the far west.

Fully one-third of the entire surface of the state, or 14,000 sq. m., is still covered with primeval forest. In this forest are giant poplars with trunks 75 ft. long and 6 ft. in diameter, out of one of which 30,000 ft. of boards may be sawed. Of oak no less than 26 varieties appear; while walnut, cherry, ash, pine, cedar, maple, sycamore, buckeye, hackberry, gum, beech, linden, and

KENTUCKY: Area in Square Miles, 40,400.
Number of Counties, 119.

Population, 2,147,174.
Capital of State, Frankfort.

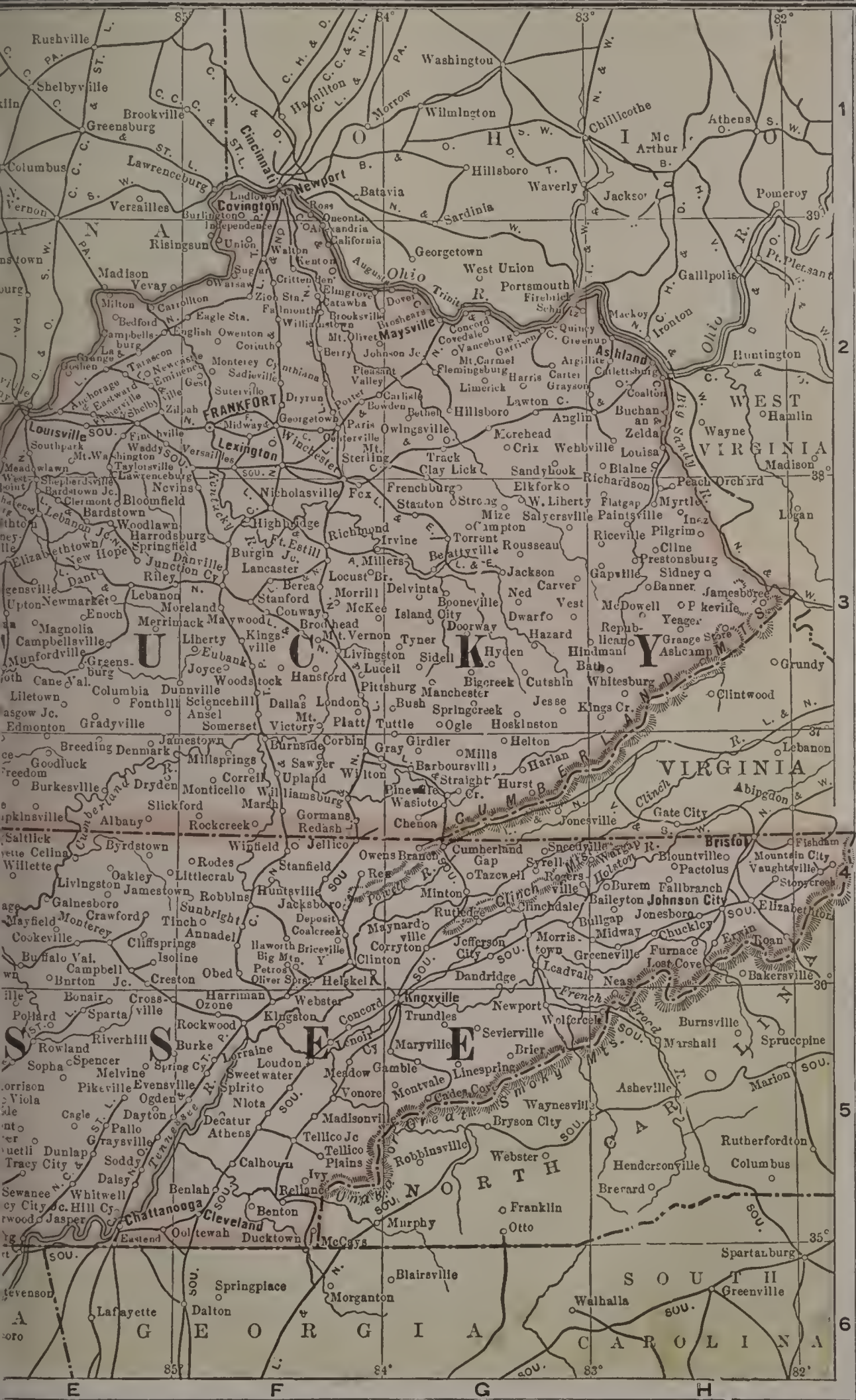
KENTUCKY AND TENNESSEE



E F G H

TENNESSEE: Area in Square Miles, 42,050
Number of Counties, 99.

Population, 2,020,616.
Capital of State, Nashville



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locust, are almost everywhere in abundance. A peculiarity is the predominance of broad-leaved trees and the absence of thick undergrowth. Little difficulty is found in making paths or even wagon-ways through the woods, and all the streams to be crossed have fords easily passed.

Climate.—While Kentucky shares the peculiarities of the seasons of the Mississippi valley, its location in the east central section s. of the Ohio river gives it to some extent a climate of its own. The Fahrenheit thermometer seldom indicates 100° in summer or zero in winter; these extremes, however, have sometimes been exceeded. On the coldest day recorded in the last quarter of a century, 1884, Jan. 5, 19° below zero was reached; and on the hottest, 1881, Aug. 12, 104° . These exceptional temperatures continued only a few hours. The mean annual temperature may be stated at 56° , the precipitation 46 inches; mean annual number of clear days 109, of cloudy 122, of rainy 131.

Geology.—The strata beneath the surface of Kentucky were laid down in those ancient seas where the first forms of life followed the Azoic age. It is probable that after the Lower Silurian, the Upper Silurian, the Devonian, and the Subcarboniferous formations were completed, the whole mass was upheaved by some subterranean force several thousand feet above its former position. Then the Carboniferous formation and whatever may have been above it were laid down amid changes of elevation which at different periods sank some of them under water and raised others above water. When the work of building up these strata was completed, that of breaking them down began, and has continued ever since. Hundreds and perhaps thousands of feet of strata which in ancient ages lay above the present surface have yielded to the ceaseless wear of the elements which finally swept them away. The most recent formation remaining in Kentucky is the Quaternary in what is known as the 'Jackson Purchase' in the s.w. corner of the state, where it extends over eight counties, covering 2,534 sq. m. The Mississippi front of this section is skirted with alluvion, and along Clark's run in Marshall and Calloway cos. are remnants of the Cretaceous formation. Next previous to the Quaternary in geological time came the Carboniferous measures, which here have been abundantly spared from the waste which erosion has elsewhere wrought. There are two great coal fields, the eastern and the western, in which are found numerous seams four to eight ft. in thickness of the best bituminous, coking, and cannel coals, all above drainage and easily mined. The eastern field covers 9,000 sq. m., and the western 4,000 sq. m. These fields were anciently united in s. central Kentucky; but erosion, long ages ago, made way with the connecting strata, and left a gap 100 m. between. In 1905 the production of bituminous coal was 7,529,038 tons. Iron ores of excellent quality are found in these

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coal fields in convenient proximity to the coal; in many places little is to be done except to shovel the iron ore and the coal into the smelting furnace. In 1906 the production of bituminous coal and coke pig-iron was 95,945 tons.

Next below comes the Subcarboniferous formation which underlies 33 counties, covering 13,000 sq. m. Here are found many varieties of building stone, among which are some of the best. The oolitic, which comes from the quarry soft and easily cut, and then hardens and becomes very durable, is abundant; so are marbles, lithographic stones, cement rocks, sandstones, and slates. In this formation are found also caverns, some of which are among the wonders of the world. The Mammoth Cave in Edmonson county has labyrinthine passages which have been explored for dozens of miles without traversing all its underground ramifications. Petroleum reservoirs in Warren, Wayne, and other counties, have been penetrated by boring wells 500 to 1,000 ft. deep; and in Meade co. natural gas for heating has been found in large quantities.

From an agricultural point of view, the most important formation is the Lower Silurian in the n. central portion of the state. Here the Blue Limestone rocks with their wealth of marine shells underlie either the whole or parts of the counties of Anderson, Bath, Boone, Bourbon, Boyle, Bracken, Campbell, Carroll, Clark, Fayette, Fleming, Franklin, Gallatin, Garrard, Grant, Harrison, Henry, Jefferson, Jessamine, Kenton, Lincoln, Madison, Marion, Mason, Mercer, Montgomery, Nelson, Nicholas, Oldham, Owen, Pendleton, Robertson, Scott, Shelby, Spencer, Trimble, Washington, and Woodford, 38 in number, covering 9,507 sq. m. This favored region is surrounded on all sides, except that on the Ohio river to the northward, by a narrow bulwark of Upper Silurian and Devonian rocks, like the walls of an ancient city to protect it from hostile invasion. By the disintegration and decay of this underlying blue limestone, the soil has been kept perennially rich, so that cultivation for a hundred years has not exhausted its fertility. Here the famous bluegrass of Kentucky, which has done so much for the fame and fortune of the state, finds its most congenial soil and climate, and grows as it is found nowhere else on the globe. It is the fitting food for the fleetest racer, the swiftest trotter, the richest uddered Alderney, the heaviest Shorthorn, the fattest Berkshire, and the finest fleeced Southdown. The corn, wheat, rye, oats, hemp, flax, and tobacco which it produces have no superiors; and the Bourbon whisky which is distilled from the grain and the water of this charmed region has an unrivalled excellence of body and bouquet. This bluegrass, the *Poa Pratensis* of the botanist (meaning Meadow Grass), might have been better named *Poa Pascuus* (meaning Pasture Grass), because it is univer-

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sally used for grazing, and seldom if ever for hay in this country. Why it should have been called bluegrass is not clear, for it has no blue in it nor anything approaching that color except the purple of its inflorescence. It is an evergreen, and carries its beautiful verdure the year round, except in the autumn, when its seeds and stalks ripen and it puts on a brownish yellow. The stock-raiser in Kentucky has no better friend than this bluegrass, which serves for grazing in winter as well as in summer, for even when snow covers the ground the animals will paw it away with their hoofs to lay open the green grass beneath.

At a hundred or more places in this bluegrass region there are salt springs which discharge saline waters left in subterranean reservoirs from the paleozoic seas. Remarkable among these is the Bigbone Lick in Boone co., where have been found many skeletons of great mastodons and other monsters of a pre-historic fauna.

The narrow belt of Devonian formation encircling the bluegrass region, widens out at the Falls of the Ohio, and there presents a rich field for fossils that originated in the old Silurian waters. Various specimens from this inexhaustible source are in the museums of different countries; and Maj. William J. Davis has collected here so many varieties of coral that, with a view to adequate scientific description, he had to invent, 1 new family, 7 new genera, and 169 new species.

The only seismic disturbance in this state during the historic period was the earthquake of 1811, whose central force was expended in the neighborhood of the junction of the Ohio and the Mississippi rivers. Here great fissures were wrought in the earth, and a large body of the littoral lands of the Mississippi river sank beneath its waters. Reelfoot lake on the line between Kentucky and Tennessee, 20 m. long and 5 wide, was formed by the sinking of the earth, and still remains a picturesque lake.

Zoology.—The buffaloes, formerly so numerous as to be seen in droves of thousands at the licks to which they resorted for salt, have disappeared; and the only large wild animals here now are deer, bears, and wolves, which are confined principally to the mountainous regions. Raccoons, wildcats, foxes, groundhogs, chipmunks, opossums, rabbits, squirrels, and other small animals are plentiful; also eagles, hawks, crows, owls, blackbirds, partridges, larks, robins, redbirds, woodcock, snipe, yellow-hammers, woodpeckers, and others of the feathered tribe. In 1818, Dr. McMurtrie, in his history of Louisville, enumerated 36 different kinds of fish in the Ohio river, but more recent ichthyologists have found 176 varieties, of which 70 are suitable for human food. Tortoises, insects, reptiles, etc., abound—among the latter the deadly rattlesnake and copperhead. In the caverns of the subcarboniferous formation a peculiar life exists: in the Mammoth Cave have been found quadrupeds and insects and fishes devoid of

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sight. The eternal darkness of those subterranean abodes makes vision useless, and the land-livers grope in unlighted chambers, while the fishes swim in rayless waters.

Agriculture.—The Kentucky lands were locally classified by the pioneers, as first, second, and third rate. The bluegrass lands, perennially rich, and the river bottoms, periodically renewed by the soil deposited from floods, are ranked as first class, and comprise about 7,000,000 acres. The second rate lands rest principally on the Upper Silurian, the Devonian, and Subcarboniferous, and the Quaternary formations, and aggregate about 15,000,000 acres. These second class lands are so rated, not for their lack of fertility, but because they are inferior to the unrivalled bluegrass and bottom lands, and require artificial fertilizing to keep them up to the highest agricultural standard. The third class lands, lying generally over the coal formations, but sparsely scattered elsewhere, have an area of about 4,500,000 acres. While their soil is inferior to the other classes, they contain but a small portion that has no value. There are perhaps 1,000,000 acres in swamps and arid wastes, but the other 3,500,000 acres will make good grazing land when the forest which covers most of them is removed. They are, moreover, largely underlaid with minerals and building stones, which give them considerable prospective value.

There are nearly 250,000 farms in the State, comprising about 25,000,000 acres, considerably over half of which is improved land. The total value of all farm property, including lands, buildings, and improvements, implements, and machinery, and live stock, is nearly \$500,000,000. The principal crops are corn, wheat, oats, barley, rye, potatoes, hay, and tobacco. The mild winter climate in which cattle can remain out all winter with little feed; the superb pasture land afforded by the blue grass, which forms a thick, fine turf and grows to perfection in the shade of the forests; and the abundant and excellent water have given K. unsurpassed natural advantages for rearing live stock. A succession of breeders of rare intelligence and perseverance taking advantage of these conditions, have made the S. the centre of the Union for high-grade blooded stock, especially in the case of horses. The old Virginia stock, bred from choice imported English animals, themselves bred for speed and endurance, was taken by the K. breeders, the strains carefully kept pure, except to mix with equally good fresh blood; and the result has been the development of the finest road horses in the country.

Manufactures.—There are about 4,000 manufacturing establishments in the S., producing goods whose annual value aggregates about \$175,000,000. Much of the industrial importance of the S. is the result of its agricultural and mineral resources; its unsurpassed fa-



A SCENE IN KENTUCKY DURING THE COLONIAL PERIOD.

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ilities of transportation by both land and water; and its proximity to coal fields. The grains grown in K. keep the flour and grist mills and distilleries supplied; the stock farms furnish materials for slaughtering and meat-packing industries; and the oak bark employed in the tanneries comes from native forests. The leading industries are flour and grist-mill products, lumber and timber products, liquors, tobacco, men's clothing, iron and steel products, slaughtering and meat packing and carriages and wagons.

Transportation.—Owing to its mountainous character K. has not a large railroad transportation, there being a considerable portion of the s.e. section without a mile of track. Altogether there is only about 3,500 miles of track in the State, together with about 350 miles of street railways.

Finances and Banking.—The total assessed valuation of the State, including personal and realty property, is \$828,275,022, and the tax rate \$5 per \$1,000. There is no bonded debt. There are over 150 national banks in K., about 375 State banks, and about 25 loan and trust companies. Legislative enactment practically prohibits private banks. Both Louisville and Lexington do an extensive clearing-house business.

Education.—The S. spends considerably over \$4,000,000 on its public schools, there being nearly 500,000 pupils enrolled, with about 10,000 teachers. Besides these there are both public and private normal schools, colleges and universities for men only, for women only, and co-educational, schools of theology, medicine, and law, and about 70 private secondary schools. Among the institutions of higher education the most prominent is the K. University.

Religion.—The Baptist is the strongest denomination in the State, although divided into various different groups, such as "missionary," "predestinarian," etc. The Methodist Episcopal South is the next in size, followed by the Disciples of Christ, the Methodist Episcopal, the Colored Baptist, the Roman Catholic, the Cumberland Presbyterian, the African M. E., Zion, and Protestant Episcopal.

Charities and Corrections.—There are insane asylums at Lexington, Hopkinsville, and Anchorage; a notable institution for the education of the blind at Louisville; a State school for deaf mutes at Danville; and an institution for feeble-minded children at Frankfort, which, however, restricts the ages of those eligible for admittance to between 6 and 18, and requires that they shall not be too feeble-minded for training. The S. penitentiaries are at Frankfort and Eddyville.

History.—Kentucky was the first state established w. of the Allegheny Mts.—the initial step in that grand march of commonwealths which in a century covered the Mississippi valley, spread over the Rocky Mountains, and occupied the Pacific slope. Virginia claimed it as a part

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of her oceanbound territory, but it was a *terra incognita* for 144 years after Virginia asserted her visionary title thereto under the charter of King James. No white man is known to have seen its forests and rivers until La Salle, the French explorer, seeking a trans-continental river on which he might float to the Pacific Ocean, came down the Ohio to the falls and became its discoverer in 1669. This discovery by La Salle was fruitless; but in 1750, Dr. Thomas Walker, in search of lands for the Loyal Company passed through its eastern portion; and in 1751, Capt. Christopher Gist, seeking lands for the Ohio Company, passed through its western and middle parts. Both Walker and Gist kept journals of their explorations, and in 1766, were followed by Capt. Thomas Hutchins, who also kept notes of what he saw. The works of these three careful explorers were not published until years afterward, but were practically known, and exerted considerable influence in inducing other explorers to venture into this region. In 1766 James Smith, in 1767 John Findlay, in 1769 Daniel Boone, in 1770 the Long Hunters, and in 1771 Simon Kenton, each in company with others, traversed different parts of it. The descriptions of the new country which these explorers gave to their acquaintances in Virginia and North Carolina soon led to its settlement.

In 1773 one surveying party, led by Capt. Thomas Bullitt, and another by Col. Hancock Taylor, were in the Bluegrass region and at the Falls of the Ohio, laying off lands for settlers. The building of log-cabins on these surveyed lands soon followed, but they were erected as evidence of prospective rather than immediate occupation. The first settlers dwelt in the forts built under the lead of James Harrod at Harrodsburg, Daniel Boone at Boonesborough, and Benjamin Logan at Stanford, 1775. These forts were simple rows of log-cabins, built around open courts protected by pickets, and they multiplied as rapidly as the immigrants came into the country. The first map of Kentucky, by John Filson, 1784, shows 52 of these rude fortifications in the n. central portion of the state. Dr. Walker built a house and planted corn, 1750, near where Barboursville, in Knox co., now stands, and numerous cabins were erected in different parts of the state during 1773 and 1774, but they were not used as dwelling houses when first erected. The people continued to occupy the forts until the peace of 1783, when they erroneously supposed that the Indian hostilities had ceased, and began to build dwelling houses on the adjacent farms for permanent occupancy.

At the very beginning of the settlement the pioneers were confronted with the attempt of Col. Richard Henderson & Company to establish a proprietary government by the name of Transylvania. These gentlemen at a cost of \$50,000 had purchased the greater part of Kentucky from the Cherokee Indians at the treaty of Wa-

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tauga 1775. This title was never recognized by Virginia, and when in 1776 the settlers sent Gen. Geo. R. Clarke and Gabriel J. Jones as delegates to the legislature, the state promptly organized the county of Kentucky, and so put an end to the scheme.

In 1784, the population was estimated by John Filson, the first historian, to be 30,000. They then felt that they were numerous enough and strong enough to separate from Virginia and form an independent state. They called a convention for this purpose, which met at Danville, 1784, Dec. 27; and with this movement began such a series of conventions, failures, disappointments, and vexations, as have seldom baffled a people in their efforts at autonomy. Virginia, to which Kentucky belonged, did not object to the separation; but first one obstacle and then another impeded the effort at independence, until nine conventions, running through eight years, had failed to secure it. Finally the tenth and last convention met at Danville, 1792, Apr. 2, and with the consent of Virginia and the approval of congress, made a constitution for the new state. This first constitution was unfortunately too federal in character to meet the wants of the people or long to endure. It committed the choice of governors and senators to electors instead of to the people, and lodged original jurisdiction for land suits in the court of appeals. It, nevertheless, inaugurated free government with its separate legislative, executive, and judiciary departments, and provided for all the real wants of the people. It placed all religions on equal footing. It forbade commerce in slaves, and provided for their future emancipation. It secured the freedom of the press and of speech. It gave to all freemen the right to vote without property qualification. It mitigated the horrors of imprisonment for debt. It made all citizens equal under the law. It lodged in the people both primal and ultimate sovereignty, and laid open the great highway of human progress to all citizens alike. Though there were no Indians abiding in Kentucky, they were upon its borders and made frequent raids into it. While the first constitutional convention was sitting at Lexington, a body of savages entered the state, 1792, Apr. 28, and almost within sound of the voices of the members destroyed a settlement on the South Elkhorn, and murdered men, women, and children. The end however of such savage warfare was near; and 1794, Aug. 20, the pioneers led by Gen. Wayne fought and won their last battle with their enemy of 20 years, at the battle of Fallen Timbers in Ohio. This victory was complete and drove the Indians forever from the state.

The conspiracies of Gen. James Wilkinson (q.v.) while never a serious danger, caused much trouble to the U. S. but were given up as hopeless after the visit of Thos. Power to Kentucky in 1797.

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The first legislature met in Lexington, 1792, June 4, and was in session 25 days. It consisted of 11 senators, who made Alexander Scott Bullitt speaker, and of 40 representatives, who chose Robert Breckinridge speaker. Isaac Shelby, the first governor, met the two houses in the senate chamber on the 6th, and having delivered his inaugural address, appointed George Nicholas attorney-general, and James Brown secretary of state. The different departments of the government were then organized. The second session of the legislature 1792, Nov., was at Lexington; but the third, 1793, Nov., was at Frankfort, which was then made the capital. Under the first constitution, 1792-1800, the legislature enacted some memorable laws. The celebrated resolutions of 1798-9 had much to do with shaping the politics of the new state. (See KENTUCKY RESOLUTIONS.) Not less famous was the law of 1798, annulling the bloody code of England under which hanging was the penalty for 165 offenses, and limiting the death penalty to the crime of murder. At its first session the 12 amendments to the United States constitution were ratified. As early as 1794, the legislature began establishing institutions of learning, and by 1800 had added to the Univ. of Transylvania, which had been inherited from Virginia, 20 academies, each with an endowment of 6,000 acres of land. Agriculture was encouraged by the establishment of inspections for tobacco, hemp, and flour; roads were laid out and navigable streams improved: and courts known as county, quarterly, and district were established.

The second constitution, made by the convention of 1799, went into effect 1800. It abolished the electoral college and required the governor and the senators to be elected by the direct vote of the people, and confined the jurisdiction of the supreme court to cases of appeal only.

The Indian wars were over and the population had increased to nearly a quarter of a million. The era of peace at the beginning of the century introduced a remarkable religious excitement which pervaded the state. The churches being too small for the congregations, meetings were held in the open air. Thousands upon thousands attended these encampments, where ministers of different denominations preached to the same congregations. The hearers prayed, and exhorted, and sung, and shouted, and danced, and were carried away into many wild developments of religious enthusiasm.

The people had been carrying on trade by barter and using tobacco and the skin of the beaver for money until they were eager for some other kind of currency. They were accommodated by the Kentucky Insurance Company, which, in 1802, under the pretense of getting a charter from the legislature for insuring cargoes on the western rivers, fraudulently secured the right to issue paper money. Their bills, with well-engraved pictures on them, were acceptable; and soon not only the notes of the

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insurance company were legalized, but other banks were established to increase the issue. When the first twenty years of the century had elapsed, no less than 21 of these banks of issue had been chartered, with aggregate capital of more than \$13,000,000. They made money abundant, such as it was, but also they brought abundant bankruptcy on themselves and on the people. Not one of them endured through the period limited by its charter, and no citizen who dealt with them escaped financial injury. This abundance of paper money led to wild speculations which collapsed as the banks weakened. Then followed what were known as the Relief laws, 1822-26. If a creditor would not accept the worthless notes of the moneyless banks, the debtor might replevy the debt, thus compelling the creditor to wait long enough for him to make the money or go into bankruptcy. A debt thus replevied was brought before the old court of appeals, and the law authorizing it was declared to be unconstitutional. For this decision the legislature passed an act, 1824, annulling the old court of appeals and establishing a new tribunal. In the state elections, however, 1826, a new legislature was elected which restored the old court of appeals and dispensed with the new.

The legislature, profiting by its experience with these early banks, adopted a more conservative financial policy. The Bank of Louisville, incorporated 1833, capital \$2,000,000, the Bank of Kentucky, 1834, \$5,000,000, and the Northern Bank of Kentucky, 1835, \$3,000,000, started under such legislative restrictions as made their banking safe, and have held through 60 years a career honorable to themselves and to the state. After the civil war, national banks were established in Kentucky, but the state banks continued, and now exceed the national in number.

The purchase of Louisiana from France 1803, removed from Kentucky one of the most exasperating causes of discontent. The Mississippi river was then, in the absence of railroads, the only practicable outlet for the heavy products of the country to the markets of the world. This great river, however, had been under the control of the Spanish, and now belonged to the French, who could levy burdensome taxes on its commerce, and thus practically prohibit its use. There had not been a day for a quarter of a century when the Kentuckians would not have fought for the free navigation of this river, and it was only a question of time when hostilities must have grown out of its possession by foreigners.

The intrigues of Aaron Burr, 1805, made some disturbance in the state, but wrought no great injury. There was no lack of the filibustering spirit in the state, but for some reason Col. Burr, with all his fascinating address and wonderful persuasive powers, did not seem able to command it. The 10,000 Kentuckians who were to march with him to found a western empire dwindled

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to a few hundreds who deserted at the approach of opposition.

Vessels propelled by steam had been known in Kentucky ever since John Fitch's invention 1784. Edward West, inventor of the nail machine, had propelled a small boat by steam on the Elkhorn 1794. No steamboat, however, had been seen on the western waters capable of bearing passengers and freight until 1811, when the *Orleans*, commanded by Capt. Roosevelt, glided down the Ohio from Pittsburgh and landed at Louisville. In a few years steamboats were plying on all the rivers.

In 1818, the domain of the state was enlarged by 7,000,000 acres purchased from the Chickasaw Indians in its s.w. portion. Out of the lands thus acquired, the eight counties known as the 'Jackson Purchase' were formed—Gen. Jackson having been one of the commissioners in the purchase. The presence of 'Old Hickory' in this negotiation, helped him, democrat as he was, to carry this whig state, by a majority of 8,000 against John Quincy Adams, a whig, in the presidential election of 1828.

Railroads began in Kentucky 1830 with the Lexington and Ohio road from Lexington to Louisville, which was completed 1835. In 1826, Thomas H. Barlow, inventor of the planetarium and of rifled cannon, had shown railroads to be practicable by making a model locomotive and attaching to it a passenger train which successfully ran on an iron track laid for it at Lexington. This railroad was the first in the state, and one of the first in the country. Following the railroad enterprise, Kentucky began a system of internal improvements by making turnpikes and locking and damming rivers, 1831. After expending \$7,000,000 on roads and rivers that gave no indications of profitable returns for the outlay, the enterprise was abandoned.

In 1833, when South Carolina was filling the country with alarm at her nullification doctrines, the legislature of Kentucky passed a series of resolutions for the double purpose of rebuking her sister state and taking back or modifying something of what she had said on the subject in her resolutions in 1798-9. These rebuking and revoking resolutions, drawn by the Hon. Thomas F. Marshall, rank among the most scholarly of state papers. In 1840, open opposition to slavery began with more concentrated effort and violence than had ever attended it before. What had been accomplished by the seven preachers in the constitutional convention 1792, and by the 'Baptized Licking-Locust Association Friends of Humanity' 1807, and by the 'Kentucky Anti-Slavery Soc.' 1835, was small in comparison with this grand movement. Gen. Cassius M. Clay started an emancipation paper called *The True American* at Lexington 1845, and made things so warm for the slave-holders by his fiery articles that they seized his press and shipped it to Cincinnati.

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What was known as the 'underground railroad' was now established, and over it many slaves were conducted to the free states and to Canada.

The third constitution, made by the convention of 1849, became the organic law 1850. One of the principal changes that it made in the previous constitution grew out of the anti-slavery movement of the times. The slaveholding delegates, exasperated by the abolitionists, forged strong constitutional chains for slaves, and riveted them so fast that nothing short of a new organic law or revolution could undo them. With a thorough democratic spirit this third constitution abolished all federal and aristocratic features, as they were called, that existed in the previous instrument, and required nearly all officers in the state to be elected by the people. The chief debt of Kentucky to this third constitution is for the care with which it guarded the educational fund. The two previous constitutions had been silent concerning education, but this third one spoke in terms not to be misunderstood. A fund amounting to \$1,225,768 had been accumulated from all sources, but principally from payments by the United States to make the state equal with other states that had secured public lands for educational purposes. This fund was set apart by an article in the constitution, and forever consecrated to the purposes of education.

In 1861, Kentucky passed through the greatest trial of her existence. Her sons had fought the Indians on her borders for 20 years, and had rendered distinguished service in the war of 1812 and the Mexican war, but now another kind of war was summoning them. They were to take up arms against their own countrymen, against their fathers and brothers. At the beginning of the civil war the state of Kentucky attempted the impossibility of holding a neutral position between the belligerents. She at first refused to join the Confederates or to aid the Federals, and demanded that both should respect her neutrality. In this dilemma her sons decided for themselves to which side they would go, and swelled the ranks of both armies. The state never seceded. The legislature refused to call a state convention to consider the subject of secession, and passed resolutions that protested against federal coercion, and implored the southern states not to withdraw from the Union. But when Pres. Lincoln issued his first call for troops, the governor said 'Kentucky would furnish no troops for the wicked purpose of subduing her sister southern states,' and the legislature approved his response. The federal government at once established camps in the state. In 1861, Sep., Confederate and Union armies took possession of the state within a few days of each other. The governor, on the authority of the legislature, demanded the withdrawal of the Confederate army—the first to take possession—as violaters of the state's neutrality, but the

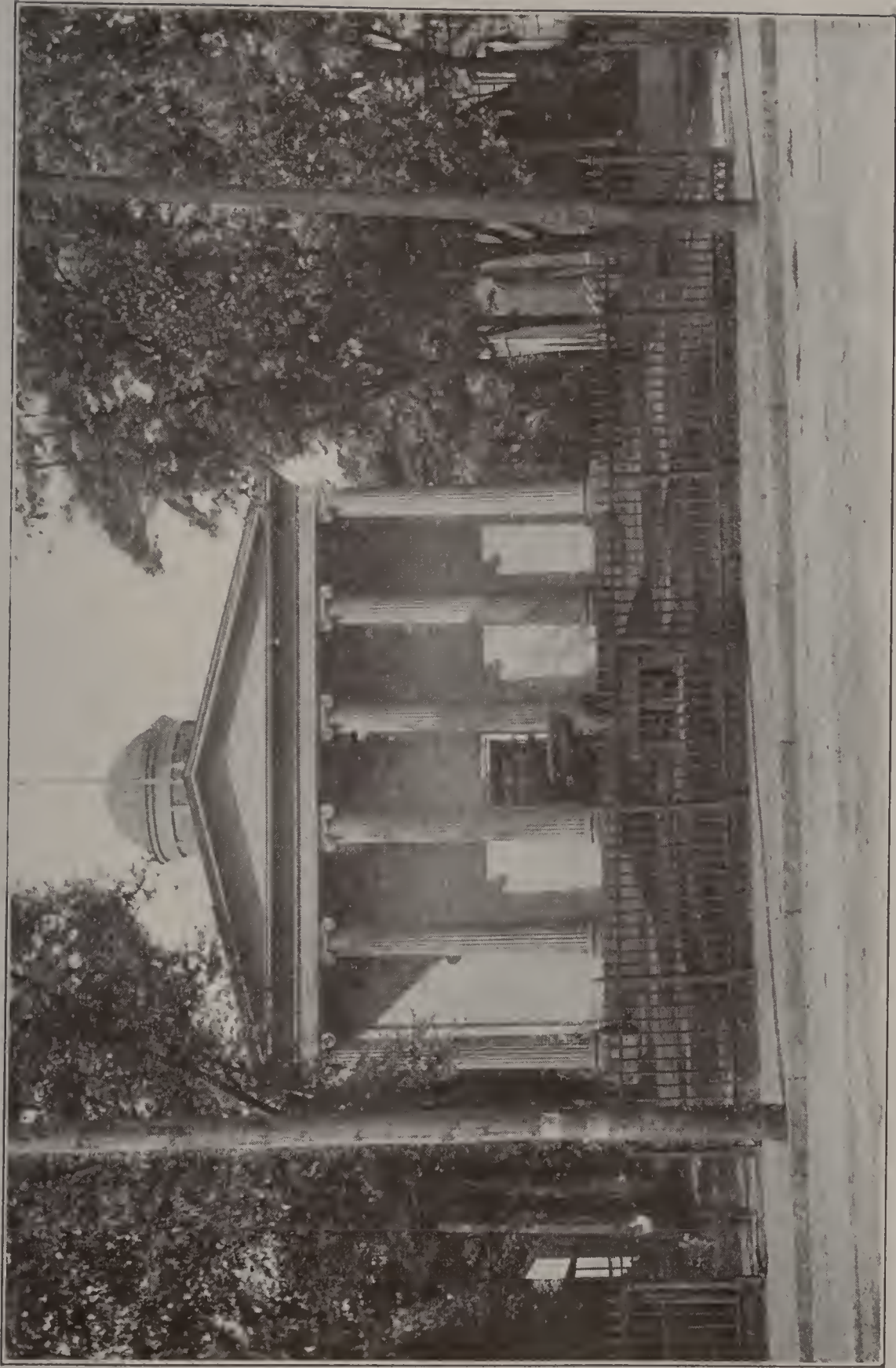
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commander declined to remove unless the Union army also retired. This action led to active hostilities; but the Union force held the state almost continually till the close of the war, and was kept busy fighting raiders. Martial law was proclaimed 1864, July 5, and civil authority restored 1865, Oct. 18. The state furnished 55,295 white and 23,730 colored soldiers to the Union armies, and about 40,000 to the Confederate. The legislature of Kentucky twice refused by large majorities to ratify the XVth amendment to the federal constitution, extending equal rights to the colored race.

The fourth and last constitution, made 1890-91, and now in force, introduced numerous important changes in the organic law. Among these it makes all franchises subject to repeal or modification by the legislature; confines all private property exempted from taxation to the strict uses of religion, charity, or education; fixes the time of all elections to the first Tuesday after the first Monday in Nov.; requires all votes to be cast by secret ballot; forbids any reduction of the resources of the sinking fund while the state is in debt; abolishes local legislation, and requires corporations and individuals to secure their private legislative wants under general laws; abolishes the superior court, and enlarges the court of appeals to seven judges elected for eight years; gives to each county with 150,000 inhabitants four judges sitting in four courts consolidated into one, and to each county with 60,000 one judge; classifies all cities and towns, and provides for general laws to govern each class, the first class to have 100,000 or more inhabitants, the second 20,000 or more, the third 8,000 or more, the fourth 3,000 or more, the fifth 1,000 or more, and the sixth less than 1,000; makes bank officers who receive deposits after insolvency is known, guilty of felony; reduces grand juries from a panel of 16 to 12; forbids the working of convicts outside of the penitentiary, and requires the state to establish a reformatory institution for juveniles; makes old Virginia land patents of the last century inferior to modern grants from Kentucky; restricts counties, districts, and towns from voting taxes and incurring debts in aid of railroads, and establishes a railroad commission of three members to look to this important interest in the state. The first session of the legislature under this constitution was held, 1891, Dec. 13, 1893, July 3.

Government.—The government is lodged in separate executive, legislative, and judicial departments. The executive consists of the governor, elected for four years; the legislative, of a senate of 38 members, elected for four years, and a house of representatives of 100 members, elected for two years; the judicial, of a chief-justice and six associates, elected for eight years. The successive governors have been as follows:

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OLD KENTUCKY STATE HOUSE.

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Isaac Shelby.....1792-96	Lazarus W. Powell....1851-55
James Garrard.....1796-1804	Charles S. Morehead..1855-59
Christopher Greenup..1804-08	Beriah Magoffin.....1859-61
Charles Scott.....1808-12	James F. Robinson...1861-63
Isaac Shelby.....1812-16	Thomas E. Bramlette..1863-67
George Madison.....1816	John L. Helm.....1867
Gabriel Slauhter.....1816-20	John W. Stevenson....1867-71
John Adair.....1820-24	Preston H. Leslie....1871-75
Joseph Desha.....1824-28	James B. McCreary....1875-79
Thomas Metcalf.....1828-32	Luke P. Blackburn....1879-83
John Breathitt.....1832-34	J. Proctor Knott.....1883-87
James T. Morehead..1834-36	Simon B. Buckner....1887-91
James Clark.....1836-39	John Young Brown...1891-95
Charles A. Wickliffe..1839-40	William O. Bradley...1895-99
Robert P. Letcher....1840-44	W. S. Taylor.....} 1899-1900
William Owsley.....1844-48	William Goebel... }
John J. Crittenden...1848-50	J. C. W. Beckham....1900-07
John L. Helm.....1850-51	A. E. Willson.....1907—

Counties, Cities, and Towns.—Kentucky while a district of Virginia was divided into nine counties. The first, Kentucky, carved out of Fincastle 1776, became extinct when Jefferson, Fayette, and Lincoln were made from it 1780. In 1874, Nelson was taken from Jefferson; 1785, Bourbon from Fayette, and Mercer and Madison from Lincoln; and 1788, Mason was taken from Bourbon, and Woodford from Fayette. Since Kentucky became an independent state 1792, the legislature has made 110 new counties; the number now is 119.

The principal cities are Louisville, pop. (latest census) 223,928; Covington, 53,270; Newport, 30,309; Lexington, 35,099; Paducah, 22,760; Owensboro, 16,011; Henderson, 11,452; Frankfort (the capital), 10,465; Bowling Green, 9,173; Hopkinsville, 9,419; Ashland, 8,688; Maysville, 6,141; Dayton, 6,979; Winchester, 5,964; Richmond, 5,340; Paris, 5,859. See their titles.

Politics.—All elections are held on the first Tuesday after the first Monday in Nov. All male citizens of the United States of the age of 21 years, except criminals, have the right to vote after a residence of 1 year in the state, 6 mo. in the co., and 60 days in the town and precinct, and the vote is by secret ballot. Since 1902, women have been allowed to hold office on school boards. The state as a whole is democratic, though many districts are republican. The state has 11 representatives in congress, and casts 13 electoral votes in presidential elections.

Population.—The pop. of the state according to the various govt. censuses has been as follows: (1790) 73,677; (1800) 220,955; (1810) 406,511; (1850) 982,405; (1890) 1,858,635; (1900) 2,147,174; (1910) 2,289,905. From 1820 to 1840 Kentucky ranked sixth among the states in proportion of population; the position is now fourteenth. The greatest gain of population was between 1870 and 1880. The foreign born at the last census were 50,249, of whom more than half were Germans. The colored population was 284,865, showing a relative decrease during the last two decades when compared with the white population. The agricultural characteristics and the mountain districts are not favorable to negro

KENTUCKY—KENTUCKY RIVER.

industries, and there is a tendency among negroes to emigrate. Nearly 20 per cent. of the population live in the cities.

KENTUCKY, AGRICULTURAL AND MECHANICAL COLLEGE OF: at Lexington; established in 1865 as a dept. of the Kentucky Univ. and was made a separate institution in 1878. Eight courses of instruction, occupying four years, are provided, viz., agriculture, biology, chemistry, civil engineering, classical, mechanical engineering, pedagogy, science, and there are also academic, veterinary, and commercial courses. There is a farm of about 52 acres in connection with the college, and a thoroughly equipped chemical laboratory. The number of instructors is over 40, and there is an average annual attendance of 800 students.

KENTUCKY RESOLUTIONS: a famous series of nine resolutions introduced into the Kentucky legislature in 1798, by George Nicholas, though it was afterward known that Thomas Jefferson was the author of them. They were directed against the Alien and Sedition laws, and against acts passed to punish frauds on the Bank of the United States, and emphasized the rights of the several states. These resolutions were the outgrowth, together with a similar series known as the Virginia Resolutions, of a feeling that the federal party was making a strained and illegitimate use of the powers granted to the federal government by the constitution. The Kentucky Resolutions were passed for the purpose of defining the strict-construction view of the relative powers of state and government. They declared that the Union was not based on the 'principle of unlimited submission to the general government'; that the constitution was a compact, to which each state was a party as over against its fellow states; and that, in all cases not specified in the compact, each party had a right to judge for itself, as well of infractions as of the mode and measure of redress. They proceeded to set forth the unconstitutionality of the Alien and Sedition acts, and invited other states to join in declaring them void. No favorable response was evoked. In 1799, the Kentucky legislature went further, and declared a nullification of a federal law by a state to be the rightful remedy in cases of federal usurpation. Upon these resolutions the doctrines of nullification and secession were later founded.

KENTUCKY RIVER: rising in the Cumberland Mountains, on the s.e. frontier of Ky., and after a winding n.w. course of 260 m., entering the Ohio, about 50 m. below Cincinnati. The river flows through most of its course between perpendicular limestone rocks, through which it appears to have worn its bed, and is celebrated for romantic beauty of scenery. It is navigable by steamboats to Frankfort, 60 m.; and by means of 17 dams and locks, to the Forks. Its banks abound with anthracite coal, iron, and marble.

KENTUCKY UNIVERSITY—KEOKUK.

KENTUCKY UNIVERSITY: at Lexington, Ky.: chartered at Bacon College 1836; began its first session at Georgetown, Ky.; removed to Harrodsburg 1830. It received a new and greatly extended charter 1858, and its name was changed to Kentucky University. In 1865, it was transferred to Lexington, and Transylvania Univ. was united with it. It is under the auspices of the Christians (Disciples). As now organized Kentucky University comprises a college of liberal arts, with classical, literary, and scientific courses, a commercial college situated at Louisville, both these colleges co-educational, a college of the Bible, and a medical college. The univ. library is consolidated with that of the city of Lexington. The annual income is about \$27,000; there are 54 instructors, and the average annual attendance of students is about 1,200.

KEN'YON, JAMES BENJAMIN, LITT.D.: American poet and Methodist clergyman: b. Frankfort, N. Y., 1858, Apr. 26. After his graduation from Hungerford Collegiate Institute in 1875, he studied theology, entered the Methodist ministry and has since held several pastorates. He is well known among American verse writers of the present, his published collections of poems including: *The Fallen and Other Poems* (1876); *Out of the Shadows* (1880); *Songs in All Seasons* (1885); *In Realms of Gold* (1887); *At the Gate of Dreams* (1892); *A Little Book of Lullabies* (1898); *Poems* (1901). In prose he has published *Loiterings in Old Fields* (1901); *Remembered Days* (1902); *Retribution* (1903); *Reed Voices* (1905); etc.

KENYON COLLEGE, kěn'yon: at Gambier, Ohio; chartered 1824, organized 1826, under the auspices of the Prot. Episc. Church. It was established through the efforts of Bp. Philander Chase, chiefly by contributions collected in Eng. There are 25 instructors and about 150 students, partly in the prep. dept., partly in the collegiate. There were several endowed professorships; 40,000 bound vols. in the library; grounds, buildings, and apparatus valued at \$375,000; productive funds \$450,000; income, including tuition fees, \$20,500.

KEOKUK, kē'ō-kūk: city, one of the caps. of Lee co., Ia.; at the foot of the lower rapids of the Mississippi river, near the confluence of the Des Moines river, on the St. Louis, Keokuk & W.; the Toledo, Peoria & Warsaw; the Wabash; the Chicago, B. & Q.; and the Keokuk & W. railroads; 46 m. s. of Burlington, 161 m. e.s.e. of Des Moines, 205 m. n. of St. Louis, 250 m. w.s.w. of Chicago. The Mississippi river here is a m. wide, bordered with bluffs nearly 150 ft. high, and spanned by a railroad and wagon bridge 2,000 ft. long, connecting with Warsaw, Ill. The river with a fall of 21 ft. in 11 m. supplies abundant waterpower, and a govt. ship canal 9 m. long and 300 ft. wide around the

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rapids, opened in 1877 at a cost of \$8,000,000, provides transit facilities. Keokuk, known as the 'Gate City,' is beautifully laid out, well built, and supplied with modern water, sewage, gas, electric lighting, street railroad, and fire systems. Cold storage, meat, poultry, fruit, and vegetable packing establishments, and manufacturers of stoves, cans, flour, shoes, clothing, etc., represent the industries. Rand Park is noted for being the burial-place of the Indian chief Keokuk. Keokuk has a medical college founded in 1849, a dental college, a government building, a public library which contains about 18,000 volumes; Saint Joseph's Hospital, Home for the Friendless, a high school, Saint Vincent's Academy, a Y. M. C. A. building, and an opera house. It is one of the four cities of the state which are governed by a special charter. The difference in the form of government is chiefly in the way of appointment of the subordinate officials. Some are appointed by the mayor, others by the council; and the park commissioners, city weigher, and library committee are appointed by the mayor, subject to confirmation by the council. Pop. (1910) 14,008.

KEP, v. *kěp* [AS. *cépan*, to take, to catch]: in *Scot.*, to catch anything when it is falling; to intercept; to meet accidentally. KEP'PING, imp. KEPPED, pp. *kěpt*.

KEPLER, or KEPLER, *kěp'lér*, JOHANN: one of the greatest astronomers of all ages: 1571, Dec. 27—1630, Nov. 15; b. Weil, duchy of Würtemberg. His parents were not happy in their married life, and were poor; and Kepler's father abandoned his family, and enlisted as a soldier. Thus while a mere child Kepler was left to his own resources, and his early education in consequence would have been entirely neglected had he not been admitted into the convent of Maulbronn. He afterward studied at the Univ. of Tübingen, and gave nearly the whole of his time to mathematics and astronomy. In 1593, he was appointed prof. of mathematics at Grätz. At this time Kepler's views of astronomy, as seen in his *Prodromus*, were somewhat mystical; he supposed the sun, stars, and planets were typical of the Trinity, and that God distributed the planets in space in accordance with the regular polyhedrons, etc. Yet this searching after harmony led him to the discovery of the three remarkable truths called *Kepler's laws*. Kepler, about 1596, began a correspondence with Tycho Brahé, and 1599 went to Prague to aid him in his researches. Tycho obtained for him a government appointment; but the salary was not paid, and Kepler lived 11 years there in straitened circumstances. He then obtained a mathematical appointment at Linz; but, 1628, left the service of Emperor Ferdinand II., who owed him 12,000 florins, and entered the service of the Duke of Friedland (Wallenstein), who assumed responsibility for the debt. Wallenstein, instead of paying, offered Kepler a professor-



KEPPLER.

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ship in the Univ. of Rostock, which Kepler declined. A journey to Ratisbon to present his case to the Diet, brought on a fever of which he died at that place.— Kepler's connection with Tycho Brahé had a salutary effect upon his fiery enthusiasm, but, happily for science, the timid counsels of the old astronomer were only partially followed. Kepler established the law of the diminution of light in proportion to the inverse square of the distance, and was acquainted with the fact 'that the attractive force of the sun decreases as his light;' it is strange that this latter fact did not lead him to anticipate the discovery of Newton. In 1609, he published *Astronomia nova*, a commentary on the motion of Mars, in which, taking for his base of operations the observations of Tycho, he determined the eccentricity and aphelion of this planet, on the supposition of a circular orbit, and found the results quite irreconcilable with observation. This led him to his first law, *that the planets move in ellipses with the sun in one of the foci*. The second law, *that the Radius-vector (q.v.) sweeps over equal areas in equal times*, he at first asserted dogmatically, and was for a long time puzzled to find some proof of it (the infinitesimal calculus not having at that time been invented); but at last he hit on the expedient of dividing the ellipse into an immense number of small triangles, whose areas could be easily found. His third law (the first discovered) was an attempt to harmonize in some way the period and the mean distance of the planets, and after 22 years of vigorous application, he discovered that *the square of the periodic time is proportional to the cube of the mean distance*. These discoveries, great as they undoubtedly are, are rendered still more so when we take into account the little real knowledge of the heavenly bodies existing at that time, and the scanty means in the hands of astronomers for making discoveries. Kepler also affirmed the essential inertia of matter, the first of Galileo's laws of motion; the dependence of the curvature of the path of planets on the attraction of the sun (Kepler unfortunately thought it was *magnetic* attraction), and the proportionality of the mutual attraction of bodies to their respective masses; he demonstrated the four new planets of Galileo to be satellites of Jupiter; gave a complete theory of solar eclipses; and calculated the exact epoch of the transits of Mercury and of Venus across the sun's disk. He takes rank as the founder of a new astronomy. He also made numerous discoveries in optics, general physics, and geometry. A collected ed. of Kepler's works was published by Frisch (1858-71). He wrote much, but the work that has rendered him immortal is his *Astronomia Nova, seu Physica Cœlestis tradita Commentariis de Motibus Stellæ Martis* (New Astronomy, or Celestial Physics delivered in Commentaries on the Motions of Mars) (1609). His *Harmonice Mundi* appeared in 1619;

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and among other works may be cited: *De Stella Nova in Pede Serpentarii* (1606); *De Cometis* (1613); *Chilias Logarithmorum* (1624). Consult: Breitschwert, *Johann Kepler's Leben und Wirken* (1831); Reitlinger, *Johann Kepler* (1868); Reuschle, *Kepler und die Astronomie* (1871); Hasner, *Tycho Brahé und Kepler in Prag* (1872); Brewster's *Lives of Galileo, Tycho de Brahé and Kepler* (1841); and Neumann and Gruner, *Johannes Kepler* (1868).

KEPP'LER, JOSEPH: American caricaturist: b. Vienna, Austria, 1838, Feb. 1; d. New York, 1894, Feb. 19. He early made his reputation as a satiric artist and the leading periodicals of his native city were publishing his witty sketches, almost before he had left the Academy of Fine Arts. But art was not then a serious business for him, and he took to the stage as a comedian and opera singer, and actually began to study medicine at St. Louis, Mo., where he made his residence in 1868. But it was in St. Louis that he found his real vocation. There he established the German *Puck*, which, while it failed as a commercial enterprise, made his reputation. It was seen at once that a caricaturist of rare skill as a draftsman, of mental fertility and freshness, of witty and incisive satire, had appeared. He was engaged from 1872 to 1877 as caricaturist for *Frank Leslie's Illustrated Newspaper* in New York, to which city he had removed, and in 1875 he started a New York German *Puck* in association with Adolph Schwartzman. This was followed in 1877 by the English *Puck*. He was the first to use colored cartoons in caricature, and drew upon a vast store of classical and historical incidents for adaptation in criticising modern social and political life.

KERARGYRITE, n. *kě-râr'jĭ-rĭt* [Gr. *keras*, horn; *argyros*, silver]: chloride of silver; horn silver: also called KERATE, n. *kě'rāt* [Gr. *keras*, horn].

KERATIN, or KERATINE, n. *kě'r-ă-tĭn* [Gr. *keras*, a horn]: one of a group of nitrogenous non-crystalline substances allied to the proteids; the principal chemical substance of horn, nails, feathers, hair, and other epidermal structures (see PROTEINE). KERATODE, n. *kě'r-ă-tōd* [Gr. *eidōs*, resemblance]: the horny substance making up the skeletons of many sponges. KERATOSA, n. *kě'r-ă-tō'ză*, the division of sponges having the skeleton composed of keratode.

KERATITIS, n. *kě-r-a-tĭ'tĭs* [Gr. *keratos*, a horn]: inflammation of the cornea.

KERATOME. See IRIDECTOME.

KERAULOPHON, n. *kě-r-awl'o-fōn* [Gr. *keratos*, a horn; *aulos*, a flute; *phōnē*, sound]: an organ stop, invented by Gray and Davison. Its pipes are of small scale, and surmounted by a movable ring of metal. Its tone is soft, delicate, and reedy.

KERB—KERMES.

KERB, n. *kərb*, or **KERB-STONE**, or **KIRB-STONE** [Ger. *scherbe*, a potsherd; Dut. *kerf*, a piece cut out; another spelling of **CURB**, which see]: a frame, as of stones, laid round the brim of a well; a raised border of stones, as along a footpath.

KERCHIEF, n. *kér'chĭf* [OF. *couvrechef*, a covering for the head—from OF. *couvrir* and F. *couvrir*, to cover; *chef*, the head—from L. *caput*, the head]: formerly, a cloth used as a head-dress; any separate piece of cloth used in dress; now generally used in its compounds *handkerchief* and *neckerchief*—which see. **KERCHIEFED**, or **KERCHIEFT**, a. *kér'chĭft*, dressed; hooded.

KERF, n. *kérf* [AS. *cyrf*, a cutting; Ger. *kerbe*, a notch]: a slit; a cut; a notch; slit, notch, or channel made by a saw in cutting wood. **KERFING**: (a) the process of preparing wood for bending without breaking by making a series of small cuts in it with a sawing-machine; (b) in cloth-manufacture, the process of removing the wool by passing it through a shearing-machine.

KERGUELEN'S LAND, *kérg'è-léng*, F. *kér-ga-lông*, or **ISLAND OF DESOLATION**: in the Southern or Antarctic Ocean; the latitude and longitude of its southern extremity, Cape George, being 49° 54' s., and 70° 12' e. It is about 100 m. long, and about 50 m. broad. It consists chiefly of moss-covered rocks of primary formation. It is said, however, to produce coal fit for steamships. The island was discovered 1772 by the French navigator, Ives Joseph de Kerguelen Tremarec.

KERGUELEN'S LAND CABBAGE (*Pringlea antiscorbutica*): only known species of a very curious genus of plants of nat. ord. *Cruciferae*, found only in Kerguelen's Land. It has a long, stout, perennial root-stock; a *bolled* head of leaves very similar to those of the common garden cabbage. Captain Cook first discovered this plant, and directed attention to it. It is exceedingly abundant in all parts of Kerguelen's Land, which produces only 17 other flowering plants. The root-stocks have the flavor of horseradish. The dense white heart of the cluster of leaves tastes like mustard and cress, but is coarser. The whole foliage abounds in a very pungent pale-yellow essential oil, confined in vessels parallel to the veins of the leaf.

KERITE, n. *kér'it* [Gr. *keros*, wax]: a compound invented by Austin C. Day, and by him termed *kerite*, or artificial caoutchouc, and in which the raw caoutchouc or rubber is replaced by tar or asphaltum, which, combined with animal or vegetable oils, is vulcanized by sulphur, the product closely resembling rubber, and used principally as an insulating material in telegraphy.

KERMES, n. *kér'méz* [Ar. *karmas* or *kermes*, little worms]: sometimes known in commerce as *Scarlet Grain*; a dyestuff which consists of the bodies of the females of a species of *Coccus* (q.v.). *C. ilicis*. It has been sup-

KERMES—KERMESSE.

planted over the greater part of Europe by Cochineal (q.v.), but is still used in some parts of s. Europe, and more extensively in India and Persia. The kermes insect is abundant in these regions, attaching itself to the leaves of a small species of oak, the Kermes Oak (*Quercus coccifera*), a low, bushy shrub with evergreen spinous leaves, much resembling a holly. In some parts of Spain the Kermes Oak grows in great profusion, as on the slopes of the Sierra Morena. Many of the inhabitants of Murcia live by collecting kermes. This is chiefly the employment of women, who scrape the insects from the trees with their nails, which they suffer to grow long on purpose. The kermes insect attacks the young shoots of the shrub, the female affixing itself and remaining immovable till, after attaining its full size, about that of a pea, it deposits its eggs, and dies. Kermes is gathered before the eggs are hatched. It is thrown into vinegar, and afterward dried in the sun or in an oven. It has been employed from time immemorial to dye cloth of a blood-red color. It was called *Thola* by the Phœnicians, *Coccus* by the Greeks, *Kermes* by the Arabians. From kermes comes the French *cramoisi*. It is supposed to have been the substance employed in dyeing the curtains of the Jewish tabernacle (Exod. xxvi.).

KERMES, *kér'mēz*, or KERMESITE, *kér'mě-sīt*, or KER-MES MIN'ERAL [from its resemblance in color to the insect *Kermes*]: an antimonial preparation discovered by Glauber (q.v.). The method of preparing it subsequently became known to M. de la Ligerie, from whom the king of France purchased the prescription in the early part of the 18th c. It was at that period often described as *Carthusian Powder*, or *Poudre des Chartres*, in consequence of a Carthusian friar having effected some remarkable cures by it. Chemists differ slightly as to its composition, but it is generally regarded as a tersulphuret of antimony. Kermes is much used in France and Italy, though seldom in England and the United States. Its effects are much the same as those of the golden sulphuret (sulphide) of antimony, and of the oxy-sulphuret of antimony of the London pharmacopœia, it being a sudorific in small doses (e.g. half a grain), and an emetic and purgative in large doses.

KERMESSE, *kér'měss*, or KIRMESS, *kĩr'mess*: religious festival originally held in Belgium and Holland under the patronage of the clergy, and comprising a variety of popular amusements and athletic exercises, and usually closing with a grand dinner. It was generally held out-of-doors and attracted the old and young of the parish. To prevent the degeneracy of a harmless custom and an overcrowding of the kermesse ground by having the festivals occur at different times in different parishes, James II. of Flanders ordered that all should be celebrated on the same day.—The term Kermesse is sometimes applied in

KERN—KERNER.

the United States to a combination of sociable and fair in aid of a church or for some benevolent object.

KERN, n. *kérn* [Ger. *kern*, kernel]: that part of a type which hangs over the body or shank: V. to form into a kern. KERN'ING, imp. KERNED, pp. *kérnd*.

KERN, or KERNE, n. *kérn* [Ir. *cearn*, a man: Gael. *ceathairneach*; a stout, trusty peasant, a soldier; *ceathairne*, the peasantry, a party of freebooters]: in *Ireland* and *Scotland* in former times, a foot-soldier of the lowest class armed with inferior weapons; a cateran; an idle person or vagabond.

KERN, *kěrn*, J. CONRAD: Swiss statesman: b. 1808, near Arenenberg, in Thurgau; d. 1888. He studied theology at Bâle, but turned to law, which he studied successively at Berlin, Heidelberg, and Paris. On his return to his native canton, he was appointed to the presidency of the supreme court and of the council of public instruction; and in these offices he was remarkable for legal and administrative sagacity. When in 1838 the French government demanded the extradition of Prince Napoleon, Kern was most prominent at the Diet in stirring up the Swiss to refuse to be intimidated. In 1848 Kern was active in the preparation of the federal constitution. He afterward established the Polytechnic School of Zürich, one of the most admirable institutions of its kind in Europe. In 1857 he was selected to complete the negotiations regarding the dispute with Prussia; and at the conferences of Paris between the great powers, Kern represented Switzerland. From 1857-83 he was minister to France.

KERNEL, n. *kér'něl* [Icel. *kiarni*, pith: F. *cerneau*, kernel of a nut: Ger. *kern*, pip of fruit—from *korn*, grain]: the substance contained within the shell of a nut or the stone of a fruit; the central part of anything; a small mass around which other matter is concentered; in *bot.*, the embryo inclosed in the seminal integuments: V. to harden or ripen into a kernel. KER'NELLING, or KERNELING, imp. KERNELLED, or KERNELED, pp. *kér'něld*. KER'NELLY, ad. -*ě*.

KERNER, *kěrnér*, JUSTINUS ANDREAS: 1786, Sep. 18—1862, Feb. 21; b. Ludwigsburg in Würtemberg: German poet, one of the leading members of the so-called 'Swabian School.' He studied medicine at Tübingen, and finally settled as physician at Weinsberg, where he died. The conspicuous qualities of Kerner's poetry are dreamy fancy and original humor. His chief works are: *Reise-schatten von dem Schattenspieler Lux* (1811); *Roman-tische Dichtungen* (1817); and *Der letzte-Blütenstrauss* (1853). He took keen interest in the phenomena of animal magnetism or hypnotism, and wrote several books on the subject, one of which, *Die Scherin von Prevorst* (1829; 4th ed. 1846), excited great attention in America.

KERN RIVER—KERSEY.

KERN RIVER, *kěrn*, and **KERN RIVER SLOUGH**, *slow*: stream and swampy water-course in Cal. The *river* rises in the Sierra Nevada Mountains in Tulare co., Cal., flows through a very deep cañon between Mt. Whitney and Kaweah Peak, runs first s., then w. into Kern Lake, then n.w. into Kern co., and enters Tulare Lake, estimated length 200 m. The *slough* is a channel n. of Tulare Lake, by which it discharges its surplus water into San Joaquin river.

KEROLITE, n. *kěr'ō-līt* [Gr. *keros*, wax; *lithos*, a stone]: a native hydrated silicate of manganese, which occurs in kidney-shaped masses of a white, yellow, or green color.

KEROSENE, or **KEROSENE OIL**, n. *kěr'ō-sēn oyl* [Gr. *keros*, wax, and Eng. *oil*]: oil distilled from bituminous substances, and employed for lighting purposes. Since the discovery of oil-wells yielding vast quantities of petroleum, the manufacture of kerosene has nearly ceased, and the name is scarcely used in the trade, having given place to the terms crude or refined petroleum. See **PETROLEUM**; **BITUMEN**; **NAPHTHA**; **OIL-WELLS**; **PARAFFINE OIL**. **KEROLENE**, n. *kěr'o-so-lēn*, petroleum ether, extremely inflammable, colorless oil, having a faint odor of petroleum, obtained from the crude oil by distillation.

KERR, ORPHEUS C. See **NEWELL**, ROBERT HENRY.

KERRY, *kěr'rĭ*: maritime county in the s.w. of Ireland, province of Munster; bounded n. by the mouth of the Shannon, and w. by the Atlantic Ocean. Its coast-line is fringed with islands, of which the chief are Valentia, the Blasquets, and the Skelligs, and is deeply indented by Kenmare, Dingle, and Tralee bays. Between these bays are two peninsulas, occupied by branches of the mountain system, which, stretching from the county of Waterford, traverses the whole south of Ireland. The largest rivers are the Laune, the Maine, and the Cashen. The county contains numerous lakes, some of them, especially those known as the Lakes of Killarney (q.v.), of exquisite beauty. The soil rests on slate and sandstone, with limestone; consists of a rich loam in the central districts, and is productive in grain-crops and in pasture. The manufactures are inconsiderable; oats and butter are chief exports. Fisheries on the coast are extensive and profitable. Pop. 165,726.

KERSEY, n. *kěr'zĭ* [F. *carisée*; Sw. *kersing*]: a coarse cloth woven from long wools. **KER'SEYMERE**, n. *-mēr* [derived by some from *Cashmere*, in India, famous for its fine stuffs]: a superior cloth woven from the finest wools, differing from ordinary *broadcloth* by being woven as a *twill*. See **TWILL**. This kind of cloth is distinguished from the common cloth by the diagonal ribbed appearance of its under side, where the nap, not being raised, admits of its structure being seen. *Note.*—**KERSEY** is also said to be named after a small place named *Kersey* in

KERSHAW—KESTREL.

Suffolk, where the woolen trade was once carried on, in which case F. *carisée*, Sw. *kersing*, are mere corruptions of Eng. *kersey*: *kerseymere* is a corrupt spelling of *Cassimere* or *Cashmere*, due to a confusion with *kersey*, a material of quite a different texture.

KERSHAW, *kēr-shaw'*, JOSEPH BREVARD: 1822, Jan. 5—1894, Apr. 13; b. Camden, S. C. He received an acad. education, was admitted to the bar 1843, served in the state senate 1852-57, and the state convention 1860, entered the Confederate army as col. of the 2d S. C. regt., was present at the first battle of Bull Run, 1861, July, promoted brig.gen. 1862, led the attack of Longstreet's corps at Gettysburg 1863, July; was in the battle of Chickamauga and siege of Knoxville, promoted maj.gen. 1864, commanded a div. in Lee's final campaign, surrendered 1865, Apr. 6, and was imprisoned in Fort Warren till 1865, July. He also served as pres. of the S. C. senate, member of the conservative convention, and from 1877 judge of the 5th circuit court.

KERTCH, *kěrch* (anc. *Panticapæon*): previous to 1855, the most important port of the Crimea, with the largest trade in the export of corn. It is on the e. shore of the peninsula, on the strait of Kaffa or Yenikale. The town has a distinctively eastern air; and the appearance of the houses is greatly enhanced by their pillars and balconies. The streets, like those of Constantinople, are infested by troops of homeless dogs. Kertch, the ancient *Panticapæum* or *Bosporus*, was cap. of ancient Taurica. Previous to 1475, it belonged to the Genoese; subsequently, it came into the hands of the Turks; and 1774, it was acquired by the Russians; 1855, May 25, it was taken by the allies during the Crimean War, on which occasion the Catacombs, a very valuable collection of antiquities connected with early Greek times, was ruthlessly plundered by the soldiery. Pop. 29,000.

KESH'UB CHUN'DER SEN. See SEN, KESHUB CHUNDER.

KESTREL, n. *kēs'trēl* [Norm. F. *cresserelle*; F. *crécér-elle*], (*Falco tinnunculus*): small species of falcon, and one of the most common of the *Falconidæ* in Britain, where it is often called *Wind-hover*. It is rather larger than the merlin, its whole length being 13 to 15 inches. It may be at once recognized by its peculiar habit of hovering or sustaining itself in the same place in the air by a rapid motion of its wings, always with its head to the wind, evidently looking for prey on the surface of the ground. Its prey consists in great part of mice; and though of course included by gamekeepers in the large category of 'vermin,' and destroyed on every opportunity, it deserves careful protection by farmers, as a check to the excessive multiplication of mice. It more rarely captures small birds, and does not disdain cockchafers and other insects. It is very widely distributed. The male and

KETCH—KETCHUP.

female differ considerably in color; ash-gray prevailing more in the former, and rusty brown in the latter. The American species (*Tinnunculus sparverius*) is a beautiful little bird, popularly called the Sparrow-hawk.

KETCH, n. *kěch* [Dut. *kits*; F. *caiche*—from Turk. *qaiq*, a boat, a skiff]: broad, strongly built vessel of two masts—viz., the main and mizzen. It is now almost obsolete, but formerly was the favorite form for state yachts, and more recently was the prevailing mortar-boat. In this latter capacity it was called a bomb-ketch. *Note*.—Dut. *kits*, F. *caiche*, are said to be borrowed from the Eng. word *ketch*.

KETCH, or JACK KETCH, n. *jăk kěch* [from *John Ketch*—the hangman or executioner in the reign of James II. of Eng.]: the hangman. *Note*.—It is said that *Jack Ketch* was merely a popular corruption of the man's real name, *Jaquette*.

KETCHAM, *kěch'am*, JOHN H.: legislator: b. Dover, N. Y., 1832, Dec. 21. He received an acad. education, engaged in agriculture, was member of state assembly 1856-7, and senate 1860-1, entered the Union army as col. 150th N. Y. regt. 1862, promoted brig.gen. and served till 1865, Mar., when he was brevetted maj.gen. and resigned to take his seat in congress, to which he had been elected as a republican. He served there 1865-73, was a delegate to the national republican convention 1876, was again in congress 1877-93, and has since been re-elected for each succeeding term.

KETCH'O, or KESH'O. See CACHAO.

KETCHUM, *kěch'ŭm*, WILLIAM SCOTT: 1813, July 7—1871, June 28; b. Norfolk, Conn.: soldier. He graduated at the U. S. Milit. Acad. 1834, was promoted capt. 1842, maj. 1860, brig.gen. vols. 1862, brev. maj.gen. vols. 1865, and was retired 1870. He served in the Seminole Indian war, on garrison duty, and in the inspector-general's, quartermaster-general's, and adjutant-general's departments.

KETCHUP, *kěch'ŭp*, or CAT'SUP, or CATCH'UP [said to be the E. Indian or Japanese word *kitjop*, denoting a similar compound]: a name common to several kinds of sauce, much used with meat, fish, toasted cheese, etc. The name was originally restricted to sauces having as their basis mushrooms or other edible fungi; but is now variously applied.—MUSHROOM KETCHUP is made from the common mushroom (*Agaricus campestris*), by breaking it into small pieces, and mixing it with salt—which so acts upon it as to reduce the whole mass to an almost liquid state—straining and boiling down to about half the quantity. Spices of different kinds are added, for which there are many receipts, and sometimes wine. Mushroom ketchup must be kept in tightly-corked bottles.—WALNUT KETCHUP is made from unripe walnuts, before the shell has hardened. They are beaten to a pulp, and the juice

KETONES—KETUBAH.

is separated by straining. Salt and vinegar are added, also spices variously, and after considerable boiling down, the ketchup is bottled, and may be kept for years.—TOMATO KETCHUP is made in a similar manner from tomatoes. These are the three most esteemed kinds. In preparing and keeping all kinds of ketchup, it is important to avoid the use of copper, lead, or pewter vessels or implements, as these are liable to make the preparation poisonous.

KETONES, n. plu. *kē'tōnz* [an adaptation of the word *acetone*, one of the best known *ketones*]: in *chem.*, bodies derived from aldehydes—which they resemble in constitution—by the substitution of an alcohol radical for an atom of hydrogen. The principal ketones are acetone, proprione, ethyl butyral, butyrone, and benzophenone.

KETTLE, n. *kět'l* [Ger. *kessel*; Goth. *katil*; Dan. *ketel*; Russ. *kotel*, a kettle: L. *catillus*, a small bowl or dish]: a metal vessel of various shapes and dimensions, used for heating water, etc., and in cooking food. KETTLE-DRUM, drum formed by stretching vellum over the circular edge of a hemispherical vessel of brass or copper. This instrument, which gives forth a sharp, ringing sound, is used by regiments of cavalry and horse artillery in lieu of the ordinary cylindrical drum, which from its shape would be inconvenient on horseback. The name was applied in the British army in India to a social gathering in which kettle-drums served in lack of tables to hold teacups and plates. Thence it passed into familiar use in England and America for an informal party, with simple refreshments and every-day attire—especially for such a party in the late afternoon. KETTLE OF FISH, at a *picnic*, newly caught salmon cooked in a kettle in the open air, and eaten with the other provisions. See KIDDLE as to probable origin.

KETUBAH: a marriage contract among the Jews, dating back from early ages and forming the subject matter of an entire treatise of the Talmud (*Ketubat*). While it was in vogue before the rise of Christianity, Roman law had influence on its terminology. Early marriage contracts as remote as the 10th century are found in the Cairo Geniza (q.v.), very elaborate in preamble. The Italian *ketubah* are very ornate, fine examples being found in the Musée Cluny and the Smithsonian. As for the contents of the *ketubah*, an important element is the settlement on the wife of a certain sum either on the death of her husband or her divorce. The amount of dowry was also mentioned, with the addition thereto made by the husband, as well as the usual obligations of a husband to a wife. It was written in Rabbinic. Thus the *ketubah* was the inalienable right of the woman, which was forfeited by improper acts on her part. It formed a lien upon all her husband's real estate. See Mielziner, *The Jewish Law of Marriage and Divorce* (Anan. 1884);

KETUPA—KEWANEE.

Amram, *The Jewish Law of Divorce*, chap. x. (Phila. 1896).

KETUPA, n. *kě-tū'pa* [a barbarous name with no meaning]: the Indian fish owl.

KEUPER, n. *kōy'pēr* [Ger. *keuper*—from *kupfer*, copper]: in *geol.*, the upper division of the Trias group of strata; consisting in the typical German series of a thickness of more than 1,000 ft. of (1) various colored sandstones; (2) marls, with gypsum and dolomite; (3) a series of carbonaceous slate-clay, with gray sandstones and small, irregular beds of impure earthy coal. In Britain, it consists of (1) an extensive series of red marls, with large deposits of rock-salt and gypsum; (2) white and brown sandstones with beds of red marl. The whole reaches a maximum thickness of 1,300 ft. The keuper occupies a large portion of the valleys of the Ouse and the Trent, and is extensively developed in Worcester, Stafford, and Cheshire, where beds of salt, often as much as 80 or 100 ft. in thickness, occur. The keuper does not abound in fossils. The contained organisms differ from those of the Permian and older periods; they have the general appearance of the fossils of the Lias and Oolite. The plants consist of ferns, equisetum-looking plants, cycads, and conifers. The character of the rocks, and the quantity of oxide of iron, which seems to have been injurious to life, account for the paucity of fossils. The strata are of interest to the paleontologist chiefly because of the numerous footprints they contain (see ICHNOLOGY), and the remains of the reptiles which produced them, as well as because in them are found the only observed fragments—the teeth—of the oldest mammal yet known. See MICROLESTES.

KEVEL, n. *kěv'ěl* [Icel. *kefli*; Dan. *kievle*, a short staff, a peg]: in a *ship*, a piece of timber on which the sheets and larger ropes are belayed; a species of antelope; a Derbyshire mining term for a sparry substance found in the veins or seams; in *OE.*, a gag for the mouth; a bit for a horse.

KEW, *kū*: small village in Surrey, England, on the right bank of the Thames, six m. w. of Hyde Park Corner. On the opposite side of the river is Brentford, with which Kew is connected by a bridge. The most interesting object at Kew is the Royal Botanic Gardens, containing a large and choice collection of plants, native and exotic. The hot-houses and conservatories are very numerous. There are also a palm-house, 362 ft. by 100, and 60 ft. high; a temperate-house, of the same height, occupying three-fourths of an acre; and a museum. The gardens extend over about 75 acres; and the pleasure-grounds connected with them, 240 acres.

KEWANEE, *kě'wân'ē*: a city in Henry co., Ill., on the Burlington Route railroad; 32 m. n.e. Galesburg, and 132 m. w.s.w. of Chicago. It is a rich farming and bituminous

KEWATIN—KEY.

coal mining region; manufactures, foundry and machine shop products, agricultural implements, carriages and wagons, soil-pipe, pumps, household heating apparatus, etc. Pop. (1910) 9,307.

KEWA'TIN. See KEEWATIN.

KEWEENAWAN, *kē'we-nā-an*, SERIES: a great series of rocks, believed to be of pre-Cambrian age, typically developed on Keweenaw Point, Mich., but found over a large area, in Michigan, Wisconsin, and Minnesota. Rocks of the same age occur also in Canada, and possibly in the Adirondack Mountains in New York. The series on Keweenaw Point and southward has a maximum thickness of perhaps 50,000 ft.; the lower part consists mostly of thick sheets of lava and intrusive rocks, with some sandstone and conglomerate; the upper part is a mass of sedimentary rocks. In the series occur the famous Lake Superior copper deposits. The Keweenawan series is included in the Algonkian or Eozoic system.

KEX, n. *kěks*, KEXES, n. plu. *kěks'ěz* [W. *cecys*, hollow stalks, hemlock; W. *cegid*; L. *cicūta*, hemlock: comp. Gael. *caoc=kěk*, dry, hollow, empty]: in *OE.*, the dry hollow stalks of hemlock, reeds, and the like: also spelled KEKSIES, n. plu. *kěks'iz*, in Shakespeare.

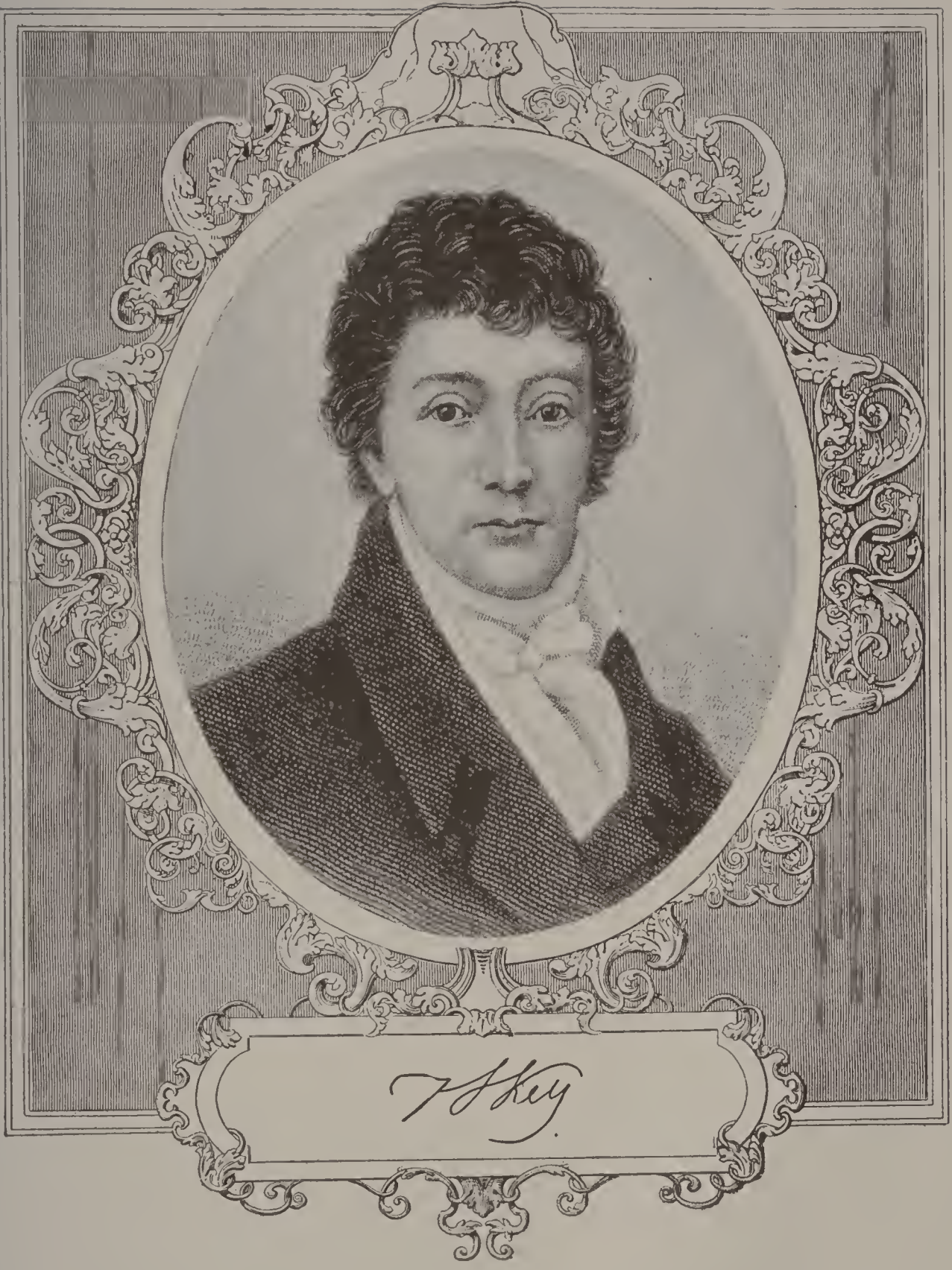
KEY, n. *kē* [AS. *cæg*; Fris. *kay*; Gr. *kleis*, the key of a lock: L. *clavis*, a key—from *claudo*, I close or shut up]: instrument for shutting and opening locks; an instrument by which something is turned; that which explains or solves a difficulty; the examples or questions of a book of arithmetic, algebra, etc., worked out; the exercises of a grammar, etc., correctly performed; the literal Eng. translation of a foreign author, especially L. or Gr.; the explanation of the use and application of the symbols of a cipher; the small lever in a musical instrument—as in a pianoforte. In *her.*, common heraldic bearing in the insignia of sees and religious houses, particularly such as are under the patronage of St. Peter. In secular heraldry, keys sometimes denote office in the state. KEYED, a. *kēd*, furnished with keys. KEY-BOARD, the range of keys of an organ or pianoforte (see FINGER-BOARD). KEY-COLD, in *OE.*, cold as a large metallic key; cold; lifeless. KEY-HOLE, a hole in a door or lock for admitting a key. KEY-NOTE, the fundamental or leading note in a piece of music. KEY-STONE, the highest central stone of an arch. KEY OF A POSITION, in *mil.*, a particular place, the possession of which is necessary in order to render a camp or military district tenable. KEY OF THE MEDITERRANEAN, the fortress on the rock of Gibraltar at its entrance. TELEGRAPHIC KEY, the small hand switch worked by the operator in transmitting messages. See TELEGRAPH.

KEY, n. *kē*: a wharf, rather spelled QUAY—which see.

KEY, in Music: term synonymous with *scale*, from *scala*, a stair. The diatonic scale, as produced by nature, is a certain succession of tones and semitones, ascending

KEY.

from any sound taken as a basis to the octave of that sound, the semitones of which will be found to lie between the 3d and 4th, and between the 7th and 8th degrees, ascending from the basis. In rendering this succession of sounds available for musical purposes, by our artificial method of notation, the sounds have, so to speak, been fixed at a certain recognized pitch. Any of the sounds of the natural scale may be taken as a note to form the basis of a new scale, observing always the due succession of the tones and semitones. The note forming the basis is denominated the Key-note of the scale, and such scale is said to be in the key of that note. As in our notation, each whole tone can be artificially divided into two semitones (see CHROMATIC, in Music), it follows that, with the already existing diatonic semitones, there are 12 equal semitones between a key-note and its octave; and as each of these semitones may be taken as a new key-note, there are therefore 12 keys major, and the same number minor, all differing in pitch. In written notation, the scale of the note named C has been assumed as the natural key; the notes forming that scale being held to fall naturally into the requisite succession of tones and semitones. It follows that if any other note be taken as a key-note, one, or more, or all of the notes of the so-called natural scale must be altered, by being either sharpened or flattened, to bring the scale of the new key into the due succession of tones and semitones. Such alteration is indicated by the marks of sharps or flats, placed at the beginning of the staff, and is termed the *signature* of the key. In the minor mode, the key of A minor stands exactly in the same relation to the other minor keys as the key of C does to the other major keys, A being the key-note on which the natural minor scale is found. All other keys have sharps or flats in greater or less number as they are distant from the natural key of C major or A minor, reckoning by perfect fifths, ascending or descending; thus, the key of G major, which is a perfect fifth above C, has one sharp for its signature—viz., F sharp; the key of D, which is two fifths above C, has two sharps—viz., F sharp and C sharp; and so on to the key of F sharp, adding a sharp for every ascending fifth. The keys with flats are found exactly in the reverse order—viz., by descending fifths—thus, the key of F, a perfect fifth below C, has one flat—viz., B flat; the key of B flat has two flats—viz., B flat and E flat; and so on to the key of G flat with six flats, which in practice is regarded as the same key of F sharp with six sharps. The number of flats or sharps is in some cases, for a harmonical purpose, extended still further; such as the key of C sharp with seven sharps, which is the same as D flat with five flats; or the key of G sharp with eight sharps, which is the same as A flat with four flats. The unnecessary increasing of either sharps or flats only increases the difficulty of reading the music. The term key is often loosely used



F. Key

KEY—KEYES.

in the sense of *mode*, and we frequently hear of the major or minor *key*. Much confusion has arisen from this.

KEY, DAVID MCKENDREE: American jurist and cabinet officer: b. Green co., Tenn., 1824; d. Chattanooga, Tenn., 1900, Feb. 3. After studying law he was admitted to the bar in 1849, and in 1853 took up his residence in Tennessee, establishing a successful law practice at Chattanooga. After vainly attempting to prevent the secession of Tennessee, when once that step was taken he joined the Confederate army and served throughout the war, but at its close joined the republican party, succeeded Andrew Johnson in the United States senate (1875); in 1877 was made postmaster-general; and in 1880 was appointed United States district judge for the eastern and middle districts of Tennessee, a position he held till his death.

KEY, FRANCIS SCOTT: American lawyer and song writer: b. Frederick co., Md., 1779, Aug. 1; d. Baltimore, 1843, Jan. 11. He was educated at St. John's College, Annapolis, and commenced the practice of the law in Frederic City. Subsequently he removed to Washington, where he was for many years district attorney of the District of Columbia. As a song writer he is chiefly known by his *Star-Spangled Banner*, a popular national lyric, suggested and partially written while the author was detained in the British fleet during the bombardment of Fort McHenry, near Baltimore, of which he was an anxious and interested witness. A posthumous collection of his miscellaneous poems was published in 1856.

KEYES, *kēz*, EDWARD LAURENCE: American surgeon: b. Charleston, S. C., 1843, Aug. 28. He is a son of Erasmus Keyes (q.v.) and was graduated from Yale in 1863 and from the medical department of the University of New York in 1866. He has practised his profession in New York from 1867, and is now consulting surgeon to Bellevue Hospital. He has published *The Venereal Diseases* (1880); *Treatise on Surgical Diseases of the Genito-Urinary Organs* (1881); etc.

KEYES, EMERSON WILLARD: American educator and financial writer: b. Jamestown, N. Y., 1828, June 30; d. 1897, Oct. 13. He graduated from the State Normal School, was deputy superintendent of public instruction in New York 1857-65, and acting superintendent 1861-2. In the latter year he was admitted to the bar, became deputy superintendent of the banking department of New York state in 1865, and was appointed bank examiner five years later. In 1882 he was appointed chief clerk of the Brooklyn (N.Y.) board of education, a position which he filled until his death. He published *New York Court of Appeals Reports* (1867-9); *History of Savings Banks in the United States* (1878); *New York Code of Public Instruction* (1879); etc.

KEYES—KEYS.

KEYES, ERASMUS DARWIN: American general: b. Brimfield, Mass., 1810, May 29; d. Nice, France, 1895, Oct. 11. He was graduated from West Point in 1832, and served in Charleston 1832-3. He was later placed on frontier duty in the northwest during the Civil War, and won distinction at Fair Oaks and elsewhere. He was promoted maj.gen. vols. 1862, May 5, and on May 31 of that year was brevetted brig.gen. United States army. He resigned in 1864 and settled in California. He published *Fifty Years' Observation of Men and Events* (1884).

KEYES: the name given to coral and other reefs or slightly sunken rocks off the shores of Florida, Central America, and the West India Islands. The term is derived from the Spanish *cayo* (an islet, rock).

KEY ISLANDS, group s. of New Guinea, between $5^{\circ} 12'$ — $6^{\circ} 4'$ s. lat., and $132^{\circ} 40'$ — $133^{\circ} 18'$ e. long. They consist of Great Key, Little Key, Key Watela, and a number of small islands. In 1853, two new islets appeared in connection with earthquakes which occurred Nov. 26.

KEYS, n. plu. *kēz* [OF. *cayes*; Sp. *cayo*, a rock, a sand-bank, an islet in the sea: Icel. *ey*, an island: W. *cae*, an inclosure: L. *cautēs*, a rough pointed rock (see QUAY)]: small shoals or uninhabited islets (see CAICOS). HOUSE OF KEYS, the local parliament of the Isle of Man—which see.

KEYS, POWER OF THE (*Potestas Clavium*): term variously applied in different systems of the church. It properly signifies the supreme authority in the church. Rom. Catholics believe this to be vested in the pope, as successor of St. Peter. The phrase is derived from the metaphor addressed by our Lord to Peter, Matt. xvi. 19, and which Rom. Cath. interpreters, relying on the analogous use of the phrase, Is. xxii. 22, iii. 7, and i. 18, also in classical writers, understand as investing Peter with the supreme power in the church. The power of the keys is divided by Rom. Catholics into two branches—that of order, which, though possessed by all bishops and priests, is believed to belong specially and primarily to the pope; and of jurisdiction, which regards chiefly the supreme government of the church, and embraces the power of enacting laws and dispensing in them, and of directing and governing not only the Christian flock, but also its pastors in their several spheres. This jurisdiction of the keys is exercised in a more limited field, and in a subordinate way, by patriarchs, primates, archbishops, bishops, and other dignitaries; but that, according to the Roman theory, it has its source, as well as its chief seat, in the pope, is implied in the distinctive use of the emblem of the keys as a symbol of papal jurisdiction. The metaphor of the keys was frequently appealed to in the debates of the late Vatican Council on the papal privileges. The

KEYSER--KEY WEST.

phrase is applied also to the sacrament of penance, to designate the power of remitting or retaining sin, and with the same distinction of order and jurisdiction, of which the former is imparted to every priest by his ordination, while the latter is communicated only by an express act of the bishop or other superior.

Protestants differ somewhat in their views regarding the power of the keys as equally intrusted to the whole ministry of the church of Christ, and as including *doctrine* and *discipline*. They admit the argument from the use of the key in Scripture as a symbol of authority; but (referring sometimes to Matt. xvi. 23) refuse to acknowledge any limitation of that authority to the apostle Peter. The majority of them regard it as equally intrusted to the whole ministry of the church of Christ, and as including both *doctrine* and *discipline*. A view more simple and direct than this is taken by some who compare the passage cognate to that above quoted (Matt. xviii. 17-20, especially 17 and 20, which declare the power of the whole company of disciples rather than the power of the ministry or of any ecclesiasticism), and who thence infer that this power is for remission of sins, and is granted by Christ to each individual believer exactly according to his faith, while the power naturally finds its most signal development in the apostles and the ministry appointed through them.

KEYSER, *kī'zér*, EPHRAIM: American sculptor: b. Baltimore, Md., 1850, Oct. 6. On the completion of his academic course in his native city, he studied art at the Royal Academies in Munich and Berlin, where his success was marked. He has had studios in Rome, Italy, New York, and Baltimore, where he now resides, in charge of the sculpture and modeling classes at the Maryland Institute School of Art. His most important public works are the De Kalb statue at Annapolis, Md., and President Arthur's tomb at the Rural Cemetery, Albany, N. Y. He has made numerous portrait busts, among others those of Cardinal Gibbons, Daniel Coit Gilman, and Sidney Lanier. While abroad he received the Michael Beer scholarship.

KEYSER, LEANDER SYLVESTER, A.M., D.D.: American Lutheran clergyman and ornithologist: b. Tuscarawas co., Ohio, 1856, Mar. 13. After graduation from Wittenberg Divinity School he filled various Lutheran pastorates in Indiana and Ohio, and was pastor of Midland College Church, Atchison, Kan., 1897-1903. He has published *The Only Way Out* (1888); *Birddom* (1892); *In Bird Land* (1894); *Birds of the Rockies* (1902); etc.

KEYSTONE STATE: a name given to Pennsylvania, because it was the seventh, or central of the original 13 states.

KEY WEST (Sp. *Cayo Hueso*, Bone Reef): coral island, most westerly of the Florida Keys; belonging to Monroe co., Fla., 60 m. s.w. of Cape Sable, about 7 m.

KEY WEST—KHALIFA.

long, 1 to 2 m. wide, and nowhere more than 15 ft. above sea-level. There are no fresh springs; the water supply is from rain and distillation. The people, chiefly of Cuban and Bahaman stock, speak a Spanish patois.

KEY WEST: city of Florida and a naval station of the United States; on the island of Key West. It is the farthest south of any city in the United States. The first permanent settlement was made in 1822 and the city received its charter in 1832. Key West is covered by only a thin layer of soil upon which vegetation grows luxuriantly. The island averages about 11 ft. above the sea. The harbor is excellent; at the main entrance, on an artificial island, is located Fort Taylor. The city has regular steamer communication with the large cities on the Atlantic and Gulf coasts and with the West Indies and Central America. It is a United States naval station, and during the war with Spain it was the rendezvous of the United States navy. The chief industries are manufacturing of cigars, gathering sponges, and fishing. There is a large trade in fish, fruit, vegetables, turtles, turtle-shell ornaments, salt, tobacco, both raw and manufactured. In connection with the naval station there are barracks, machine-shops, marine hospital, docks, etc. Some of the chief public buildings are the government buildings, postoffice and custom-house, county court-house, city-hall, and the Martello towers. The principal educational institutions are a Methodist seminary and the Holy Name Academy. The Convent of the Holy Name was used as a hospital for soldiers during the Spanish war. The free public library and the public and parish schools are excellent. There are two banks with a combined capital of \$150,000. The government has erected two light-houses in the harbor and others among the islands; but still many wrecks occur each year. The city owns and operates the waterworks. Pop. (1910) 19,945.

KHAKI, n. *kâ'kē* [various Hindu languages]: in *Brahmanism*, a sect of Vishnuvites, founded by Kil, a disciple of Krishna Das; so called because they apply the ashes of cow-dung to their dress and person.

KHAKI: a kind of light-brown, drab, or dust-colored cloth, originally used for making the uniforms of East Indian regiments. In the South African war of 1899-1901 the British troops wore khaki uniforms for purposes of protective coloration, and khaki was also worn by the United States troops in the Spanish-American war.

KHALIFA, *kâ-lē'fâ*, **THE** (SAYED ABDULLAH IBU-SAYED MOHAMMED): Arab religious leader: b. Darfur 1846; d. battle of Om-Debrihat, Egypt, 1899, Nov. He fought against the Egyptian invasion of Darfur, and subsequently, having heard of the troubles of the Mad Mullah (q.v.), Mohammed Ahmed, with the Egyptian authorities, he visited Mohammed, and proclaimed that the latter was the divinely-sent Mahdi, or 'director,' ap-

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pointed for the regeneration of Islam. It was by his councils that the Mahdi caused the troubles in Kordofar and Darfur. Ere long he was made 'khalifa,' or vicerent, his acts to be regarded as equivalent to the Mahdi's own. He was named by the Mahdi as successor, and from 1885 ruled over the Sudan and such adjacent districts as he brought within his sway. His capital was situated at Omdurman, near which, in 1898, Sep. 2, his army, though fighting with great bravery, was almost annihilated by the British and Egyptian forces under Sir Horatio (now Lord) Kitchener (q.v.). He escaped northward, but in 1899, Nov., was slain at the combat of Om Debrihat.

KHAMSIN. See KAMSIN.

KHAN, n. *kawn* or *kān* [Turkish word, prob. of same origin as king (q.v.)]: title of Turkish and Tartar governors; applied to kings, princes, or chiefs. KHANATE, district or jurisdiction of a khan. KHAGAN (rare), 'kahn of khans,' chief of khans.

KHAN: n. *kān* [Pers. *khan*, a house or tent]: an eastern inn or caravansary.

KHANDESH'. See CANDEISH.

KHANI'A. See CANEA.

KHANPUR': city of the Doab. See CAWNPORE.

KHARASM'. See KHIVA.

KHAR'GEH. See EL-KHARGEH.

KHARKOV, *châr-kö'v'*: government in Little Russia, immediately e. of the government of Poltava; 20,959 sq.m. The surface is flat, with chalk hills along the streams. The soil is a rich and fertile loam, watered chiefly by affluents of the Don. In the n.w. the principal occupations are agriculture and distilling corn-brandy; in the s.e., the breeding of cattle and sheep. The breeding of horses also is carried on. Corn, tobacco, wax, honey, and tallow are largely produced; beet-root sugar is manufactured, and there is an extensive trade in sheep and cattle; but as there is almost no communication with the surrounding governments, the resources of Kharkov are in great part undeveloped. Pop. 2,509,800.

KHARKOV': capital of the government of the same name in European Russia, on the banks of affluents of the Donetz, 916 m. s.s.e. of Petersburg. It ranks as one of the chief towns of the Ukraine. Its position favors its enormous exchange trade between north and south; there are four annual fairs, and extensive manufactures of linen, felt, sugar, candles, soap, spirits, tobacco, and iron. Kharkov has a university with 900 students, a veterinary college, and a model farm. Pop. 174,850.

KHARTOUM, *châr-tôm'* (or *Khartum*): capital and emporium of the Egyptian Sudan (see SUDAN), on the peninsula at the junction of the Blue and White Nile. The

KHASI HILLS—KHERSON.

town consists mainly of mud-huts, but has many substantial buildings; including the governor's palace, mosque, and hospital. It lies mainly along the Blue Nile, here about 1,450 ft. above sea-level. The country around is bare and level. Khartoum is the centre of the great caravan roads of the interior. It became important under Mehemed Ali (q.v.), 1838; had a Rom. Cath. mission 1846, and a British consulate 1849-64. Khartoum has a melancholy interest since its heroic defense by Gen. Gordon against the forces of the Mahdi, 1884-5. Two days before the rescuing army reached it, Khartoum fell, and Gordon was among the slain, 1885, Jan. 20. Khartoum was held by the Mahdi and the Khalifa till 1898, Sep., when Gen. Kitchener recaptured it together with Omdurman at the close of his campaign.

KHASI HILLS: range in Assam, on the Burmese frontier, interesting as having the heaviest known rainfall in the world. See RAIN.

KHAWASS, n. *kow-ās'*; also spelled CAWASS [Hind.—from Ar.]: a functionary; a grandee; a minister of state.

KHAYA, *kā-ya'*: genus of trees of nat. ord. *Cedrelaceæ*. The KASSOU-KHAYE of Senegal (*K. Senegalensis*), one of the most abundant forest-trees in that part of Africa, attains a height of 80 or 100 ft., and is much valued for its timber, which is sometimes called *Cailcedra*, and is reddish colored, very hard, durable, and of beautiful grain. The bark is astringent and febrifuge, and contains a peculiar alkaloid.

KHAYYĀM, *kī-yām'*, OMAR, *ō'mar* (full name GHIYATH-UD-DEEN ABULFATH OMAR BIN IBRAHEEM AL KHAYYAMEE): about 1025-1123; b. Nishapoor, Persia: author and mathematician. He derived the epithet *Khayyām* (tent-maker) from his father's trade, was educated in the Nishapoor College, formed there a lasting friendship with Nizām-ul-Moolk, afterward grand vizier, and Hassan, subsequently founder of the sect of Assassins; applied himself to the special study of mathematics and astronomy, and published treatises on those subjects, and the *Rubaiyat* (his most notable work), a collection of 500 epigrams full of wit, mysticism, and philosophy. Of this an English translation has recently appeared. He has been called frequently the Voltaire of the East.

KHEDIVE, n. *kēd-ēv'* [Pers. *khidiv*, a sovereign]: title granted 1867 by the Sultan of Turkey to the Viceroy of Egypt, who exercises a kingly though tributary authority. **KHEDIVAL**, a. *kēd-ī'vāl*, of or pertaining to the Khedive of Egypt.

KHELAT, n. *kē-lāt'*, or **KHELAUT**, n. *kē-lawt'*, or **KHILAUT**, n. *kē-lawt'* [Hind. and Arab. *khalat*, *khila*]: dress or robe conferred as a mark of distinction.

KHERSON, *kēr'son*, or *chēr-sōn'*: government in s. Russia, on the borders of the Black Sea, appearing in

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history first B.C. 4th c., when it formed a portion of the kingdom of the Bosphorus. From the 11th c. the right of possession was claimed by the Poles, the Cossacks, and various Tartar tribes, the last being ultimately successful. In the 17th c. Russians commenced to settle in the province; and during the next century they were followed by a number of Servians. The province, 28,666 sq.m., is uniformly fertile in the n. and n.w.; in the s. it is sometimes dry and arid, with here and there sandy wastes, which toward Odessa are incrustated with salt. Notwithstanding that three large rivers—the Dnieper, Bug, and Dneister—run through the s. of the province, the want of water is often severely felt, especially in July, when the vegetation is almost completely burned by the heat. The climate is very changeable, being very hot in summer, and piercingly cold in winter. Destructive ravages by locusts are frequent. The inhabitants are Little Russians (natives of the Ukraine), Moldavians, Bulgarians, Greeks, Germans, and Jews, employed chiefly in agriculture. The Germans cultivate tobacco, and rear silk-worms. Much of the arable land, however, is unproductive through want both of capital and labor. Cattle and sheep breeding are carried on. Pop. 2,732,800.

KHERSON', or CHERSON: capital of the government of Kherson, in European Russia; on the right bank of the Dnieper, near where it widens into the estuary of the Liman, 808 m. s. by w. from Moscow. It was built by Catharine II. 1778, as a port for the construction of ships of war; but, in a very few years, was supplanted by Odessa and Nikolaief, both as a dock-yard and a commercial outlet. Only ships of light draught are now built at Kherson, and only such ships can navigate the estuary. Kherson is the centre of the coasting and staple trade in timber and other goods floated down the Dnieper and its tributaries, and in Crimean salt. Rope-making, tallow-melting, and wool-washing are chief branches of trade, and the products are largely exported. Kherson has a gymnasium, naval school, school for training pilots, and an observatory. Pop. 69,200.

KHIDMUTGAR, n. *kīt'mūt-gâr'* [Ar. from *kidmat*, service; *gar*, a doer or agent]: in *India*, a table manservant, often contracted into KIT.

KHIVA, *chē'vâ* (anc. *Chorasmia*), or KHAUREZM', or KHARASM, or URGUNGE: a Russian vassal state in central Asia; between lat. 37° 45'—44° 30' n. and long. 50° 15'—63° e.; about 25,000 sq.m.; the surface being mostly a sandy desert, with many scattered fertile tracts. It is bounded n. by the Russian territory and Sea of Aral, e. by the khanate of Bokhara, s. by Persia, w. by the Caspian Sea. The chief oasis, in which the cap., Khiva, is situated, stretches from the mouth of the Oxus or Amudaria for 200 m. along its banks, and is watered by artificial canals supplied from that river, to which en-

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tirely it owes its fertility. The inhabited area is about 5,000 sq. m. Pop. estimated 260,000 settled inhabitants and nearly as many nomads. Among them are Uzbeks, Karakalpaks, and Turkomans (all Mongolian), and Arayan Tajiks, probably the original inhabitants of Khiva, mostly liberated Persian slaves.

Khiva, in ancient times, was nominally subject to the Seleucidæ; subsequently it formed a part of the kingdoms of Bactria, Parthia, Persia, and the Caliphate, and became an independent monarchy 1092 under a Seljuk dynasty. The Khivans, or, as they were then called, the Khaurezmians, after conquering the whole of Persia and Afghanistan, succumbed to the Moguls, under Genghis Khan, 1221. In 1370, Khiva came into the hands of Timûr. Timûr's descendants were subdued 1511 by Shahy Beg (called Sheibani Khan by western writers), chief of the Uzbeks, a Turkish tribe, and his successors have ruled over Khiva to our times. Ever since the Russians entered central Asia they have complained that the Khivans fostered rebellion among their Kirghis subjects, and plundered their caravans. In 1717 Peter the Great endeavored to conquer Khiva, but was defeated, and 1839 the attempt was renewed by the Czar Nicholas with no better success. War may be said to have recommenced when new Russian forts were founded 1869-71 on the shores of the Caspian. It was not, however, until 1873 that a great effort was made finally to crush Khiva. To diminish the difficulties of crossing the deserts, the Russian force was divided into five columns, each about 3,000 strong, to approach Khiva by different routes. After enduring with admirable fortitude great privations and fatigue, the Russians entered Khiva, June 19. The khan agreed to pay a war indemnity and to cede to Bokhara the Khivan possessions on the right bank of the Amu-Daria (Oxus). Shortly afterward, however, these possessions were incorporated with Russian territory, and now Kizil-Kum and the annexed part of Khiva form the Russian government of Amu-Daria, 39,820 sq.m.; estimated pop. 109,600. KHIVA, cap. of the khanate, is in the great oasis. It consists almost entirely of earth-huts, not excepting the residence of the khan; the only brick buildings being three mosques, a school, and a caravan-sary. Pop. of town 5,000.

KHLISTIE, *klis'ti*, or DANIELITES, *dān'ī-ēl-īts*: Russian sect founded 1645 by Daniel Philoppon, a Kostroma peasant, who deserted the army, proclaimed himself God, formulated 12 commandments, and began teaching his fanatical doctrines, while inculcating the observance of a part of the ceremonies of the church for policy's sake. They regarded Philoppon as the manifestation of God in flesh, ridiculed the orthodox church, its ceremonies and priests, adored the pictures of their god and saints, and concluded their services with a long meal. They attained large numbers, including many of the nobility, and in

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their practices to-day are somewhat similar to the Flagellants.

KHODJAS, n. [Pers. *khavadje*, a singer or reader]: in *Turkey*, professors or teachers who instruct the softas, or law and theological students, in the medresses, or secondary schools, attached to the mosques. When a softa passes a successful examination, which entitles him to the title of Khodja, he generally devotes himself for some years to teaching. After this he stands a second examination, and if he pass it, obtains the title of Ulema or Doctor in Theology.

KHOKAN, *chō-kân'* (originally *Kokand*): formerly a khanate of Turkestan extending e. of 64° long. over the whole of the upper basin of the Jaxartes or Sir-Daria. But long previous to the commercial treaty in 1868 between Russia and Khokan, the khanate had been confined to an area of about 30,000 sq.m. between 70° and 74½° e. long. and between 39° 40' and 42° n. lat. In the summer of 1875 a rebellion against the khan, who was already practically a Russian vassal, led to a Russian intervention. After a fierce struggle, the immediate result was the annexation to Russia of all the territory of Khokan n. of the Sir-Daria. Now the whole khanate forms the Russian government of Ferghana, a name under which Khokan was famous throughout the East in the middle ages. The area of Ferghana is 35,654 sq.m., and the pop.—Kipchaks, Kirghiz, Tajiks, Sarts, and Uzbeks—is about 1,560,400. Khokan was not the richest or most fertile of the three independent khanates. There are manufactures of silks and coarse cottons. The town of Khokan, 220 m. from Samarcand, has about 75,000 inhabitants; but now the cap. of the province of Ferghana is Marghilan. Samarkand (q.v.) and Andijan also are in the province.

KHOR, n. *kōr*: an Arab name for a deep secluded inlet of the Red Sea. See FIORD, or FJORD.

KHORASSAN, *chō-rās-sân'* (anc. *Parthia*, *Margiana*, and *Aria*): largest province of Persia; lat. 31°—38° 30' n., long. 53°—62° 30' e.; about 210,000 sq.m. of which, nearly one-third, is a vast salt waste; of the remainder, a large portion consists of plains of shifting sand; and the rest is fertile. The fertile districts are in the north, where the high range of the Elburz crosses the province, throwing out spurs, forming a mountainous district, abounding with fertile and well-watered valleys. Artificial fertilization by canals was extensive in ancient times, but the incessant disturbances, which have unsettled the district for the last 1,000 years, have almost put an end to this practice. The chief products of Khorassan are grain, cotton, silk, hemp, tobacco, aromatic and medicinal plants, fruits, wine, salt, gold, silver, and precious stones, also camels, horses, and asses. In the more thickly peopled districts are considerable manufactures of silk, woolen, and camels' and goats' hair fabrics, also

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of muskets and sword-blades. The chief towns are Meshed, the cap. Nishapûr, Yezd, and Astrabad. The inhabitants are Mohammedans of the Shiah sect.

Khorassan, in ancient times, included also the desert of Khiva or Kharasm, and the district now known as the kingdom of Herat, but the first was separated from it by the Seljuks at the commencement of the 11th c., and the latter about 1510, since which period it has been on several occasions seized and held for a short time by the Persians. Khorassan has been several times separated from the Persian empire, but was finally reunited to it at the commencement of the 16th c., by Ismail Sofi, the first Suffavean shah of Persia. See PERSIA.

KHORASSAN', THE VEILED PROPHET OF. See HAKIM BEN ALLAH.

KHORSABAD'. See NINEVEH.

KHOSRÛ, *chôs-rô'*, or KHÛSRÛ, *chôs-rô'*, I., surnamed NÛSHÎRVAN (the noble soul), known in Byzantine history as CHOSROES I.: greatest monarch of the Sassanian dynasty, son of Kobad, King of Persia; began his reign on his father's death 531. He gave shelter to great numbers of those whom Justinian, the Byzantine emperor, persecuted for their religious opinions. In 540 he commenced a war of 20 years' duration with the Roman emperor; but though the Persians gained abundant glory, the other results were unimportant. On the accession of Justin II., the Persian ambassadors having been ignominiously abused, and the Greeks having taken possession of Armenia, Khosrû, justly indignant, again declared war, 570, took Dara, the eastern bulwark of the empire, but was terribly defeated at Melitene (577) by Justinian, grand-nephew of the emperor Justinian; this defeat was, however, counterbalanced by the victorious Greek being in his turn totally routed in Armenia. Khosrû did not live to see the end of the contest, as he died 579. His government, though very despotic, and occasionally oppressive, was yet marked by a firmness and energy rarely seen among the orientals. Agriculture, commerce, and science were greatly encouraged; ravaged provinces were repeopled from his conquests, and wasted cities rebuilt. His memory was long cherished by the Persians, and many a story of the stern justice of Khosrû is still current among them. Persia, during his reign, stretched from the Red Sea to the Indus, and from the Arabian Sea far into central Asia.

KHOSRÛ' II., surnamed PURVÎZ (the Generous): d. 628, Feb. 28: grandson of Khosrû I.; raised to the throne 590, but being immediately deposed by another claimant, was, by the assistance of Emperor Maurice, reinstated, and in gratitude surrendered Dara, Nisibis, and a great part of Armenia to the Romans. In spite, too, of numerous and just grounds of quarrel, he preserved peace with that nation till the murder of his benefactor by Phocas.

KHOTYN—KIANG-SI.

Khosrû then invaded Mesopotamia 604, took Dara, and during 17 years inflicted upon the Byzantine empire a series of disasters, the like of which they had never before experienced. Syria was conquered 611; Palestine, 614; Egypt and Asia Minor, 616; and Chalcedon, the last bulwark of the capital, fell soon afterward. At this crisis the fortune of war changed sides (see HERACLIUS). Khosrû, driven in turn to the very gates of Ctesiphon, was deposed and murdered by his eldest son, Shiroueh, or Siroes. It was to this prince that Mohammed sent a letter demanding a recognition of his mission. See MOHAMMED.

KHOTYN'. See CHOTYN.

KHYBER PASS, *kî'bér*: most practicable of all the openings, four in number, through the Khyber Mountains, and the only one by which cannon can be conveyed between the plain of Peshawur, on the right bank of the Upper Indus, and the plain of Jelalabad, in n. Afghanistan. It is 30 m. in length, being here and there merely a narrow ravine between almost perpendicular rocks at least 600 ft. in height. It may be said to have been the key of the adjacent regions in either direction from the days of Alexander the Great to the Afghan wars of 1839-42, during which wars it was twice forced by a British army, in spite of an obstinate defense by the natives. The first fighting in the Afghan war of 1878-80 was in forcing an entrance into this pass, over which, as was stipulated in the treaty of Gandamak, the Anglo-Indian authorities were to have full control.

KI, *kē*: Chinese word signifying a grand division of time; applied to the 10 periods, of 3,000 years each, which are assigned as preceding the earliest imperial dynasty B.C. 2205.

KIABOUCCA, or KIABOCCA, or KYABUCA, *kī-a-bô'ka*, or AMBOYNA WOOD, *ām-boy'na wūd*: a beautifully mottled wood, found in small pieces in timber yards; evidently the wens or excrescences formed on the stem of the producing tree. *Pterospermum Indicum* (nat. ord. *Byttneriaceæ*). The color of this wood is yellowish red, of different shades, and covered with a most elegant mottled figure in darker shades. It is much used for small ornamental articles, especially snuff-boxes, its scarcity and the small size of the pieces preventing its manufacture into larger articles.

KIANG-SI, *kē-âng-sē'*: province of China; lat. 24°—30° n., long. 113° 20'—118° 30' e.; 72,176 sq.m.; bounded by Hoo-Nan, Hoo-Pe, Ngan-Hoei, Che-Kiang, Fo-Kien, and Quang-Tong; cap. Nan-Chang. It is watered by the Kan-Kiang river and its numerous tributaries, has a generally mountainous surface, produces gold, iron, tin, lead, hemp and green and black teas, and manufactures excellent porcelain and grass (nankeen) cloth. A large part

KIANG-SU—KICKAPOOS.

of Kiang-Si was flooded by a rising of the Yang-tse-Kiang river 1870-1. Pop. 26,532,125.

KIANG-SU, *kĕ'ang-sô*: province of China; lat. 30°—35° n., long. 116°—122° e.; 38,600 sq.m.; bounded by the Yellow Sea and the provinces of Shan-Toong, Ho-Nan, Ngan-Hoei, and Che-Kiang; cap. Nan-King. It is one of the most populous and fertile provinces of China, raises and exports more silk than any other province, is well watered by lakes, rivers, and canals, contains a number of important towns, and, besides silk, exports large quantities of rice, cereals, cotton, and tea. Pop. (estimated) 28,000,000.

KIBBLE, n. *kĭb'l*: in *mining*, a large iron bucket in which ore is drawn to the surface.

KIBE, n. *kĭb* [W. *cib*, a vessel, a husk: comp. Gael. *copan*, a cup, a boss, a dimple]: in *OE.*, a chap or crack in the skin occasioned by cold. KIBED, a. *kĭbd*, cracked or chapped in the skin by cold; having chilblains. KIBY, a. *kĭbĭ*, sore; chapped.

KIBITKA, n. *kĭb'it-ka* or *kĭ-bit'ka* [Rus.]: a Russian vehicle of various sizes, which may be either completely covered, entirely open, or provided with a hood behind. It is a wheeled vehicle, but in snowy weather is mounted on runners. Kibitka is also a tent used by the nomad tribes of the Kirghiz Tartars.

KIBLING, n. *kĭb'ling* [etym. doubtful]: parts of a small fish used by fishermen on the coast of Newfoundland as bait.

KICK, n. *kĭk* [Bav. *kickern*, a word used to represent an abrupt sound, as a shout, cough, the cluck of a hen, etc.; prov. F. *giguer*, to throw about the legs: W. *ocio*; Gael. *ceig*, to kick]: a blow with the foot: V. to strike with the foot; to thrust out the foot with violence; to show opposition. KICK'ING, imp.: N. the act of jerking out the foot with violence. KICKED, pp. *kĭkt*. KICK'ER, n. one who kicks. KICK AGAINST THE PRICKS, Acts xxvi. 14, in allusion to an ox in the East kicking against the goad, and so causing it to pierce deeper.

KICKAPOOS, *kĭk-a-pôz'*: a tribe of American Indians of the Algonquin family, formerly living on the Wisconsin river, now occupying reservations in n.e. Kansas and in Oklahoma. They were constantly in arms against the colonists and with the majority of the tribes of the Ohio valley sided with the English both in the Revolutionary War and in 1812. Soon after 1812 they made treaties resulting in their removal first to Missouri and then to Kansas. About 1852 a portion of the tribe went to Texas and Mexico, but these in 1873 made new treaties, and removed to the Osage river. They cared little for agricultural employment or education, roved through the Chickasaw and Creek countries, made frequent raids into Texas and Mexico, and ultimately separated into three

KICKLE—KIDD.

parties, one settling at Santa Rosa, Mex., and the others in Kansas and Indian Territory. They number 237 in Kansas, and 246 in Oklahoma.

KICKLE. See KITTLE.

KICKSHAW, n. *kĭk'shaw* [F. *quelquechose*, something, an unsubstantial nicety in cookery—hence an unsubstantial gratification of another kind]: something fastastic or uncommon; a fantastic dish; a delicacy.

KICKSY-WICKSY, n. *kĭk'sĭ-wĭk'sĭ* [doubtfully referred to *kicking* and *winking*]: an OE. word of indefinite application, but usually implying 'restlessness'; a wife in a depreciatory sense; a fancy woman; an unruly jade: ADJ. restless; uncertain.

KID, n. *kĭd* [Icel. and Dan. *kið*, a young goat: Ger. *kitze*, a female cat, a goat]: a young goat: V. to bring forth a young goat. KID'DING, imp. KID'DED, pp. KID'LING, n. *-ling*, a little kid.

KID, v. *kĭd* [AS. *cydan*, to make known]: in OE., to make known; to discover. KID'DING, imp. KID'DED, pp.

KID, n. *kĭd* [W. *cidys*, fagots]: in OE., a brush-fagot; a basket for carrying wares to market, so named as made of twigs. KIDDIER, n. *kĭd'dĭ-ĕr*, a packman or travelling huckster.

KID, n.: in *naut.*, small wooden tub or vessel, in which sailors receive their food.

KIDD, *kĭd*, WILLIAM; known as ROBERT KIDD: d. 1701, May 24; b. Scotland: navigator. He was the son of a nonconformist minister, became a sailor at an early age, distinguished himself for nautical skill and bravery, and for services rendered the American colonies was voted a purse of £150 by the council of New York 1691. In 1695 a stock company was organized which bought and equipped, in London, the *Adventure*, a 30-gun galley of 287 tons, and placed it under command of Kidd, who was authorized to do all in his power to suppress piracy and harass the French. He recruited part of his crew in England and the remainder in New York, and, 1696, Sep. 6, with a crew of 154 men, sailed from the Hudson river on his mission, backed by the royal seal. He went at once to the coast of Madagascar, a favorite rendezvous of pirates. In 1698 rumors began to be circulated in America and England, that instead of punishing the pirates he had affiliated with and become the chief among them; and in Nov., official orders for his arrest were sent to the govts. of all the English colonies. Early in 1699 he returned to New York with a large amount of treasure, some of which he buried on Gardiner's or on Shelter Island, and was induced to go to Boston to answer the charge of piracy. He went there July 1, defended himself against the charges of piracy, murder, arson, and other crimes, and was sent by the council to London for further examination. The evidence was insufficient to

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convict him of piracy, but he was condemned to be hanged for the murder of one of his men, though he claimed justification in the sailor's mutinous conduct. Both the fairness of his trial and the truth of the other charges against him have since been questioned. There has long been a popular belief that much of his buried treasure is still hidden on the shores of Long Island Sound, and at various times much labor and money have been spent in searching for it.

KIDDLE, n. *kīd'l* [F. *quideau*, a wicker engine for catching fish: Bret. *kidel*, a net at the mouth of a river fastened to two stakes]: a kind of basket set in the opening of a weir or embankment in a river for catching fish; sometimes spelled KITTLE, or KETTLE—hence the proverb, 'A pretty *kittle*, or *kettle*, of fish'; used ironically it means 'a fine mess.'

KIDDOO, *kīd'dô*, JOSEPH B.: 1840-1880, Aug. 19; b. Penn.: soldier. He enlisted as a private in the 2d Penn. volunteers 1861, Apr., was soon promoted major 101st Penn. volunteers; was appointed major 6th U. S. colored troops 1863, Oct., colonel 22d U. S. colored troops 1864, June; was brevetted brigadier-general U. S. volunteers and colonel and brigadier-general U.S.A.; became lieutenant-colonel 43d U. S. infantry 1866, July 28, and was retired, on account of wounds, with the full rank of brigadier-general U.S.A., 1870, Dec. 15.

KIDNAP, v. *kīd'nāp* [from familiar slang *kid*, a child: Lith. *kudikis*, a child, and slang or prov. Eng. *nap*, or *nab*, to steal: Dan. *nappe*, to snatch: Sw. *nappa*, to catch]: to steal a human being—man, woman, or child; to seize and forcibly carry away. KID'NAPING, or KIDNAPPING, imp. KID'NAPED, or KIDNAPPED, pp. *-nāpt*: ADJ. carried off forcibly, as a child. KID'NAPER, or KIDNAPPER, n. *-ēr*, one who steals men, women, or children.—*Kidnapping* is not a legal term, but is frequently applied in popular language to the offense of stealing or forcibly carrying off any person. It is an aggravated kind of ABDUCTION (q.v.).

KIDNEY, n. *kīd'nī*, KID'NEYS, n. plu. *-nīz* [AS. *quidh*; Icel. *kvidr*, the womb, and Eng. *nigh*: OE. *nerē*; Ger. *niere*, the testicles, the kidneys: Icel. *nyra*, a kidney—*lit.*, the testicles of the body: Latham suggests L. *catēnā*, a chain—from the linked appearance of a bullock's kidney]: one of two oblong flattened bodies lying behind the intestines of an animal, which secrete the urine. KIDNEY-SHAPED, having the form or shape of a kidney. KIDNEY-ORE, a variety of iron ore. KIDNEY, disposition or habits, as 'a man of my *kidney*.' OF THE SAME KIDNEY, of the same tribe or set; of the same size or kind.

KID'NEY-BEAN (*Phaseolus*): genus of plants of nat. ord. *Leguminosæ*, sub-ord. *Papilionacæ*; having 9 stamens united by the filaments, and one separate stamen, a downy stigma, a 2-lipped calyx, and the keel of the

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corolla with the stamens and style spirally twisted. The species are mostly annual herbaceous plants, natives of warm parts of the e. and w. hemispheres. The common kidney-bean (*P. vulgaris*) is the *Haricot* of the French. In Britain, it is sometimes called *French Bean*. In s. Europe, and as far n. as Germany, in the United States, and many other countries, the kidney-bean is a field-crop, and the ripe seeds are an important article of food. Within the tropics, it is sown at all seasons; but in countries subject to frost, only in spring, after the danger of frost is past. The seeds are used for food in a boiled state. In Britain, they are not regularly ripened, except in the most favorable situations in the south. The plant is therefore cultivated chiefly for the sake of the unripe pods, which, when boiled with the young seeds in them, form a well-known and very delicate dish.—The SCARLET RUNNER (*P. multiflorus*) has often been regarded as merely a larger variety of the kidney-bean, with long twining stem. It is doubtful, however, if they are originally from the same native country; an American origin being assigned to the Runner, which is also a perennial—though in the climate of Britain usually destroyed by the winter's frost, and therefore treated as an annual—and has tuberous roots. The roots, in common with those of some other species of *Phaseolus*, are narcotic and dangerous; serious consequences have ensued from the accidental eating of them. The plant is cultivated for the same uses as the kidney-bean, and affords, even in Scotland, a very abundant crop of green pods in the latter part of autumn, though the seed is not sown till about May 1. It is a very ornamental plant, particularly the common variety with scarlet flowers. It readily covers any trellis or paling, and requires stakes of 6—10 ft. in height.—Closely allied to the kidney-bean, if indeed more than varieties, and cultivated for the same uses, are the *Haricot de Soissons* (*P. compressus*), the *Haricot Princesse* (*P. tumidus*), etc. In some parts of India, one of the most esteemed kinds of pulse is the MOOG, or MOONG, or MUNGO (*P. Mungo*); in others, the KALA MOOG, or BLACK GRAM (*P. Max*).

KID'NEYS, THE: two glands in the bodies of men and other animals; having for their office the secretion of the urine. That this function is of extreme importance, is shown by the facts that when, in consequence of disease, it is altogether suspended in the human subject, even for a day or two, death frequently occurs, and that urinary glands corresponding in function to our kidneys are found not only in all vertebrate animals, but in almost all mollusks, in the arachnidans, in insects, and in myriapods.

The human kidneys are in the region of the loins, on each side of the spine, and are imbedded in a layer of fatty tissue. The average length of each kidney is a little more than four inches, and its usual weight is from four

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to six ounces. The substance of the kidneys is dense, extremely fragile, and of a deep red color. On making a vertical section of the kidney, it is seen to consist of two different substances, named, from their position, the external, or cortical, and the internal, or medullary, substance.

The *cortical substance* forms by far the greater part of the gland, and sends numerous prolongations inward between the pyramids of the medullary substance. It is



Vertical Section of the Kidney.

(From Gray's *Anatomy*.)

a, supra-renal capsule; *bb*, cortical substance of kidney; *cc*, medullary substance of kidney; *ccc*, the sinus or pelvis; *f*, the ureter, proceeding to the bladder.

soft, granular, and contains numerous minute red globular bodies diffused throughout it, called, from their discoverer, the Malpighian bodies, and which are noticed below more fully. Its substance is made up of the *uriniferous tubes* (described in the notice of the medullary portion), capillaries, lymphatics, and nerves, held together by an intermediate parenchymatous substance.

The *medullary* substance consists of pale-reddish, conical masses, called the pyramids of Malpighi. They are usually about 12 in number, but vary from 8 to 18, and their apices (the *papillæ*) point toward the hollow space (termed the *sinus* or *pelvis*) which occupies the interior of the gland. The medullary structure is firmer than the cortical, and, instead of being granular, presents a striated appearance, from its being composed of minute diverging tubes (the uriniferous tubes, or tubes of Bellini), which run in straight lines through this portion

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of the kidneys, after having run in a highly convoluted course through the cortical portion.

The cavity occupying the interior of the kidneys (the *sinus* or *pelvis*) is lined by mucous membrane, which, through the medium of the ureter, is continuous with that of the bladder, and which extends into the tissue of the kidneys, to line the uriniferous tubes. The mucous membrane forms a cup-like cavity around the termination of each pyramid, and the cavity, termed the *calyx*, receives the urine from the open terminations of the tubes, and conveys it toward the pelvis, whence it passes down the ureter into the bladder.

Each kidney is supplied with blood by the renal artery, a large trunk which comes off at right angles to the aorta.



Plan of the Renal Circulation in Man and the Mammalia.

a, terminal branch of the artery, giving the terminal twig, *af*, to the Malpighian tuft, *m*, from which emerges the efferent vessel, *ef*. Other efferent vessels, *e*, *e*, *e*, are seen proceeding from other tufts, and entering the capillaries surrounding the uriniferous tube, *t*. From this plexus of capillaries the renal vein, *ev*, springs.

The blood, after the separation of the various matters which constitute the urine, is returned into the venous system by the renal or emulgent vein, which opens into the inferior vena cava.

The nerves are derived from the renal plexus, which is formed by filaments of the solar plexus and the lesser splanchni nerve. They belong entirely to the ganglionic or sympathetic system.

The Malpighian bodies are found in all vertebrate animals. In an injected specimen, they appear to the naked eye as mere colored spots. They are for the most part of a spherical, oval, or flask-like form. Their diameter in man may range from $\frac{1}{80}$ to $\frac{1}{144}$ of an inch, the mean being $\frac{1}{104}$. A small artery, termed the *afferent vessel*, may be traced into each Malpighian body, while a minute venous radicle, the *efferent vessel*, emerges from it close to the point at which the artery had entered. The Malpighian body itself consists of a rounded bunch or tuft of capillaries, derived from the afferent, and termi-

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nating in the efferent vessel, and inclosed in a clear and transparent capsule, lined at its lower part with epithelium, continuous with that of the uriniferous tube, which springs from each capsule.

The convoluted portion of the tube which proceeds from and is continuous with the Malpighian capsule, is composed of a delicate basement membrane, in immediate relation externally with an abundant capillary net-work, and lined in its interior by the spheroidal or glandular variety of epithelium. The diameter of its central canal is about $\frac{1}{1000}$ of an inch. The straight portion of the tubes of which the pyramids are composed is lined with epithelium, which approaches more nearly to the squamous or tessellated variety, and which seems to serve as a protecting layer, rather than to take part in the function of secretion. The tubes unite with one another to a great degree as they pass through the structure of the pyramids, so that at the base of a pyramid there may be a great number of tubes, while at the extremity of a papilla there are comparatively few.

It remains to consider the respective functions of these two essential elements of the kidney (as it exists in the vertebrate animals) viz., the Malpighian bodies and the tubes. From the researches of Mr. Bowman (*Philosophical Transactions*, 1842), and from the labors of subsequent anatomists, it appears that in animals in which the urinary excretion is passed in an almost solid form (as in birds and reptiles), the tufts are small and simple as compared with those in the kidneys of animals which (like man and most mammals) pass the urinary constituents dissolved in a large quantity of water. On these grounds, as well as from the fact that the anatomical arrangement of the tufts is calculated to favor the escape of water from the blood, the conclusion is formed that the function of the Malpighian bodies is to furnish the fluid portion (the water) of the urine. The arrangement of the convoluted portion of the tubes, with a capillary net-work on one side of their basement membrane, and secreting epithelial cells on the other, is the exact counterpart of the arrangement in other secreting glands, and there can be no doubt that the functions of the cells in the convoluted portion of the tubes is to separate from the blood the various organic constituents (urea, uric acid, creatinine, etc.) and inorganic salts (chloride of sodium, phosphate of sodium, etc.), which collectively form the solid constituents of the urine.

For the physical and chemical characters of the secretion yielded by the kidneys, see URINE.

KIDNEYS, DISEASES OF THE. *Active Congestion* of the kidney may be produced by irritating substances such as arsenic, mercury, cantharides, turpentine, and many of the balsams, as well as carbolic acid, formaldehyde and the chromates. A similar condition occurs in some of the infections which are associated with a severe

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toxemia. If the condition be long continued degeneration may occur with the development of a true nephritis. The kidney is somewhat enlarged owing to a distention of its vessels with blood, and when cut blood will exude from the organ. The capsule is not adherent and the surface of the organ has a mottled appearance, the cortex being a little wider than in health and merging less perceptibly into the medulla. There is usually pain or heaviness in the lumbar region and the urine is scanty, high colored, acid, and of high specific gravity. Some albumen and casts may be present and traces of blood may be found. In very severe cases an actual suppression of urine may occur.

Passive Congestion of the kidney (*Cyanotic Induration*) is produced by any obstruction of the blood in leaving the kidneys and by insufficiency of the heart valves or increase in resistance in the pulmonary circulation which tend to dam the blood back into the venæ cavæ and thence into the renal veins. Pressure upon the venæ cavæ or upon the renal veins by tumors, dropsy or pregnant uterus may have the same effect. When the condition is long continued interstitial fibrosis and degenerative changes in the epithelium will occur. The urine is scanty, high colored, of high specific gravity, acid, and usually contains some albumen and a few hyaline casts. If the condition be severe or have persisted long enough, dropsy makes its appearance and is more apt to occur in the abdominal cavity, but may also affect the pleura or pericardium. *Treatment:* The treatment depends primarily upon the cause. If it be due to cardiac insufficiency or pulmonary obstruction, the heart stimulants, especially digitalis, are indicated, and free catharsis by means of compound jalap powder, elaterium and the salines will add much to the rapidity of the action of the treatment.

Acute Parenchymatous Nephritis is an acute inflammation of the parenchyma or functioning portion of the kidney. The interstitial portion and blood vessels are usually also affected in a slight degree. The condition embraces a number of varying types, which have been described under the names of acute Bright's disease, acute catarrhal nephritis, cropous nephritis, and albuminous nephritis. The condition is usually caused either by an acute infectious disease, such as scarlet fever, diphtheria or measles, or by a chilling of the surface of the body, especially when over-heated or exhausted. The organ is usually somewhat larger than normal, the capsule not adherent and the blood vessels well filled. Under the microscope the epithelial cells are seen to be swollen, finely granular and take stains poorly, hence the name 'cloudy swelling' is often applied. In some cases the inflammatory process is more prominent in the glomeruli, whence the term 'glomerulo-nephritis,' or as it most frequently occurs in scarlet fever, 'scarlatinal-nephritis,' is

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applied. Sometimes a large number of the epithelial cells die and separate from their basement membrane, to be passed out with the urine, when the name 'desquamative-nephritis' is used. In a few cases the interstitial tissue will suffer about equally with the parenchymatous portion and is then known as 'acute diffuse-nephritis.' 'Acute interstitial nephritis' is a rare condition occurring in the course of scarlet fever or other infectious diseases and is characterized by an inflammation almost exclusively of the interstitial tissue.

The disease may be ushered in by a chill and vomiting, or in children sometimes with a convulsion. Pain in the small of the back of a dull nature is frequently present. The urine may be suppressed, or if not is scanty, high colored, and of a high specific gravity. Albumen is present in large quantities and, depending upon the amount of congestion, blood may or may not be present. Microscopic examination will show some casts and a greater or less number of renal epithelial cells. Puffiness of the eyelids and edema of the ankles are apt to occur early, and if the condition is severe symptoms of uremia make their appearance. Upon the recognition of the disease the patient should be put upon a milk diet and kept upon it until the symptoms abate. In case suppression occurs, dry cups should be placed over the kidneys and the patient placed in a hot pack. If the heart be vigorous this may be preceded by a dose of jaborandi or pilocarpine in order to induce a copious perspiration. Vigorous purgation with the salines and a rectal injection of potassium acetate in water will aid elimination. Ten-grain doses of potassium citrate in hot water should be given at short intervals. During the early stages it is well to avoid any of the irritating diuretics.

Chronic Parenchymatous Nephritis (Chronic Bright's Disease, Chronic Exudative Nephritis, Large White Kidney) is a chronic inflammation of the kidneys, affecting chiefly the cellular portion of the organ, although slight changes will occur in the blood vessels and interstitial tissues. The condition may follow an unresolved acute nephritis or it can be chronic in nature from the beginning. It may follow in the wake of any of the infectious diseases or exposure to cold. Tuberculosis, syphilis, malaria, alcoholism or chronic suppuration are the causes of other cases. The kidney is considerably larger than normal and of a pale, mottled appearance, which gives use to the name 'large white kidney.'

The capsule strips off readily without tearing the substance of the organ. When it is cut in half it will be seen that the great increase in size is caused principally by a thickening of the cortex. A microscopic examination of the organ will show a varying degree of degeneration in the epithelial cells, many of which will show the free margins crumbled and irregular. The glomerulæ may also show evidence of inflammatory processes and

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exudation into the capsule of Bowman. The lumen of the tubules are increased in size owing to the crumbling of the lining epithelium, and is found to contain granular material, casts and disintegrated cells. The urine is diminished in quantity, often turbid, and contains granular and epithelial casts, albumen and epithelial cells, many of which show evidence of fatty degeneration. The symptoms at first may be slight and indefinite, anemia, waxiness of the skin, loss of strength, and general impairment of health, loss of appetite, indigestion, and possibly vomiting, headache, shortness of breath, dizziness and spots before the eyes being some of the symptoms commonly observed. It may be that swelling of the eyelids and edema of the ankles are the first definite symptoms that the patient notices. As the disease progresses, dropsy of the serous cavities, great shortness of the breath (or attacks of asthma) may appear. Uremia may occur, causing death by coma or convulsions, or the patient may succumb to the increasing dropsy. Pneumonia, edema of the lungs, colliquative diarrhœa, and albuminuric retinitis are among the most frequent complications.

A patient with chronic parenchymatous nephritis should avoid red meats, soups, and broths. Milk, a moderate amount of eggs, fish, white meats and vegetables and fruits may be usually taken in moderation. The clothing should be warm and wool or linen be worn next to the skin. Exposure to cold and dampness, fatigue of all kinds, and excitement should be avoided. All alcohol, spices, and stimulating condiments should be avoided absolutely. A warm, dry climate is of advantage. Frequent warm baths and the use of a mild diuretic and mineral waters are helpful.

Strontium lactate and acetate of iron may be administered from time to time. When the urinary secretions become deficient infusion of digitalis, spartein, diuretine and theobromine will prove useful. The bowels should be kept open with an occasional saline or five grains of blue mass at nights. When there is some cardiac weakness and beginning edema, a pill containing one grain each of calomel, powdered digitalis, and powdered squills may be given several times daily for a while. If the dropsy be persistent and marked, free purgation with one of the hydragogue cathartics, such as compound jalap powders or elaterium, followed by magnesium sulphate, should be resorted to. Apocynum will increase the elimination of the dropsical fluids very materially. When the accumulation of fluid persists it may be withdrawn from the serous cavities by tapping and from the extremities by making small slits through the skin and allowing it to drain out.

Chronic Interstitial Nephritis (Chronic Bright's Disease, Contracted Kidney, Nephritis Without Exudation, Cirrhotic Kidney, Red Granular Kidney, Chronic Pro-

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ductive Nephritis, Gouty Kidney). Chronic Interstitial Nephritis is a chronic inflammation of the kidneys associated with the diffuse production of newly formed connective tissue, atrophy of the parenchyma and fibrous change in the blood vessels. The kidneys are small in size, often only one-half the normal size, both together sometimes weighing less than two ounces. The capsule is thickened and adherent to the organ, so that it can be stripped off only with difficulty, and then carries away portions of the cortex with it. The surface is dark red in color and granular and may show a varying number of small cysts. The organ cuts with difficulty and creaks under the knife. The cortex is thinner than usual and dark in color. Under the microscope all the normal fibrous tissue will be found increased in amount and the parenchymatous portion will be smaller than normal from the compression it has suffered by the shrinking of the newly formed fibrous tissue as it contracts with age. The glomeruli are likewise smaller in diameter, infiltrated with round cells, and some of them will be almost entirely replaced by fibrous tissue. The lumen of the uriniferous tubules are diminished and many of them will be found to be obstructed by cysts, while others are dilated, forming small cysts from the accumulation of urine behind an obstruction. Most of the blood vessels will show a hyperplasia of their walls and some of them present a true endarteritis. The cause of the condition is some chronic irritant of low intensity circulating in the blood for long periods of time. The condition occurs to a certain extent in old age, although heredity influences the age at which the condition begins. It is more common in men than in women. Syphilis, chronic malaria, and rheumatism and gout are the diseases which most frequently cause it. Alcoholism, lead poisoning, over-eating, with insufficient exercise, high nervous tension and the various conditions known as lithemia, uricemia, or the uric acid diathesis, may one or all be responsible in time for the development of a chronic interstitial nephritis. The disease may be in progress for many years without giving any symptoms which would call attention to its existence other than slightly increased arterial tension and the rather low specific gravity of the urine. The disease may first manifest itself during or following some other disease as, for instance, pneumonia, or an attack of uremia may occur without previous warning. In other cases shortness of breath, loss of weight and strength, dry wrinkled skin, gastric disturbances and drowsiness with lack of energy may develop gradually. Dimness of vision, tingling of the extremities, or paralysis will call attention to the disease in other instances. The amount of urine is largely increased, so that the patient may be obliged to get up two or three times in the night to empty the bladder. The specific gravity is low, ranging from 1012 to 1002 pp. Albumen is present

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in small amounts, but there will often be periods during which it is absent. A microscopic examination will show a few narrow casts, which may be hyaline or granular, and occasional leucocytes may be encountered. When the disease is recognized care should be taken to remove as far as possible any of the contributing causes. All irritating substances, such as alcohol, spices or condiments, should be avoided, and the diet should be as free as possible from nitrogenous foods. The patient should lead as quiet a life as possible, avoiding strains or fatigue of all kinds, and should also avoid sudden changes in temperature. It would be well to move to a warm climate during the winter months. All digestive disturbances should as far as possible be avoided, and the bowels should be kept open, preferably with salines, but not with any irritating cathartic. Upon the development of any uremic symptoms the patient should be placed upon an exclusive milk diet and kept in bed for ten days or two weeks. The various mildly aperient mineral waters are usually beneficial. As the fibrous tissue, when once deposited in the kidney, is there permanently, medicinal treatment will not remove it, but must be directed as far as possible to limit any further production. In those cases in which syphilis plays a part, anti-syphilitic treatment will often bring about surprising benefits. Most all cases are benefited by the iodides in small doses for a considerable time. The digestion should be carefully watched and when deficient may be improved by the various preparations of pepsin with the mineral acids. Headache and the shortness of breath which often occur may usually be relieved by nitro-glycerine. Uremia may be prevented by free saline purgation and hot baths and sweating. Recently good results have been obtained by the use of extracts of pig's kidney, and the removal of the capsule of the kidney surgically after the method of Edebohls has given striking results in many cases.

Pyelites (Pyelo-nephritis, Pyo-nephrosis) is an inflammation of the pelvis of the kidney associated with suppuration. It varies in intensity from a slight inflammation with the exudation of mucus and pus, to violent suppuration, which may rapidly destroy the entire organ, in which case the term 'renal abscess' is used. There may often be a considerable escape of blood into the pelvis of the kidney and higher up in the uriniferous tubules, so that both pus and blood may be found in the urine. When this condition follows cystitis, especially following operations, it usually affects both kidneys, and is called 'surgical kidney.' Pyelitis may rarely be caused by injury or exposure to cold or wet, but is usually secondary to some other cause. Extension upwards of an inflammation from the urethra, bladder, or ureter, especially in gonorrhœa, causes the majority of cases, although any inflammation of these structures may serve as the starting point. Renal-calculi are also frequently observed

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causes. Retention of urine in the bladder or in the pelvis of the kidney, followed by decomposition of the urine, will serve to begin other cases. Tuberculosis and tumors of the kidney are associated with suppuration. Irritating drugs in poisonous quantities have been known to bring about pyelitis. And the disease may also occur as a part of a general pyemia, in which case death usually results in a very few days. In tropical countries pyelitis has been produced by some of the animal parasites, as *stryongulus* and *filaria*. The symptoms vary with the severity of the condition. Pain over the kidneys, turbid urine acid in reaction and containing mucus pus cells, a few blood cells and a small amount of albumen is found. If the sepsis be marked, irregular fever with sweats and chills or convulsions will occur, the prostration is marked, and delirium or coma may occur toward the end.

The affected kidney is generally tender to pressure and swelling of the organ may be detected by palpation. The treatment should first be directed as far as possible to the removal of the cause. Hot-water bags, poultices, counter irritation or dry cupping over the kidneys are beneficial. Potassium citrate and acetate, turpentine, sandal wood, or copaiba with salol are useful, especially in chronic cases. If an examination of the urine from each urethra show only one kidney to be affected, and especially in tuberculosis of the kidney, surgical intervention with the removal of the organ is indicated.

Hydro-nephrosis is an accumulation of urine, causing distention of the pelvis of the kidney, caused by an obstruction to the outflow of urine. It usually occurs only upon one side and may continue for a considerable time, converting the entire kidney into a large cyst. When most of the renal structure is destroyed and the cyst becomes large the name 'nephrydrotic-cyst' is applied. These cysts sometimes contain several gallons of fluid. The disease may be congenital, but is more apt to be caused by a twist of the uretera, as in floating kidney, pressure as from tumors, the lodging of calculus in the ureter, or from a stricture of the uretera from ulcer or injury. Obstruction may also be produced by tumor or injury to the bladder wall, or still more rarely from enlarged prostate or stricture of the urethra. The symptoms vary with the extent of the disease and the suddenness with which the flow of urine is stopped. Pain which radiates toward the thigh and genitals are experienced. In other cases there is no pain at any time; the amount of urine is decreased, as only one kidney is eliminating, there is usually tenderness on pressure, a mass may be felt upon palpation, and dullness is found on percussion. Pressure symptoms such as vomiting, indigestion, constipation, and palpitation or shortness of breath frequently arise. If suppuration occur the symptoms of pyo-nephrosis supervene. Aspiration of the tumor is sometimes of use in making a diagnosis. Treatment is surgical and may

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include massage, tapping the cyst, or removal of the organ.

Cystic Kidney (Renal Cyst).—Cysts of the kidney are frequently congenital, vary in size up to half an inch or so in diameter, they are usually multiple and, excepting for the space they occupy, usually do comparatively little harm, excepting where their size and number are so great as to leave an insufficient amount of kidney substance to sustain life. In adults cysts may be produced in chronic interstitial nephritis or from cystic adenoma. The symptoms are usually due to a deficiency of kidney substance, and uremia may be the first evidence of anything wrong. In other cases symptoms of chronic interstitial nephritis make their appearance. If the cysts be of any size palpation will disclose the enlargement of the organ. The treatment is directed toward a stimulation of the remaining kidney substance, and if the condition be unilateral, surgical intervention may be indicated.

Tumors of the Kidney.—A number of types of new growths occur in the kidney, the three principal ones being Adenoma (benign usually), Carcinoma and Sarcoma (malignant). Besides these tumors of blood vessels (Angioma), of fibrous tissue (Fibroma), of fat (Lipoma) and, lastly, a tumor developed from aberrant tissue from the suprarenal glands (Hypernephroma), are all occasionally encountered. These tumors in the kidney may be congenital or may develop later in life. The Sarcoma and Carcinoma are malignant and may be either primary or secondary to similar growths in other parts of the body. The Sarcoma may be congenital and is frequent in children. The benign tumors may remain so, but sometimes undergo a transformation and develop malignant characteristics. Pain over the region of the kidney with a dull, dragging sensation is present in most cases, and as the tumor grows hematuria usually makes its appearance. The usual symptoms of malignant growths such as anemia, loss of flesh and strength, cachexia, digestive disturbances and irregular temperature occur here, as elsewhere. As the tumor increases in size it may be recognized by palpation and percussion. The benign growths may be tolerated for a long while, but early surgical intervention offers the only hope for the malignant growths and is advisable in all cases.

Amyloid Kidney (Lardaceous Kidney, Waxy Kidney, Albumoid Disease, Bacony Degeneration, Depurative Disease, Amyloid Nephritis).—Amyloid Kidney is a condition in which the organ is infiltrated with a waxy substance, which is albuminous in composition and has the peculiarity of staining a dark mahogany brown with a dilute solution of iodine, and gives several characteristic color reactions with various aniline dyes. The Amyloid material is usually first deposited around and in the smaller blood vessels and is largest in amount where the blood supply is greatest. For this reason the cortical of

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the kidney, especially the glomeruli, show the first changes and the more marked changes later in the disease. Early in the disease the organ may show no distinct changes to the unaided eye other than may be due to some associated nephritis, but when the disease has advanced it may have a glistening appearance when viewed at an angle with the light and may cut with a waxy or bacony consistency. The surface is usually smooth and the capsule nonadherent, provided interstitial change be absent. In some cases the kidney attains a size nearly double the normal. Microscopic examination will show a clear or slightly translucent material infiltrating the connective tissue, spaces often apparently replacing much of the fibrous tissue. In marked cases many of the glomeruli will appear as round areas of the waxy material with scarcely a vestige of the normal cellular structure remaining. The vessels around the uriniferous tubules also become infiltrated and numerous casts of the amyloid material may be observed in the lumen of some of the tubules. These casts may or may not take the characteristic stains. The disease is associated with amyloid change in other organs and is caused by chronic suppuration (as tuberculous bone disease, empyema, etc.), or less frequently in syphilis, tuberculosis or malaria. The condition is permanent, but its outcome is largely dependent upon the condition which caused it. The symptoms are such as are found in chronic interstitial nephritis, excepting as the disease advances albumen becomes more abundant, and serum globulin is present in undue proportion. Hyaline casts are found in nearly all cases. Some large waxy casts staining brown with dilute iodine may be found. Evidences of similar changes in the spleen and liver, as well as the history of the case generally suffices for the diagnosis. The treatment should be directed first to the removal or limiting the cause, and subsequently the case may be treated as would be one of chronic interstitial nephritis.

Kidney Stone (Renal Calculus, Nephrolithiasis) is a condition in which stony concretions of various sizes are formed in the kidney. These concretions are produced from substances which were thrown out of solution in the urine and therefore grow more or less rapidly, according to the rate at which the substances leave the urine. There are three principal substances of which the calculi may be composed, viz., uric acid and urates, calcium oxalate and phosphates (calcium and ammonia). More rarely xanthin, cystin, urostealith and calcium carbonate may form calculi. The calculi may vary in size from that of a fine sand (kidney sand or gravel) to stones several inches in diameter, occupying the pelvis of the kidney and much of the renal substance. Calculi in the kidney may give rise to no symptoms for years or they may give rise to heavy, deep-seated pains, which sometimes occur in very great intensity. In other cases pyelitis may be caused, or

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the chronic irritation may result in the production of scar tissue, which eventually destroys the usefulness of the kidney. When calculi are washed by the urine into the mouth of the ureter and attempt to pass through it, great pain is produced. If the calculi are very small (sand or gravel) they may pass a long while and be tolerated, but as soon as a calculus large enough to engage in the ureter starts down that structure a paroxysm of 'renal colic' ensues with severe pain. This pain is located in the region of the stone and radiates down the thigh and genitals. Chills and vomiting are usual and the patient is bathed in cold perspiration. Collapse may occur at any time. The urine generally contains blood in small quantity, together with some pus cells and mucous. The reaction usually depends upon the composition of the stones, uric acid and oxalate of lime, being associated with an acid urine, phosphates with an alkaline urine, total suppression of the urine may occur and may persist until the patient dies. The treatment may be divided into that of the attack and to preventing subsequent attacks. During the attack the pain can only be relieved by large doses of morphine hypodermically, and this should be given in small amounts often repeated rather than in single large doses, because the intense pain counteracts the toxic effect of the drug, and if a large dose has been given and the stone then passes suddenly into the bladder, the pain will cease and the patient will find himself with too large a dose of morphine for the body to tolerate without toxic symptoms. A warm bath and hot poultices over the kidneys tend to relieve muscular spasms and favor passing the stone. In case the stone becomes impacted, surgical intervention may be required. The treatment for prevention of a return depends entirely upon the nature of the stone, which should always be ascertained, as what would favor one case would be directly contraindicated in the other. In uric acid and oxalate of limestones the urine is acid and tends to throw these substances out of solution, so that its solvent power must be increased by rendering it alkaline, and by such diet regulation as will limit the production of uric acid and urates in the system. The alkaline mineral waters, such as vichy and Saratoga geyser waters, are valuable, as is also any good artificial alkaline mineral water. These may be fortified with the addition of potassium citrate, potassium bicarbonate and lithium citrate or carbonate. Most of the so-called lithia waters contain so little lithium that their only value consists in being naturally rather pure and bland. Hydro-therapy is of value in keeping the skin and kidneys active. The diet should be as free as possible from red meats and other nitrogenous food, as these contribute to the formation of uric acid. In phosphate calculi the urine should be kept acid to avoid precipitation of the phosphate. This can best be done by administration of large quantities of dis-

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tilled or rain water with boric acid, benzoic acid and hexa-methylamin. In this case the amount of vegetables in the diet should be limited and meats preferred as much as possible.

Congenital absence of one or both kidneys may occur. When both are absent the child will die a few days after birth, but the absence of one of the organs may be well tolerated. In the latter event it is frequently found that the one organ is much larger than normal. In some instances the single kidney will be found to have two ureters and two pelves, or a rudimentary ureter may be present on the deficient side.

In the so-called 'horse-shoe kidney' the two organs are united either by fibrous tissue or by continuous renal tissue, making practically one large curved kidney.

Lobulated kidney is a condition in which the division into lobules occurring in foetal life persists after birth, the organ being divided by fissures into from half a dozen to twenty or more lobules. The condition is a medical curiosity, but does no harm.

Movable Kidney (Floating Kidney, Wandering Kidney, Nephroptosis, Palpable Kidney, Renmobilis) is a condition in which an abnormal mobility of the organ exists. This mobility may vary from a quarter of an inch or so to complete lack of attachment, so that the kidney will be freely movable around the abdominal cavity and may be felt as low down as the groin. It is more frequent in women and emaciated persons, especially if they have lost a large amount of fat in a short time. Hard work and sudden jars as falling, or horseback riding may favor its occurrence. It may produce no symptoms for a long time, or may give rise to a large number of indefinite nervous symptoms, among which may be mentioned pain, indigestion, palpitation of the heart, tremors, anemia, vertigo, and other symptoms produced by direct pressure of the misplaced organ upon the bladder, intestines, or organs of generation. A feeling of dragging weight is often present and this, with the other symptoms, is usually aggravated by walking, dancing or any jarring of the body. Sometimes the ureter may become twisted by a rotation of the kidney, when extremely severe pain with scanty or even suppressed urination, vomiting, cold perspiration and collapse occur quickly. This may tend to produce an acute hydro-nephrosis, and the condition will usually last until the torsion is corrected, although when long continued the symptoms usually subside somewhat. The torsion will correct itself or may be corrected by manipulation or by changes in position of the patient, in which case cessation of pain occurs almost instantly and is followed by the discharge of a large amount of pale urine. These attacks may occur quite frequently. The treatment is mechanical and consists in replacing the organ by manipulation and retaining it in place by a corset or bandage and avoiding

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any jarring which might tend to displace it again. Where this does not suffice the anchoring of the kidney surgically becomes necessary.

Perinephritic Abscess (Paranephritis) is a condition in which suppuration occurs in the tissues immediately surrounding the kidney, and may affect one or both sides. The infection may reach the locality following an appendicitis, pyelitis, disease of the spine, ulcers of the intestines or the stomach, typhoid fever, or may perforate the diaphragm from the pleura or lung traumatism, penetrating wounds, or other infectious conditions.

The pus may burrow in any direction and either be discharged to the surface of the body, which is rare, or may discharge itself through the kidney, lung, intestinal tract, generative organs, or may burrow to the groin and appear at Poupart's ligament. Pain, tenderness and swelling over the kidney occur and may be quite marked. The symptoms of suppuration, chills, fever, sweat, and leucocytosis appear, but not always early. The treatment is surgical, although recovery may occur spontaneously if the abscess discharge to the surface or into the intestines.

Hematuria (Hematuries) is a condition in which blood occurs in the urine. The blood may come from the kidney, ureter, bladder or urethra, in which case the names renal ureteral, cystic or urethral hematuria are used to designate the origin. From the kidney the loss of blood may be caused by congestion toxemia. Infectious diseases such as malaria, traumatism or parasites sometimes come on without known cause, in which event the case is classed as idiopathic hematuria. The urine is usually acid and contains albumen, and a microscopic examination shows red and white corpuscles.

Hemoglobinuria is a condition in which the coloring matter or hemoglobin of the blood only is found in the urine. This occurs in any case in which there has been a destruction of blood corpuscles and a solution of the hemoglobin in the blood serum.

There are two divisions usually made, '*the toxic*' and '*paroxysmal*.' The *Toxic hemoglobinuria* may be caused by poisons which destroy red blood corpuscles such as sulphuretted hydrogen, illuminating gas, carbon monoxide, pyrogallie acid, nitro-benzole, carbolic acid, calcium chlorate, poison mushrooms, snake venom and arsenuretted hydrogen. The infectious diseases usually responsible are malaria, yellow fever, syphilis, bubonic plague, scarlet fever, diphtheria, smallpox and pyemia. The symptoms depend entirely upon the cause, as does the treatment. In a general way astringents may be of value, followed by iron, arsenic and the reconstructive tonics.

Paroxysmal hemoglobinuria occurs in intermittent attacks, which usually come on without warning and are associated with chills, high fever, and prostration. The

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attack may last for a few hours or may persist for days. Raynaud's disease is responsible for some cases; chronic malaria, especially if improperly treated, is responsible for others. There is no doubt but that quinine plays a not understood part in the mechanism of this condition. Still other cases are associated with emotional disturbances or have an entirely unknown cause.

Chyluria is a condition in which the urine contains finely divided globules of fat, giving it a milky appearance. The condition is found in filaria, but in other instances the cause has not been discovered.

Albuminuria is a condition in which serum albumen is found in the urine. It may occur in any of the inflammations of the kidney, in the infectious diseases, in anemia, leukemia, and diseases of the central nervous system, poisonings, pregnancy, and sometimes without assignable cause, which cases are designated as physiological or functional albuminuria.

Uremia is a condition which results from an inefficient action of the kidneys and is probably caused by the distention in the loculation of substances which should have been excreted by the kidney. It may come on suddenly or its advent may be slow and progressive. In those cases which come on suddenly convulsions, chills or loma may be the first thing noticed. More usually loss of appetite, headache and vomiting, with dizziness and spots before the eyes with drowsiness precede the more serious symptoms. Suppression of the urine with a urinous odor of breath and perspiration follow. Impairment of vision and deafness sometimes occur. Palpitation, shortness of breath or asthma may also be seen. The pulse is usually quite slow, and if the attack be severe the so-called Cheyne-Stokes breathing comes on. The temperature tends to be subnormal, but some cases have fever. Paralysis or acute mania are observed infrequently.

KID'NEY-VETCH (*Anthyllis*): genus of plants of nat. ord. *Leguminosæ*, sub-ord. *Papilionaceæ*; containing a number of species, some shrubby, some herbaceous, natives chiefly of the warmer temperate parts of the e. hemisphere. They have the petals nearly equal in length, and an oval 1—3-seeded pod, inclosed in the permanent inflated and generally downy calyx. The British species, the common kidney-vetch (*A. vulneraria*), also called *Lady's Fingers*, is a herbaceous perennial with pinnated unequal leaves, and crowded heads of yellow (or sometimes scarlet) flowers. It grows on very dry soils, and is eaten with avidity by cattle, but does not yield much produce.

KIDO, TAKAYOSHI: about 1833-1881, June; b. province of Choshin, Japan: statesman. He joined the revolutionary party in his province 1868, was instrumental in organizing the 'reform' army, and became a member of the privy council under the new govt. In 1872 he visited Europe and America as a member of the imperial

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embassy, was recalled before the work of the embassy was completed, and raised to the rank of Sangi (state councilor), and afterward held an important office in the imperial household.

KID'RON. See KEDRON.

KIEFF, *kē-ěf'*, or KIEV, *kē-ěv'*: government in Little Russia, immediately n. of the govt. of Kherson; bounded n.e. by the river Dnieper; 19,691 sq.m., more than one-half arable, one-fifth under wood. In the n. portions, the surface is flat and marshy; the south is covered with ranges of hills, branches of the Carpathian Mountains, running n.w. and s.e. The chief river is the Dnieper, with its tributaries, the Pripet and the Teterev. The soil, chiefly loam, and partly clay and sand, is very fertile; so that, though agriculture is backward, the returns are considerable. The climate is exceedingly mild; everything is in blossom in April, and frosts do not set in till November. Agriculture and horticulture are chief occupations of the inhabitants. Wheat is extensively exported to Odessa. There are numerous distilleries, and beet-root sugar, tobacco, cloth, china, and delft are manufactured. Pop. 3,576,100.

KIEFF, or KIEV: chief town of the government of Kieff; on the w. bank of the Dnieper; one of the oldest of Russian towns, and formerly the capital. In 864, it was taken from the Khazars by two Norman chiefs, companions of Ruric, and conquered from them by Oleg, Ruric's successor, who made it his capital. In 1240 (when it ceased to be the capital), it was nearly destroyed by Batû, Khan of Kiptchak. Christianity was proclaimed in Russia first at Kieff, 988. In the 14th c. it was seized by Gedimin, Grand Duke of Lithuania, and annexed to Poland 1569, but 1686 was restored to Russia. Kieff is strongly fortified, has a remarkable suspension-bridge over the Dnieper, one of the best universities in Russia, a military and an ecclesiastical school. In its neighborhood is the convent of Kievo-Petchersk, a celebrated Russian sanctuary, which annually attracts thousands of pilgrims from the most remote corners of the empire. Kieff is not an industrial, but a commercial centre; large fairs take place here annually, the most celebrated of which is during the winter. The Jewish quarter of Kieff was burned during the anti-Jewish riots 1881. The trade is chiefly with Odessa, Poltava, and Austria. The Kieff of the present time is one of the largest towns in the empire. Pop. 247,400, one-third being Poles.

KIEKIE, *kē'kē* (*Freycinetia Banksii*): shrub of nat. ord. *Pandanaceæ*, yielding an edible, aggregated fruit, said to be the finest indigenous fruit of New Zealand. The species of this genus are tropical Asiatic, or Polynesian climbing shrubs, with sheathing, long, rather grassy leaves, usually spinous or serrated on the margin; and terminal, solitary, or clustered spadices of unisexual

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flowers. The kiekie is found in the n. part of New Zealand. It climbs the loftiest trees, branching copiously. The leaves are two or three feet long. The spadices are clustered. The fruit is a mass of fleshy berries. The jelly made of it tastes like preserved strawberries.

KIEL, *kēl*: capital city of the Prussian province of Slesvig-Holstein, on a deep fjord or bay of the Baltic, which admits large ships to anchor close to the town; the station of the greatest portion of the German navy. The commerce of Kiel has increased very rapidly since it became a naval station; numerous naval courts, establishments, and schools are quartered here. Kiel is the seat of the court of appeal for the province. The university, with 900 students, has a library of about 200,000 volumes. In connection with it are a hospital, observatory, botanic garden, natural history museum, and a good collection of northern antiquities. There are numerous schools and benevolent institutions. The most ancient of its five churches is St. Nicholai, which dates from the 13th c. The castle has a good sculpture-gallery, containing, among other copies of the best works of art, casts of the Elgin marbles, and of Thorwaldsen's best productions. The public gardens and the wooded shores of the fjord, with the woods of Düsternbrook, afford numerous pleasant walks. Kiel, which became a member of the Hanseatic League in the 14th c., was formerly the chief mart for the farm and dairy products of the Danish islands; and the very ancient annual fair, held for four weeks after Epiphany, was attended by buyers from every part of the duchies. Kiel has manufactures of tobacco, oil-colors, sugar, machinery, ironmongery, etc. Butter is extensively exported. It is an important link in the line of communication between Germany and the Baltic islands and ports; and steamers daily convey passengers and mails to and from the ports of the Baltic and North seas. Pop. (1900) 121,824.

KIEN-CHOW', or KUNGCHOW'. See HAINAN.

KIEPERT, *kē'pērt*, HEINRICH: geographer: b. Berlin, 1818, July 31; d. 1899. After studying geography with Ritter, he spent 1841-2 exploring Asia Minor, was director of Weimar Geographical Institute 1845-52, became a prof. in the Univ. of Berlin 1859, and was made a member of the Acad. of Sciences and of the statistical bureau 1865. He published several noted geographical and historico-geographical works. His maps are held in high repute.

KIESERITE, n. *kīs'er-īt* [Ger. *kies*, gravel, quartz]: a mineral composed of magnesian sulphate and chloride, and water.

KIEV'. See KIEFF.

KIL, n. *kīl* [Celt.—from L. *cella*, a cell]: a common element in Celtic place-names, and signifying church, cell, or burying-place.

KILAUEA—KILIMA-NJARO.

KILAUEA, *kē-low-ā'a*: great volcano of Hawaii. See SANDWICH ISLANDS; HAWAII.

KILDA, *kīl'da*, St.: small island off the w. coast of Scotland; lat. 57° 49' 20" n.; 50 m. w. of the peninsula of Harris, to the parish of which it is reckoned as belonging. It presents bold and lofty precipices to the sea, except at two points, one on the s.e., the other on the w. side of the island. At each of these points there is a bay with a low shore. Besides the main island there are several small islets, and the whole group has an area of 3,000 to 4,000 sq. acres.

KILDERKIN, n. *kīl'dēr-kīn* [O. Dut. *kindeken*, a little child, a measure of varying size]: a small barrel containing 18 gallons.

KIL'HAM, ALEXANDER. See METHODISTS, NEW CONNECTION.

KILIAN, *kīl'ī-an* or *ke'lē-ân*, SAINT: Bishop of Würzburg in the 7th c., apostle of Franconia, saint of the Rom. Cath. Church. He was a native of Ireland, and a member of that distinguished body of Irish missionaries among the Teutonic nations, to whose labors, in the 6th and 7th c., Christianity and civilization were so largely indebted in s. and s.e. Europe. He was of noble family, and while young entered the monastic life in his native country. Having undertaken with several fellow-monks a pilgrimage to Rome, his journey through the still pagan province of Thuringia occasioned a desire to devote himself to its conversion; and being joined by his fellow-pilgrims, Colman and Donatus, he obtained for the project at Rome, 686, the sanction of the pope, Conon, by whom he was ordained bishop. On his return he succeeded in converting the Duke Gosbert, with many of his subjects, and in opening the way for the complete conversion of Thuringia; but having provoked the enmity of Geilana, who, though the widow of Gosbert's brother, had been married to Gosbert, by declaring the marriage invalid and inducing Gosbert to separate from her, he was murdered at her instigation, during the absence of Gosbert, 789, with both his fellow-missionaries. The work which Kilian commenced was completed by Boniface and his fellow-missionaries.

KILIMA-NJARO, *kīl-ē-mân-jâ-rō'* (Great Mountain): enormous mountain mass in e. Africa, between Victoria Nyanza and the coast; 3° 20' s. lat., and 37° 50' e. long. It culminates in two magnificent peaks, Kibo and Kimaenzi, covered with perpetual snow, of which the chief is 18,715 ft. high—the highest known African mountain. It was discovered by Rebmann, and visited by Von der Decken; and in 1871 New ascended to its snow-line. In 1883, Thomson came to Kilima-Njaro and went n. to Mount Kenia (close to the equator), which he affirms to equal Kilima-Njaro in height. Both are extinct vol-

KILL—KILLER.

canoes. In 1884, Johnston headed a special expedition to Kilima-Njaro.

KILL, v. *kīl* [AS. *cwellan*, to kill; *cwelan*, to die: Dan. *quæle*, to strangle: Ger. *qualm*, a suffocating fume: more directly Icel. *holla*, to hit on the head—from *kollr*, top, head: Norw. *kylla*, to poll trees]: to deprive of life in any manner or by any means; to put to death; to still. **KILL'ING**, imp.: **ADJ.** dangerous to life; heart-breaking; effective: **N.** the act of depriving of life. **KILLED**, pp. *kīld*. **KILLER**, n. *-ēr*, one who.—**SYN.** of 'kill': to murder; slay; assassinate; destroy; slaughter; butcher; deaden; calm; quell.

KILLAR'NEY, LAKES OF: series of three connected lakes, near the centre of co. Kerry, Ireland. The surplus waters are conveyed by the river Laune n.w. to Castlemain Harbor. The Upper Lake is $2\frac{1}{2}$ m. long and $\frac{3}{4}$ of a m. broad, and contains several islands. The Long Range river, leading to the Middle Lake, is about 3 m. in length. The Middle Lake is 2 m. long by 1 m. broad; and the Lower Lake, with about 30 islands, is 5 m. long by 3 broad. The beauty of the scenery, which is widely celebrated, consists in the gracefulness of the mountain outlines, the rich and varied coloring of the wooded shores, deepening through gray rock and light-green arbutus to brown mountain heaths and dark firs.

KILLAS, n. *kīl-lās*: among the Cornish miners, clay-slate. **KILLINITE**, n. *kīl'in-īt*, a green-gray or yellowish mineral belonging to the felspar family.

KILLDEER, *kīl'dēr*: bird of the plover family, named in imitation of its whistling cry. It is the *Charadrius vociferus* of Linnæus, ranked by modern ornithologists in the genus *Ægialitis*. It is one of the finest and largest of the Ringed Plovers, is about the size of a snipe; sooty-brown above, bright buff on the tail-coverts, white bar on the expanded wings, mostly pure white beneath, but with two black bands on the breast. It is the most common plover in the United States, and is found in all parts, though less abundantly in the n.e. It ranges as far as 56° n. lat. in Canada. In winter it is found in the s. states, and as far s. as Central America and even Peru; in spring it spreads over the northern continent. It winters sometimes on the sea-coast of the n. states. It breeds on grass fields or newly-plowed lands, and shows extraordinary solicitude for its offspring on approach of an intruder. See **PLOVER**.

KILLER: a kind of whale, or large porpoise, also called orca or grampus, of the family *Delphinidæ*, and constituting the genus *Orcinus*. It reaches a length of about 25 ft. The head is rounded and the lower jaw is a little shorter than the upper. The dorsal fin is extraordinarily high in the adult males, like a broadsword, nearly vertical, and about 6 ft. in length from base to tip; in the female it is prominent but much lower. The pectoral

KILLIECRANKIE—KILLINGTON PEAK.

fins are large, broad, and rounded, and the flukes, or tail-fin, also broad and thick. The color is peculiar, being black above and on the fins, and white below; the margins of the two colors sharply defined. The white of the belly extends forward to the end of the lower jaw, and upward on each side, where it forms a large, oblong, white area. Above and somewhat behind the eye is a conspicuous oblong, white spot. In the young the white areas are tinged with yellow. The upper and lower jaws are armed with thick, powerful, somewhat curved teeth, numbering in all from 40 to 56. The killer is the largest and most powerful representative of the dolphin family. It hunts in packs and is rapacious and exceedingly voracious. The best known species (*Orcinus orca*) inhabits all seas. A second species is found in the South Pacific. Others have been described, but their validity is doubtful.

KILLIECRANKIE, *kīl-ī-krāng'kī*: a pass of Scotland, in the Grampians of northern Perthshire, on the Highland Railway, three miles s.e. of Blair-Athole. A viaduct of ten arches carries the railway over the pass. Here Claverhouse, Viscount Dundee, defeated the forces of William III. under Mackay in 1689, July 7, but was killed in the moment of victory.

KIL'LIFISH: one of a group of small fishes of the family *Cyprinodontidæ*. They have broad, depressed, scaly heads, large cycloid scales, no lateral line; small, very protractile mouths, with several rows of pointed teeth, and a well-developed air-bladder which possesses somewhat of a pulmonary function. The common killifish, mud-fish, or mummichog (*Fundulus heteroclitus*) seldom exceeds three inches in length, and is exceedingly abundant in shallow waters along the shores of bays and estuaries, in brackish pools, and tidal rivers from Maine to Mexico. It is extremely hardy and is important economically as food for larger fishes. The sexes differ in color. The large killifish (*F. majalis*) reaches a length of six inches, and is found in shallow salt and brackish bays from Florida to Cape Cod. The males have transverse and the females longitudinal black bars. The species of *Fundulus* are oviparous, but some genera are viviparous and strongly dimorphic, sexually.

KILLINGLY, *kīl'ing-lī*, CONN.: town, including several villages in Windham co., on the Quinebang and Five Mile rivers, 25 miles n.e. of Norwich; on the New England railroad. It has the Danielson Public Library, Danielson High School, churches and town-hall, and manufactures of cotton and woolen goods, boots and shoes, etc. It was settled in 1693, and until 1708 was known as Aspinock. Pop. (1910) 6,564.

KILLINGTON PEAK: noted landmark in Sherburne tp., Rutland co., Vt.; 9 m. e. of Rutland. It is the third highest summit of the Vt. mountains, is accessible without much difficulty or unusual fatigue, and from its ele-

KILLOW—KILOMETRE.

vation of 4,180 ft. commands a beautiful and extended panorama.

KILLOW, n. *kī'lō*: an earth of a blackish or deep-blue color; probably another name for *killas*.

KILMARNOCK, *kīl-mār'nok*: largest town in the co. of Ayr, Scotland, and one of the chief stations on the Glasgow & Southwestern railway; on the small stream of Kilmarnock, 12 m. n.n.e. of Ayr. Kilmarnock was formerly celebrated for its manufacture of 'cowls'; and the 'Kilmarnock wabsters,' a notable class, have received from the satiric pen of Burns a not altogether enviable immortality; but the introduction of machinery has reduced them to insignificance. Later, the town became one of the chief seats of calico-printing in Scotland; but, though this manufacture continues, it has lost its importance. Kilmarnock has several large engineering establishments, woolen-mills, carpet manufactories, tanneries, and breweries. It has also some endowed schools, numerous churches, and has recently acquired a public park. The country around is one of the richest in Scotland in coal and iron, and its dairy produce is extensive. The largest cheese-show in Scotland is held here, the value of the quantity exhibited generally amounting to about £35,000. A statue of Burns was recently erected here. Pop. 34,161.

KILN, n. *kīl* [W. *cylyn*; O.Sw. *kolna*, a kiln: Icel. *kylna*; Sw. *kolna*, a drying-house for corn: L. *cūlīna*, a kitchen]: large stove or oven in which articles are dried, hardened, or burnt; a pile of dried clay brick constructed for being hardened by fire. KILN-DRY, v. to dry in a kiln. KILN-DRIED, a. dried in a kiln. BRICK-KILN, a place or structure for hardening clay-bricks by fire.—*Kiln* designates several kinds of furnaces or oven, of iron or brick, or of the material which is itself the subject of the operation. For Brick-kilns, see BRICK. An *intermittent kiln* is one in which the fire is not continued after the charge is burned; a *continuous kiln*, one in which the fire is kept in full force while the charge is removed and a fresh charge put in. A *furnace kiln* is for burning limestone, and may be from 10 to 30 ft. high.

KILO, *kē'lō*, or KILOGRAM, or KILOGRAMME, n. *kīl'ō-grām* [F.—from Gr. *chilioi*, a thousand, and F. *gramme*]: a French weight of 1,000 grammes, and equal to 2.2046 lb. avoirdupois. See GRAM; METRIC SYSTEM.

KIL'OGRAMME. See GRAM.

KILOLITRE, n. *kīl'ō-lē'tr* [F.—from Gr. *chilioi*, a thousand, and *litra*, a Gr. weight of twelve ounces]: a F. measure of 1,000 litres, equal to a little more than 220 gallons imperial; also to 35.3171 Eng. cubic ft. See LITRE; METRIC SYSTEM.

KILOMETRE, n. *kīl'ō-mē'tr* [F.—from Gr. *chilioi*, a thousand, and *metron*, a measure]: a F. measure of 1,000

KILOSTERE—KIMBALL.

metres, equal to 1093.6389 Eng. yards. See METRE; METRIC SYSTEM.

KILOSTERE, n. *kīl'ō-stār'* [F.—from Gr. *chilioi*, a thousand, and *stērēōs*, solid]: a F. measure equal to 35317.41 Eng. cubic ft. See STERE.

KILOWATT-HOUR: a unit of work generally used in the sale of electric energy. One thousand watt-hours, 3,600,000 joules; approximately 2,700,000 foot-pounds or 1,200 long-foot-tons, or 1.34 horse-power hours. The work done by one ampere under a pressure of 1,000 volts in one hour.

KILPATRICK, *kīl-pāt'rik*, HUGH JUDSON: 1836, Jan. 14—1881, Dec. 4; b. near Deckertown, N. J.: soldier. He graduated at the U. S. milit. Acad. 1861, entered the army as 2d lieut. of artillery 1861, May 6; was appointed capt. 5th N. Y. vols. May 9, received a wound at Big Bethel, June 10; commissioned col. 2d N. Y. cav. 1862, Dec., was in the n. Va., Rappahannock, Md., and Penn. campaigns, and distinguished himself as a cavalry raider, promoted brig.gen. 1863, June 13; brevetted lieut.col. U.S.A. for gallantry at Gettysburg; was with Gen. Sherman in his western and Atlanta campaigns, promoted maj.gen. of vols. and brev. brig.gen. U.S.A. 1865, June; resigned his vol. commissions 1865, Dec.; was U. S. minister to Chili 1865-68, and 1881, Mar.—Dec., and died at his post. During his first mission to Chili he married the niece of a Rom. Cath. archbishop.

KILT, n. *kīlt* [Sw. *kylsa*, a bunch or cluster. O.Sw. *opkilta*; Dan. *kilte*, to kilt one's clothes, to truss or gather them up in a bunch. Gael. *ceilte*, concealed, covered—from *ceil*, to cover, to conceal]: a kind of short petticoat worn by men in the Highlands of Scotland, and by certain Highland regiments, called by the Highlanders a *fille-beag*=*philibeg*, the little fold, plait, or garment: V. to tuck or truss up as a petticoat or gown, etc., for convenience of walking; to form into plaits. KILT'ING, imp.: ADJ. forming into plaits, as a machine. KILT'ED, pp.: ADJ. dressed in a kilt.

KIMBALL, *kīm'bal*, HEBER CHASE: 1801, June 14—1868, June 22; b. Sheldon, Vt.: Mormon. He joined the Church of the Latter-Day Saints in Victor, N. Y., 1832; became an apostle 1835, was on missionary service in England 1837-8; with Brigham Young (q.v.) led the Mormons from Missouri to Nauvoo, Ill.; made a second missionary voyage to England, left Nauvoo, 1846, Feb. 17, and was one of the detachment that settled in Great Salt Lake valley 1847, July 24, and conducted the remainder of the Mormons to the new settlement 1847-8. He was chosen head priest of the order of Melchizedek 1846 and a counselor of the church 1847.

KIMBALL, JAMES PUTNAM: geologist; b. Salem, Mass., 1836, Apr. 26. He pursued his scientific studies at Harvard, Berlin, and Göttingen universities and in the

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school of mining at Freiburg; took a practical course in mining, metallurgy, and engineering in Saxony; engaged in the geological surveys of Wis. and Ill.; was prof. of chemistry and economic geology in N. Y. State Agricultural College 1861-2; served on the staffs of Gens. Patrick, McClellan, Burnside, Hooker, and Meade, 1862-3; was hon. prof. of geol. at Leigh Univ. 1874-85; and was appointed director of the U. S. mint, in charge of all the mints and assay-offices, 1885, June. He was vice-pres. of the American Institute of Mining Engineers 1881-2; is a member of many scientific societies; and besides his official reports has published numerous technical papers in American and foreign journals.

KIMBALL, RICHARD BURLEIGH: American author: b. Plainfield, N. H., 1816, Oct. 11; d. New York, 1892, Dec. 28. He was graduated at Dartmouth College in 1834 and later admitted to the bar; practised his profession at first in Waterford, N. Y., and afterward in New York. He founded the town of Kimball, Texas, and constructed the first railroad in that state, extending from Galveston to and beyond Houston. His publications include *Letters from England* (1842); *Cuba and the Cubans* (1850); *Saint Leger* (1850); *Romance of Student Life Abroad* (1853); *Under-Currents of Wall Street* (1862); *Henry Powers, Banker* (1868); *Today in New York* (1870); *Stories of Exceptional Life* (1887).

KIMBALL, SUMNER INCREASE, Sc.D.: organizer and superintendent of the United States Life Saving Service: b. Lebanon, York co., Maine, 1834, Sep. 2. He was graduated from Bowdoin in 1855; studied law, and was admitted to the bar in 1858. In 1859 he served in the state legislature, and was a member of the committee on judiciary. In 1862 he became a clerk in the second auditor's office in the treasury department at Washington, and in 1871 was made chief of the revenue marine service. In that position he had occasion to investigate the condition of the government stations on the New Jersey and Long Island coast where surf boats and other apparatus were stored under the charge of a keeper for use in case of shipwreck; he found the property badly cared for, and the service inefficient. Obtaining an appropriation from congress, he entirely reorganized the service, and so successfully that it was soon extended to Cape Cod and other points on the Atlantic coast. In 1878 the life saving service was organized as a separate bureau and was extended to the Pacific coast and the Great Lakes. He was made the head of the bureau and has introduced many improved methods, including the patrol system, and telephonic connection between adjacent stations; he also obtained the passage of the law to the effect that inspectors, keepers, and crews in the service should be appointed on a strictly non-partisan basis, 'with reference solely to their fitness.' He has also been acting regis-

KIMBERLEY—KIMCHI.

ter, acting comptroller, and acting solicitor of the treasury; and in 1889 he was the United States delegate to the International Marine Conference. He has written *Organization and Methods of the United States Life Saving Service* (1889), the most complete monograph on the subject.

KIMBERLEY, *kīm'ber-ĭ* (formerly NEW RUSH): town, cap. of the province of Griqualand West, Cape Colony, Africa; e. of Orange river, 520 m. n.e. of Cape Town: chief centre of the African diamond mines. The discovery of the Countess of Dudley's 'Star of South Africa,' valued at £10,000 (1869), attracted many miners to the river diggings, and a second great find, on a farm 20 m. s. of the first mining camp, caused a rush to the dry diggings, where, 1871, July, the first pick was struck on the present Kimberley mine property. The finest diamond, the 'Porter-Rhodes,' valued at \$300,000, was found 1880. In 1885 Kimberley was connected by railroad with Cape Town and Port Elizabeth, and is now an important commercial centre on the main line from the Cape to the Zambesi. The town has fine public buildings, electric lighting, and street railroads, modern waterworks, and parks. The diamond mining industry controlled by the DeBeers corporation comprises four mines, the Kimberley DeBeers, DuToit's Pan, and Bulfontein, which appear to have an inexhaustible yield. The output averages in value over \$22,500,000 annually. During the Boer War, Kimberley was defended by British troops under Col. Kekewich from 1899, Oct. 15—1900, Feb. 15, when the siege was raised by Gen. French. Pop. 30,000.

KIMBERLEY, LEWIS ASHFIELD: naval officer: b. Troy, N. Y., 1830, Apr. 2; d. 1902. He was appointed a midshipman in the U. S. navy, 1846, Dec. 8; was promoted passed midshipman 1852, master and lieutenant 1855, lieutenant-commander 1862, commander 1866, captain 1874, commodore 1883, and rear-admiral 1887, Jan. 26; and was appointed commander of the Pacific station 1887, Apr. 11. 1862-64 he served on the famous *Hartford*, taking part in all that man-of-war's engagements, and distinguishing himself in the battle of Mobile Bay. When promoted rear-admiral he was in command of the Boston navy yard, and as commander of the Pacific station he accompanied the U. S. fleet to Apia (q.v.), Samoa, 1889, and was present in the terrible hurricane, Mar. 15, 16, in which his flagship was wrecked. He was retired in 1892.

KIMBO, a. *kīm'bō* [see AKIMBO]: crooked; arched. TO SET THE ARMS AKIMBO, to place the hands on the hips, with the elbows projecting outward.

KIM'BRI. See CIMBRI.

KIMCHI, *kīm'kē* (or KIMHI, *kīm'chē*), DAVID (generally quoted by his initials, *ReDaK*): most eminent Jewish grammarian and exegete: b. prob. Narbonne (where he

KIM-COAL—KIN.

spent most of his life) toward the end of the 12th c.; d. Provence about 1240; of a Jewish family which had fled from Arab fanaticism in Spain. His father, Joseph Kimchi, was author of a number of commentaries and other theological works. His brother Moses is renowned for works of a similar kind, especially a Hebrew Grammar, *Mahalach Shebile ha-Daat*, of which there are several editions. His own celebrity, however, far exceeds theirs. His Grammar, *Michlol*, and his Lexicon, *Shorashim*, have, to a certain degree, been the basis of all subsequent Hebrew grammars and lexicons. He wrote also commentaries on almost all the books of the Old Testament, most of which have been separately printed, and translated into Latin by Nelo, Pontaco, Leusden, Muis, Janvier, etc., besides several polemical works, such as the *Vikuach*, *Teshuboth le-Nozrim*, etc. He was made arbiter in the great Maimonides controversy (1232).

KIM-COAL, n. *kīm-kōl'* [*kim*. contr. from *Kimmeridge*, a village of Dorsetshire, England]: provincial term for a highly bituminous shale. KIMMERIDGE CLAY, *kīm'ēr-īj klā*, in *geol.*, lowest series of the Upper Oolite, consisting of thick beds of bluish-gray, slaty clay, and in great part of a bituminous character, which sometimes forms an impure coal known as *kim-coal*. The series attains a maximum thickness of 500 or 600 ft. The fossils are chiefly mollusca, with a few placoid and ganoid fish, and several reptiles. In many places, layers of an oyster (*Ostrea deltoidea*), without any other organic remains, occur in broad, continuous floors parallel to the stratification: the valves are usually together, and young specimens are occasionally attached to the older ones.

KIM-KAM, ad. *kīm-kām* [Gael. *cam*, crooked]: in *OE.*, a reduplication of *kam*, meaning crooked; awry; upside down; clean from the purpose. CLEAN-KAM is a corruption of the phrase KIM-KAM.

KIN, n. *kīn* [AS. *cyn*; Goth. *kuni*; Icel. *kyn*, race, family: AS. *cennan*, to beget: Dut. *kunne*, sex: Gael. *cinn*, growth, increase: Gr. *genos*; L. *genus*; Skr. *ganas*, race, family (see KIND)]: relationship by blood; affinity; race: ADJ. of the same nature. KINSFOLK, n. *kīnz'fōk* [*kin* and *folk*]: relatives; persons of the same family. KINS'MAN, n. *-mān*, a man of the same race or family. KINS'WOMAN, n. feminine.

KIN, NEXT OF: blood-relatives of one deceased. When a person dies intestate, leaving personal property, such property devolves upon and belongs to the next of kin. The law declares a certain order of precedence among the next of kin, which is generally the same in England and the United States. The degrees of kindred are divided into lineal and collateral. The lineal consists of the ascending, such as father, mother, grandfather, grandmother, paternal and maternal, and so on *ad infinitum*; and the descending, such as son, daughter, grandson,

KIN.

granddaughter, and so on *ad infinitum*. The collateral kindred consists of brothers, sisters, uncles, aunts, and the children of such *ad infinitum*. The mode adopted from the civil law, for computing the propinquity of degree, allows one degree for each person in the line of descent exclusively of him from whom the computation begins, and in the direct line counts the degrees from the deceased to his relative; but as regards collaterals, it counts the sum of the degrees from the deceased to the common ancestor, and from the common ancestor to the relatives. Thus, a brother is in the second degree, counting one to the father, and one from the father to the brother; a nephew, and also an uncle, a great-grandfather, and a great-grandson, all are in the third degree; a son and a father are in the first degree; and so on.

When a person dies intestate, leaving personal property, there are two classes of rights to which the next of kin are entitled: one is the right to administer the estate, or to take out letters of administration; the other is the right to a share of the property itself. As regards the right of administration, the widow or next of kin may be selected, both or either. But among the next of kin, those are to be preferred who are nearest in degree according to the above computation: thus, a son or father is preferred to a brother, grandfather, or grandson; and these to a nephew, uncle, great-grandson, or great-grandfather, and so on. As regards the more valuable right of a share in the property, the rule is, that if there is a widow surviving, and also issue of the deceased, who are in that case the next of kin, then two-thirds of the property goes to the next of kin; if there are no issue, but a widow survives, then one-half only goes to the next of kin; but if there is no widow surviving, then the whole goes to the next of kin. But the next of kin take according to the statute of Distributions (see DISTRIBUTIONS, STATUTE of), which slightly differs from the order of the civil law as to the degrees of priority: thus, the children exclusively take the whole, if children survive; if some of the children are dead, leaving issue, then the issue collectively of each dead child take an equal share with the living children, by what is called the principle of representation. If there are none nearer than grandchildren, all take an equal share, and the issue of a deceased grandchild also take one of such shares. After all the children and grandchildren are dead without issue, then the father, if alive, is entitled to the whole. If he also is dead, then the mother, the living brothers and sisters (together with the issue of deceased brothers and sisters collectively), take each one share. After these are dead, then grandfathers and grandmothers, paternal and maternal, and nephews and nieces, if alive, take each a share. The right of representation, i.e., the right of the children of a deceased person being one of a class (and who, if alive, would have been one of the next of kin), to

KINA BALU—KIND.

represent him, and take his share, applies as far as the children of brothers and sisters, but no further. In England, the heir-at-law, if of equal degree, is one of the next of kin, and takes his share with the rest, though he gets also all the real estate. The half-blood counts among the next of kin equally with the whole blood. See HEIRS; SUCCESSION.

In Scotland, the rules of priority among the next of kin vary considerably from the above order.

KINA BALU: interesting mountain in the n. angle of the island of Borneo, height 13,700 ft. It was twice ascended by Spencer St. John, F.R.G.S., author of *Life in the Forests of the Far East*.

KINÆSTHETIC SENSATION: a general name applied to all those conscious experiences which arise as a result of the movement of any part of the body. The term includes muscle sensations (q.v.), joint sensations (q.v.), tendon sensations (q.v.), and, in the usage of certain writers, sensations derived from the excitation of the sensory cells in the semicircular canals (q.v.). From an early date students of mental life have been forced to recognize the fact that the adjustments which an observer makes through his own movements to the demands of the external world, determine in a large measure the ideas and percepts which he forms of the objects in the world. Thus if the inspection of an object requires a long, continuous movement of the eye in a single direction, experience of this object will undoubtedly depend for its character upon this demand for much movement. If the joint sensations which arise during the effort to move an object are intense, experience of that object will be made up in a measure of joint sensations. Some dispute has arisen as to whether the only effect of movement upon consciousness is through kinæsthetic sensations. Certain writers give these sensations a position of the highest importance in their theories of space and time. Others recognize kinæsthetic sensations as important, but hold that they are much too vague to become the chief factors in space perception. Those who assign kinæsthetic sensations to a position of secondary importance in mental economy recognize the fundamental importance of bodily movement which was so clearly recognized in the first emphasis of kinæsthetic sensations. These later writers on movement find other ways of evaluating movement. See EMOTIONS.

KINCOB, n. *kīn'kōb*, or KIN'CAUB, n. *-kawb* [an E. Indian word]: a fabric of muslin, gauze, or silk, variously woven, and embroidered with silver or gold.

KIND, n. *kīnd* AS. *cynd*, nature; *cynde*, natural, native: Gael. *gīn*, to beget; *gīnte*, begotten: Dut. and Ger. *kind*, a child]: race; family; sort; produce; nature; character: ADJ. disposed to do good to others; indulgent; favorable; loving; natural. KIND'ED, a. in *OE.*, begotten;

KINDERGARTEN.

KIND'LESS, a. in *OE.*, unnatural. KIND'LY, ad. *-lī*, in a kind manner; with good-will; benevolently; fitly: ADJ. of the same nature; natural; fit; mild; benevolent. KIND'LINESS, n. *-lī-nēs*, favor; affection; good-will; natural disposition. KIND'NESS, n. *-nēs*, good-will; benevolence. KINDRED, n. *kīn'drēd* [*kīn*, and AS. *rædan*, condition; OE. *kinred*]: relationship by birth or marriage; affinity; relatives; in *OE.*, relation; want of correspondence or agreement: ADJ. of the like nature or properties; congenial; related. KIND-HEARTED, a. having much kindness of nature. KIND-HEARTEDNESS, n. benevolence. IN KIND, in produce, or in some commodity as distinguished from money. TO TAKE IT KIND, to consider it a favor. *Note.*—KIND, in the sense of nature; KINDLY, natural, etc., though the primary significations, are now mostly OE. We have in the Litany, 'the *kindly* fruits of the earth' = 'natural.'—SYN. of 'kind, n.': race; genus; style; manner; way;—of 'kind, a.': congenial; sympathetic; benevolent; benignant; gracious; obliging; benign; bounteous; beneficent; generous; propitious; compassionate; humane; tender; affectionate; good; lenient; element; mild; gentle; amicable; friendly; bland; favorable;—of 'kindly, a.': congenial; kindred; proper; bland; softening; sympathetic; gracious; favorable.

KINDERGARTEN, *kīn'dēr-gâr-tn*: the name of a place of education for children, from the time when they seek companions of their own age, to the earliest school years. This age differs. The average child will be benefited by the kindergarten from four to six years old, not younger than three or older than seven. The term 'kindergarten' was used by its founder to designate a place where the little child might grow naturally like a plant (*Kinder*—children; *Garten* garden). The word has since assumed a broader meaning, by custom, and stands also for the philosophical principles which are its basis. The principle was first propounded, and the system invented by Froebel (1782-1852). See FROEBEL, FRIEDRICH WILHELM AUGUST.

The school was an outgrowth of the life experiences and educational genius of this teacher. The principles were those which were rife in Germany at the time, were being taught by the philosophers, worked out partially by Pestalozzi, and destined to revolutionize educational methods.

The first prophecy of the kindergarten was a school for the training of young women as teachers, which he established in Burgheim in 1831. Orphan children from four to six years old were received. He was convinced that the most impressionable years were neglected and that children entered school with misdirected energies. By degrees the practical details worked out, and in 1840 the first kindergarten was established at Blankenburg. Kindertgartens increased in number gradually, until 1851, when they were closed by an edict in Prussia.

KINDERGARTEN.

upon the plea that they were revolutionary. Froebel lived until 1852. After his death his friends worked earnestly for their re-establishment. Family kindergartens were formed, and the liberal party espoused the cause. In 1860 the edict was abrogated.

Kindergartens are now found in many countries. America has united them with the public school system in most of her cities; England has largely adopted them; Australia has established them; Japan counts them among the most important of her educational forces; in Canada they are found abundantly.

Froebel discerned the fact that the loving instinct of the mother required, for the training of the child, thoughtful guidance and direction. He saw that the teaching in the infant school was to a large extent traditional; that the selection of subjects and exercises depended on fashion, or on the likings or prejudices of the teacher, and not on a genuine knowledge of the nature of the children; and that the whole procedure was based on an induction of facts and phenomena hastily made, resting on no firm ground of principle. He therefore set to work to study the ways and doings of infants from their birth, and to note down systematically what kind of mental food and what kind of bodily activity Nature at each stage of their existence prompted them to prefer. He also reached the following principles: (a) That education means a harmonious development of all the bodily and mental powers; (b) that the *spontaneous* is the raw material and the only element that is valuable in education, and that the teacher must graft all his instruction upon the spontaneous activity of the child; (c) that the work of the teacher is not to give knowledge *ab extra*, but to supply material, means, and opportunities in a rational and harmonious order for the child's mind spontaneously to work upon; and (d) that in the presentation of their materials or occupations, there must be no break (*In Natura non datur saltus*), because all occupations which train must be developed out of each other. The province of the educator is to map out the world of early childhood, and to engineer—that is, to give each step in—the paths to knowledge or power in each subject; the province of the teacher is to apply this general knowledge to particular cases, and with loving care and delighted patience to provide the right mental food—the most suitable activities for each hour and stage of development. His complete aim is the systematic cultivation of all the powers in complete equilibrium. The child is not *taught*, but *led* by a set of ordered experiences to the perception of the principles of number (*Arithmetic*) and of space (*Geometry*); and his senses and powers of hand and eye are cultivated by an elaborate series of exercises.

Such were the principles as acquired by Froebel's educational studies, but at the basis of the practical kinder-

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garten lie his principles as expressed in the *Mother-Play Book*.

In the *Mottoes and Commentaries of Friedrich Froebel's Mother-Play*, translated and accompanied with a commentary, by Susan E. Blow (*International Educational Series*, 1895), Miss Blow thus sums up the principles of the 'Mother-Play:'

'In these commentaries, Froebel throws light upon such topics as the impulse of movement, what it implies, and how it shall be met; imitation, its relationship to mental evolution, and the possibility of utilizing it in education; the nature of sensation and the right training of sense; the significance of gesture as a means of development; the love of rhythm and its recoil upon thought and character; childish animism and the spiritual truth to which it points; the love of hiding, its implications and its dangers; the path of ascent from simple movement to productive and creative activity; the evolution of love and service from physical dependence; the contemporaneous development of selfconsciousness and social sympathy; the influence of praise and blame, and the genesis of conscience.

'All of these separate beads of insight are strung upon the double thread of relationship between the child's vanishing selves to his permanent and central self, and the identity of this central self with the colossal self incarnate in the social whole to which he, as member, belongs.'

These principles are woven into the entire scheme so that the child absorbs them in a rudimentary way. They should become, if the teaching be true, the fundamental, guiding principles of his life.

Practical kindergarten work may be divided into seven divisions:—Songs, Games, Stories, Gifts, Occupations, Drawing and Nature-work. The child spends a short time each morning pursuing these lines of work, under the direction of the kindergartner.

Songs.—Froebel noted carefully the instinctive work of the mother with her infant, in fostering his early attempts to sing, and especially to encourage rhythmic movement. He regarded this as so essential that he accompanied nearly all his plays with songs, and even arranged simple rhythmic lines for use in his gift work.

Games.—He utilized play in all ways. Regarding it as the natural way in which the child received the beginnings of development, he was careful to provide plays which should lead toward that which was helpful in later life. He believed that the child was seeking spiritual development through the development of the body, and many of his games especially enforced the spiritual principle.

Stories.—Stories were used as a natural means of education. The child's love of fairy tale, legend, and stories of life-experience were utilized and told in such a way

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that the educational truth would appeal to him. He would receive by imagination the truth, which was the purpose of the tale, and it would thus become a part of his life-impulse.

Gifts.—The gifts were sets of playthings, blocks, and their divisions given in progression, as Froebel believed the child to be ready for them. The cube and ball he regarded as containing the type forms upon which the world was created, the cylinder being the form which combined the two. The soft ball, made of cotton covered with worsted covers of the six primary and secondary colors, was the plaything given to the infant. The hard wooden ball, solid cube, and the cylinder formed the second gift. The cube, divided into eight parts, followed. In the following gifts the cube and ball were subdivided more and more, until tablets, slats, sticks—representing lines, rings, curved lines—and finally the small seed, representing the point, was reached. The cubes were used in such a way as to be taken apart; the separate blocks utilized as playthings—always, however, used as part of a single whole. This satisfied the analytical instinct of the child. The putting together again, and the final storing away of each cube in its separate box, satisfied the synthetic craving, and led the child toward the idea of *unity*, which was the watchword of Froebel's educational plan.

Occupations.—The occupations were arranged to satisfy the creative instinct. They were planned to illustrate in work, the same principles as the gifts. The first occupation given was pricking—the point; then the child passed to sewing, lines, and simple curves, weaving colored paper in forms representing the shapes made by the blocks through different stages of progression, until the outline solid was reached, in making outline figures by means of sticks and soft peas, and at last the formation of the solid, by means of cardboard and clay modeling.

Drawing.—In drawing, the same plan was followed. Checked paper presented to the child the idea of the fundamental line. These checks were bi-sected angles formed by lines, and figures gradually made more complicated, until at last intricate figures were made, both dictated, and as they were evolved by the child.

Nature.—In Nature-work Froebel led the child direct to the out-of-door world. The little ones made gardens, planted vegetables and flowers and cared for them, had their pet animals which they watched and fed, studied birds, fishes, plants, and became from earliest years familiar with simple scientific facts.

The forms represented in gift occupation and drawing were classified into forms of life, such as represented the objects in nature, and in the industrial world—forms of knowledge—purely intellectual, such as mathematical figures, forms of beauty, and such as had no object

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except their beautiful appearance. These forms must always be made with symmetry, each side, as well as top and bottom, carried out in the same way, until the time arrived in the child's education when he could represent the living object for which the earlier training in type form had been given.

The principles which were destined to educate the child were worked out in simple, child-like ways, and the subtle recognition in each step of the child-instinct has been so true that the three hours spent by the child in the kindergarten prove their usefulness by their far-reaching results. They give pleasure also to the child.

Modern psychology and child study have modified kindergarten methods. This bade fair to give rise to serious differences of opinion and to retard the growth of the work along the best lines.

The International Kindergarten Union, an organization which is composed of more than 90 branches and 92 associate members, including societies and individuals in almost every state in the union, as well as in Canada, Australia, Japan, England and Germany, appointed in 1903 a committee of 19 representative-workers, including two rather differing schools of thought, that they might consider the differences, ascertain how far they were vital and, if possible, present a common plan of agreement. The committee has not made its final report. The kindergarten magazines of June, 1907, contain a summing up of the judgment as far as it has progressed.

Differences of method seem to arise from a differing application of the Froebelian principles. Commercialism, as the object of much educational work in America, has led to emphasis being placed, in many localities, upon the construction side of the work.

Froebel believed that the child (1) Absorbed through the senses; (2) imitated; (3) became self-conscious; (4) productive and creative; (5) these steps were natural expressions of his entire nature, physical, mental, and spiritual. In this day of emphasis upon commercial necessities, it became easy to follow the first four steps and stop there, forgetting the final essential. This has been done by some educators, while others have emphasized the subtle relation of the 'inner to the outer,' which was an organic part of his thought, to the exclusion of the application to present practical conditions which Froebel would have advocated had he lived to-day.

In the songs the changes have tended toward a higher æsthetic standard. Music is better adapted to the voice of the child, words more simple and natural. Less singing is included. In all the music, the natural, rhythmic instinct of the child is being considered. Into the games old folk plays have been woven, universal plays introduced, which often better emphasize the desire of Froebel that all shall take part in each play; the symbolic games, those which represent nature—life, bird-games, etc.; trade

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games—blacksmith, carpenter, etc.; state and community life—knights, soldiers, etc., have been made, as far as possible, more complete æsthetically, as to words, music, and rhythmic action.

The gifts have passed through many stages of change, but the tendency of the present day is to use them much as Froebel originally designed. They are usually made larger, and some kindergartners believe that this gives less fatigue to the muscles of the hand, though in this way the unit of measurement—the inch—is abandoned.

The occupations have been much modified—even altered. The name 'manual work' or 'hand-work' has been introduced; and in many places the sequence of occupation work, proceeding from the point to the solid, has been entirely superseded by such work as shall give the child an early idea of the industrial pursuits of the country. Weaving has been applied to the weaving of miniature rugs, hammocks, etc.

Occupation period is spent in constructing wagons with spools and cardboard, making miniature furniture, dustpans, brooms, etc., using the type forms, as represented in the gifts, but working for the sake of result, rather than for development per se. In this, however, it is believed that there will be a return to Froebel's original thought.

Drawing is not given in the sequence in which Froebel originally gave it, but there is a recognition of the principle that the cube, the ball, and the cylinder with their segments, in outline, are the true basis upon which children should proceed in such work. There is a universal desire upon the part of kindergartners to follow the principles of the founder. Nature-work has become an organic part, not only of every kindergarten, but the primary grades, and even more advanced pupils are following the Froebelian methods to make the work of to-day as perfect as possible. The final conclusion of the committee of 19 will be looked for with deep interest.

The works of Froebel have now been all translated; they are *Education of Man, Pedagogics of the Kindergarten, The Mother-Play* (2 vols.), *Education by Development*. These are published in the *International Educational Series*. Good summaries of the Froebelian thought are, *The Child and Child Nature*, by Buelow; *The Students' Froebel*, by Herford. Authoritative writers are Miss Elizabeth Peabody, Mr. Hughes, Miss Shirriff, Miss Elizabeth Harrison. See NATURE STUDY; SCHOOL GARDENS.

KINDLE, v. *kĭn'dl* [AS. *candel*, a candle: Icel. *kynda*, to set fire to; *kyndill*, a candle, a torch: Norw. *kvende*, chips and shavings for kindling fire: L. *candĕrĕ*, to shine, to glow; to set on fire; to cause to burn with flame; to take fire; to excite to action; to animate; to inflame, as the passions. KIN'DLING, imp.: ADJ. causing to burn with flame. KINDLED, pp. *kĭn'dld*. KINDLER, n.

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kĭn'dlĕr, one who kindles.—SYN. of 'kindle': to exasperate; fire; light; heat.

KINDLE, v. *kĭn'dl* [AS. *cynde*, natural, native: Gael. *cinn*, to increase, to multiply; *cine*, or *cincal*, progeny: a dim. of *kind*, in the sense of race, produce (see KIND)]: in *OE.*, to bring forth young; to produce. KIN'DLING, imp. KINDLED, pp. *kĭn'dld*, engendered; brought forth. TO BE IN KINDLE, said of an animal heavy with young, applied to the small ones such as hares and rabbits.

KINE, n. plu. *kĭn* [AS. *cū*, a cow, *cy*, cows; *cuna*, of cows: Scot *kye*, cows: *kine* for *kyen* is really in form a double plu.]: cows in general; a collective rather than a plu. noun.

KINEMATICS, n. plu. *kĭn'ĕ-măt'ĭks* [Gr. *kinēma*, motion]: the science of pure motion, as distinguished from motion viewed in connection with material parts. KINEMAT'IC, a. -*măt'ĭk*, or KIN'EMAT'ICAL, a. -*ĭkāl*, pertaining to. KIN'EMAT'ICALLY, ad. -*lĭ*. KINEMATIST, n. *kĭn-ĕm'-ă-tĭst*, one who is skilled in the science of kinematics. KINEMATIC CHAIN, a combination of the simple elements of a machine which occur in pairs.

KINESIATRICS, n. plu. *kĭn-ĕ'sĭ-ăt'rĭks* [Gr. *kinēsis*, movement; *ĭătrĭkos*, relating to a cure]: a system of cure in which the treatment consists of certain muscular movements; also called KINESITHERAPY, n. *kĭnĕ'sĭ-thĕr'-ă-pĭ* [Gr. *therăpcu'ō*, I heal].

KINESIS: physical manifestation of energy. A term suggested by C. Lloyd Morgan to distinguish the physical series of phenomena from the mental. According to the double aspect theory, every mode of kinesis (physical activity) has its concomitant mental manifestation, or mode of metakinesis. When the kinesis takes the form of human brain action, the metakinesis takes the form of human consciousness.

KINESODIC, a. *kĭ-nĕ-sōd'ĭk* [Gr. *kinēsis*, motion; *hodos*, a way]: conveying motion.

KINETIC, a. *kĭn-ĕt'ĭk* [Gr. *kinētikos*, movable—from *kinĕō*, I move, I set in motion]: active as opposed to latent; relating to motion; possessing energy. KINETICS, n. plu. *kĭn-ĕt'ĭks*, the theory which teaches that bodies, such as the gaseous, consist of molecules always in motion at a very high rate of velocity; science of motion in a fluid medium: science which investigates the action of force in producing or changing motion. See DYNAMICS; FORCE; MOTION; MECHANICS; etc.

KINETOSCOPE, n. *kĭ-nĕ'to-skōp* [Gr. *kinētos*, movable; *skopĕō*, I see, I observe]: instrument invented by Perigol, for illustrating the result of the combination of circular movements of different radii in the production of curves; called also KINESCOPE.

The name, thus preoccupied, is now the common one for an invention by Thomas A. Edison, known at first as

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Kinetograph. It is the same in principle as the Phenakistoscope and Zoetrope (q.v.); Edison's purpose was twofold,—to secure a more perfectly continuous action, and to throw the images on a screen, magnified to life size, with a phonograph accompaniment, so that even an opera could be reproduced,—the scene, the actors, the voices. He found that a smooth, natural continuity of action, without any appearance of jerkiness due to the succession of pictures, required an expensive lens and a camera arrangement that starts, moves, and stops a sensitive strip 43 or 46 times a second, the exposure each time being about $\frac{1}{57}$ of a second. In the first exhibition, May 9, 1893, seven hundred impressions on a strip passed before the eye in half a minute, each image visible but $\frac{1}{92}$ of a second. The common form of the instrument is a box 4 ft. high, and $2 \times 1\frac{1}{2}$ ft., within which, propelled by a small electric motor, a flat metal ring with a slot revolves horizontally 2,000 times a minute, a celluloid photographed strip passing over one side of it, and beneath it a light; while the spectator looks through a lens, which is directly over the light. The slot in the revolving ring admits light to each passing picture in turn. The motions of a dancer, or wrestlers, or a blacksmith at work, taken from life, are wonderfully lifelike.

KING, n. *kīng* [Ger. *könig*; Icel. *konungr*, or *kongr*, a king—from Icel. *kyn*, a kind, a tribe: AS. *cyning*, king—from *cyn*, a tribe, a race: OS. *kuning*, a king—from *kuni*, a tribe: Goth. *kuni*, race, head of the race: Skr. *ganaka*, a father, a king: 'What the husband was in his house, the lord, the strong protector, the king was among his people.'—*Max Müller*]: person vested with monarchical power in a state; a sovereign: V. in *OE.*, to supply with a king; to raise to royalty. KING'ING, imp. KINGED, pp. *kīngd*. KING'LESS, a. without a king. KING'LIKE, a. like a king. KING'LY, a. *-lī*, suitable to the dignity of a king; royal. KING'LINESS, n. *-nēs*, the state of being kingly. KING'CRAFT, n. *-krāft*, the art of governing—used in a bad sense. KING'DOM, n. *dūm* [AS. *cynedom*, a kingdom—from adj. *cyne*, royal, and *dom*, power, office, jurisdiction]: the territory or country subject to a king; one of the three great divisions of nature, animal, vegetable, and mineral. KINGDOMED, a. *kīng'dūmd*. KING'LET, n. a little or petty king: also a bird. KING'LING, n. a petty king. KING'SHIP, n. the state, office, or dignity of a king. KINGFISH, see OPAH; LAMPRIS. KING-POST, the middle post of a roof standing on the tie-beam, and reaching up to the ridge, also called *crown-post* (see ROOF). KINGWOOD, a wood beautifully streaked in violet tints, used for ornamental work; brought in small pieces from Brazil; called also *violet-wood*; supposed to be the wood of a species of *Trip'tolōmēā*, nat. ord. *Leguminosæ*, subord. *Papilionaceæ*. KING-WORSHIP, a loyalty so excessive as to approach idolatry. KING OF TERRORS, death. KING'S

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EVIL, a disease of a scrofulous nature, formerly believed to be cured by the touch of a king; scrofula (q.v.). KING'S SILVER, ancient fine paid to the king, in the court of common pleas in England, on alienation of certain lands. KING'S YELLOW, a pigment, mixture of orpiment (tersulphide of arsenic) and arsenious acid. COURT OF KING'S BENCH or QUEEN'S BENCH, in *English usage*, one of the divisions of the Supreme Court of Judicature; previous to 1875 one of the high courts of law in which the *king* anciently sat in person. See QUEEN'S BENCH.—SYN. of 'kingly': regal; imperial; august; noble; sovereign; splendid; monarchical; magnificent.

KING: one vested with supreme power in a monarchical state. According to feudal usages, the king was the source from which all command, honor, and authority flowed; and he delegated to his followers the power by which they exercised subordinate rule in certain districts. The kingdom was divided into separate baronies, in each of which a baron ruled, lord both of the lands, which he held under the obligation of rendering military service to the king, and in many cases lord of the people also, who were vassals of the soil, and his liege subjects. In modern times, the kingly power often represents only a limited measure of sovereignty, various constitutional checks being in operation in different countries to control the royal prerogative. The king may succeed to the throne by descent or inheritance, or he may be elected by the suffrages of the nation, or by the suffrages of some body of persons selected out of the nation, as was the case in Poland. Even when the kingly power is hereditary, some form is gone through on the accession of a new king, to signify a recognition by the people of his right, and a claim that he should pledge himself to perform certain duties, accompanied by a religious ceremony, in which anointing with oil and placing a crown on his head are included as acts. By the anointing, a certain sacredness is supposed to be thrown round the royal person, while the coronation symbolizes his supremacy. There is now no very clearly-marked distinction between a king and an emperor. A queen-regent, or princess who has inherited the sovereign power in countries where female succession to the throne is recognized, possesses all the political prerogatives of a king.

In England, it is said that the king never dies, which means that he succeeds to the throne immediately on the death of his predecessor, without the necessity of previous recognition on the part of the people. He makes oath at his coronation to govern according to law, to cause justice to be administered, and to maintain the Protestant Church. He is the source from which all hereditary titles are derived, and he nominates judges and other officers of state, officers of the army and navy, governors of colonies, bishops and deans. He must concur in every legislative enactment, and sends embassies, makes treaties,

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and even enters into wars, without consulting parliament. The royal person is sacred, and the king cannot be called to account for any of his acts; but he can act politically only through his ministers, who are not protected by the same irresponsibility. A further control on the royal prerogative is exercised by the continual necessity of applying to parliament for supplies of money, which practically renders it necessary to obtain the sanction of that body to every important public measure.

The Crown (q.v.) now in use as the emblem of sovereignty differs considerably in form in different countries of modern Europe, but in all cases it is distinguished from the coronets of the nobility in being closed above. The helmet placed by the sovereign over his arms is of burnished gold, open-faced, and with bars. For the arms of the sovereign, see GREAT BRITAIN.

KING, CHARLES, LL.D.: educator: 1789, Mar. 16—1867, Sep. 27; b. New York; son of Rufus King. He was educated in England and Paris, learned the banking business in Holland, returned to New York and engaged in commercial business 1810, was U. S. commissioner to England to investigate the treatment of Dartmoor prisoners, for which he exonerated the British govt.; was associate editor of the *New York American* 1823-27, and sole editor 1827-45; associate editor of the *Courier and Enquirer* 1845-49, and president of Columbia College 1849-64. He was author of histories of the Croton Aqueduct and the New York Chamber of Commerce, and of many historical addresses.

KING, CHARLES: American soldier and novelist: b. Albany, N. Y., 1844, Oct. 12. He was graduated from West Point in 1866 and was in active service in the United States army till his resignation in 1879. In the war with Spain he was a brigadier-general of volunteers and later served in the Philippines under Gen. Lawton. In 1901 he became commandant at Orchard Lake Military Academy. He has published a long series of popular novels treating of army and frontier life and people, among the best of which are: *The Colonel's Daughter* (1883); *Kitty's Conquest* (1884); *Captain Close and Sergeant Cræsus* (1895); and also *Campaigning with Crook* (1890); *Trials of a Staff Officer* (1901); *Famous and Decisive Battles*; *Between the Lines*; *Marion's Faith* (1885); *Captain Blake* (1892); *The General's Double* (1897); *The Iron Brigade* (1902); *A Conquering Corps Badge* (1902); *Medal of Honor* (1905); etc.

KING, CLARENCE: American geologist: b. Newport, R. I., 1842; Jan. 6; d. Phœnix, Ariz., 1901, Dec. 24. He was graduated from the Sheffield Scientific School of Yale University in 1862; in 1863-6 was a member of the California geological survey under the direction of Prof. J. D. Whitney, discovered Mounts Whitney and Tyndall, the highest group in California, and with J. T. Gardiner

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executed the first survey of the Yosemite Valley. In 1866 he originated the plan for a survey of the western Cordilleran region at its widest point. This plan was finally sanctioned by the government, and, under the auspices of the army engineering department and King's direction, was executed as the 'survey of the 40th parallel' and completed in 1872. The survey has been characterized as a 'signal contribution to the material of science.' The volume on *Systematic Geology* (1878), the first of six constituting the report, was written by King and has been highly esteemed. In 1872 certain swindlers sowed a tract in Arizona broadcast with rough gems; the discovery of valuable diamond fields was announced, and companies were organized for the exploration of the find. The 'fields' proved to be within the official limits of the 40th parallel survey, and were therefore examined by King, who detected and proclaimed the fraud. In 1878 King organized the various surveys then active into the United States Geological Survey under the general direction of the secretary of the interior, and was appointed director of the survey. He resigned in 1881, attained a large practice as a mining expert, and undertook an uncompleted series of experiments to determine the action of the primal constituents of the earth under the conditions assumed as existing at the time of its separation from the sun. Partial results were published by him in Silliman's *Journal* (1893, Jan.) in an article on *The Age of the Earth*. He wrote also, *Mountaineering in the Sierra Nevada* (1871), a description of his explorations, and a work of literary as well as scientific value.

KING, EDWARD: American writer: b. Middlefield, Mass., 1848, July 31; d. Brooklyn, N. Y., 1896, Mar. 27. He lived in Paris 20 years as correspondent of American journals. Among his works were *My Paris, or French Character Sketches* (1868); *Kentucky's Love, or Roughing It Around Paris* (1872); *The Great South* (1875); *The Golden Spike* (1886); *A Venetian Lover* (1887), a poem; *The Gentle Savage* (1888), a popular novel.

KING, GRACE ELIZABETH: American writer: b. New Orleans 1852. She was educated in New Orleans, contributed much to periodicals, and published in the *New Princeton Review* in 1886-8 Creole sketches which won considerable reputation and constituted the story *Monsieur Motte* (1888). Among her further works are *Tales of Time and Place* (1888); *Earthlings* (1889); *Chevalier Alain de Triton* (1889); *Jean Baptiste Lemoine, Founder of New Orleans* (1892); *Balcony Stories* (1893); *New Orleans: The Place and the People* (1896); and *De Soto and His Men in the Land of Florida* (1898).

KING, HENRY CHURCHILL, A.M., B.D., D.D.: American theologian: b. Hillsdale, Mich., 1858, Sep. 18. He was graduated from Oberlin in 1879, from the Oberlin Theological Seminary in 1882, studied also at Harvard and

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Berlin, was associate professor of mathematics at Oberlin in 1884-90, associate professor of philosophy in 1890-1, and professor of philosophy in 1891-7. In 1897 he was appointed professor of theology, and in 1902 president. In 1893 he was a member of the National Educational Association's committee of ten. His works are *Outline of Erdmann's History of Philosophy* (1892); *Outline of the Microcosmus of Hermann Lotze* (1895); *The Appeal of the Child* (1900); *Reconstruction of Theology* (1901); *Theology and Social Consciousness* (1902); *Personal and Ideal Elements in Education* (1904); *Rational Living* (1905); etc.

KING, HORATIO: American statesman: b. Paris, Maine, 1811, June 21; d. Washington, D. C., 1897, May 20. He learned the printer's trade and published *The Jeffersonian* in his native town, and subsequently in Portland, 1831-8. The next year he was appointed clerk in the postoffice department in Washington; became first assistant postmaster-general in 1854; was postmaster-general 1861, Jan.-Mar.; and was the first man in public office to deny the power of a state to withdraw from the Union. He published *An Oration Before the Union Literary Society of Washington* (1841); *Sketches of Travel: or Twelve Months in Europe* (1878).

KING, JAMES MARCUS, D.D.: Meth. Episc. clergyman: b. Girard, Erie co., Penn., 1839, Mar. 18. He graduated at Wesleyan Univ. 1862, was professor of natural science in Fort Edward Collegiate Institute, N. Y., 1862-68, licensed to preach 1865, and entered the regular work of the Meth. Episc. ministry 1868. In 1873 he was appointed to St. John's Church, New York, and has since continued in that city, holding the pastorates of the Park Avenue, Washington Square, St. James', St. Andrew's, and Union M. E. churches. He is a manager and member of the committee on agencies of the American Bible Soc.; member, chairman of the committee on legislative action, and honorary corresponding secretary of the U. S. Evangelical Alliance; and has represented both the Alliance and the United Charities of New York before legislative committees in defense against attacks on unsectarian institutions receiving aid from the state and city treasuries. Dr. King has strong thought, and a clear and impressive style.

KING, JOHN: American eclectic physician and author: b. near New York city, 1813, Jan. 1; d. North Bend, O., 1893, June 19. Received a liberal education and graduated in medicine at the Reformed Medical College of the City of New York, in 1838, under the celebrated Dr. Wooster Beach. In 1848 he was the first secretary of the National Eclectic Medical Association, and, in 1878, president of that body as reorganized in 1870. From 1849 to 1851 he was professor of materia medica, therapeutics and medical jurisprudence in the Memphis Medi-

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cal Institute at Memphis, Tenn., from 1851 to 1856 and 1859 to 1890, professor of obstetrics and diseases of women and children in the Eclectic Medical Institute of Cincinnati, O. From 1856 to 1859 he taught obstetrics in the Cincinnati College of Eclectic Medicine and Surgery. Dr. King discovered the resins of podophyllum (podophyllin) and macrotys, and the oleo-resins of capsicum and iris. He wrote: *Urological Dictionary, American Dispensatory* (1853); *American Obstetrics* (1855); *Women: Their Diseases and Treatment* (1858); *The Microscopist's Companion* (1859); *The American Family Physician* (1860); *Chronic Diseases* (1866), and the *Coming Freeman* (1886), the last named in behalf of the laboring classes and dedicated to the Knights of Labor. He is regarded as the father of American Materia Medica.

KING, JOHN ALSOP: American politician: b. New York city 1788; d. 1867. He was the son of Rufus King (q.v.); was educated at Harrow, England, then returned to New York to study law, and was admitted to the bar. In 1812 he served as lieutenant of cavalry, was elected to the state assembly in 1819, and several times re-elected till 1823, when he was elected to the senate. Though an opponent of Clinton, he strongly favored the building of the Erie Canal. In 1825 he went with his father to England as secretary of the legation, and on his father's return to the United States on account of ill health he remained as *chargé d'affaires*. In 1838 he was again a member of the New York legislature for several terms; and in 1849 he was elected to congress as a whig and there opposed all compromise measures, especially the Fugitive Slave Law. He was one of those active in the founding of the republican party, presided at the Syracuse convention of 1855, and was a delegate to the Philadelphia convention of 1856. In 1857 he became governor of New York state and in that office gave special attention to educational matters and internal improvements; he declined a renomination in 1860. He was one of the presidential electors in 1860, voting for Lincoln, and in 1861 was a member of the Peace Convention.

KING, JOHN CROOKSHANKS: American sculptor: b. Kilwinning, Ayrshire, Scotland, 1806, Oct. 11; d. 18—. He was educated as a practical machinist, and, emigrating to the United States in 1829, was employed for several years in Cincinnati and Louisville as superintendent of a factory. In 1834, at the suggestion of Hiram Powers, he made a model in clay of the head of his wife, and the success with which the work was accomplished encouraged him to adopt the profession of a sculptor. From 1837 to 1840 he resided in New Orleans, and modeled a number of busts of public men and made cameo likenesses; but subsequently removed to Boston. He executed several busts of Daniel Webster, also busts of John

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Quincy Adams, Agassiz, Ralph Waldo Emerson, and other Americans.

KING, RUFUS: journalist: 1814, Jan. 26—1876, Oct. 13; b. New York; son of Charles King and grandson of Rufus King. He graduated at the U. S. Military Academy 1833, was assigned to the engineer corps, and resigned 1836 to become assistant engineer on the New York & Erie railroad. In 1839-43 he was adjutant-general of N. Y.; 1841-45, associate editor of the *Albany Evening Journal* and the *Advertiser*; 1845-61, editor of the Milwaukee *Sentinel*; and 1861, Mar. 22—Aug. 5, U. S. minister to Italy. He resigned the latter office at the outbreak of the rebellion, hastened home, was appointed brigadier-general of volunteers, commanded a division at Fredericksburg, Groveton, Manassas, Yorktown, and Fairfax, and resigned 1863, Oct., on being reappointed U. S. minister to Italy. He held this office till 1867, July 1, and was afterward deputy comptroller of customs at New York.

KING, RUFUS, LL.D.: 1755, Mar. 24—1827, Apr. 29; b. Scarborough, Me.: statesman. He graduated at Harvard College 1777; was admitted to the bar and began practicing at Newburyport, Mass., 1780; was elected a member of the general court 1782, and by it was chosen a delegate to the continental congress 1784; introduced a resolution (1785) to prohibit slavery in the N. W. Territories, which was afterward adopted in the ordinance for the govt. of that region; and was a member of the federal constitution convention 1787. He secured the ratification of the constitution by Mass., despite violent opposition, gave up his law practice, and removed to New York 1788. In 1789 he was elected a member of the N. Y. assembly and the U. S. senate, and 1795 was re-elected senator. He advocated in the senate and in the press the ratification of the Jay treaty with Great Britain 1794, declined Pres. Washington's offered appointment of sec. of state, and was appointed U. S. minister to England 1796. He discharged the duties of that trying office with dignity and firmness till 1803, when he resigned, returned to New York, and settled on a farm on Long Island for a period of rest. He was opposed to the declaration of the war of 1812, but supported the government in its prosecution, as a member of the U. S. senate, to which he was again elected 1813. In 1816 he was defeated as federalist candidate for gov. of N. Y.; 1819 was a fourth time elected U. S. senator; and 1825, on the expiration of his senate term, was induced by Pres. John Quincy Adams to accept a reappointment as U. S. minister to England. He was cordially received in London, but after a few months his health began to fail, and he resigned 1826.

KING, THOMAS STARR: 1824, Dec. 16—1864, Mar. 4; b. New York: Universalist minister. He acquired a limited education, accompanied his parents to Charlestown,

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Mass., 1835, and on the death of his father, a Universalist minister (1839), went to work in a dry-goods store. He was anxious for a college education, but family necessities intervened, and he remained in the store till an opportunity was offered for becoming asst. teacher in the Bunker Hill grammar school. From this school he went to one in Medford, Mass., as principal, and while there studied for the ministry with Hosea Ballou (q.v.). In 1845 he preached his first sermon in Woburn, 1846 was called to his father's former church (Universalist) in Charlestown, 1848-60 was settled over the Hollis Street Church (Unitarian) in Boston; and from 1860 till his death was pastor of the Unit. church in San Francisco. Before removing from Boston he had acquired wide fame as a popular lecturer and a powerful writer. This reputation preceded him to Cal., and soon after his settlement in San Francisco he began receiving invitations from many Pacific slope cities to lecture and preach. He was very active in the presidential canvass 1860, using all his great talents to dissuade the people from attempting to set up a Pacific republic at the cost of withdrawal from the Union, and urging with rare eloquence that it was the duty of every loyal citizen to give his full and hearty support to the preservation of the Union. His labors in the pulpit, on the platform, and through the press did more to keep Cal. out of the Confederacy than those of any other person; and after the war had opened he was earnest in promoting the usefulness of the U. S. Sanitary Commission. He laid the corner-stone of a new church building for his congregation 1862, Sep., and assisted in dedicating it 1864, Jan. 10, a few weeks before his death.

KING, WILLIAM: American politician, first governor of the state of Maine: b. Scarboro, Maine, 1768; d. Bath, Maine, 1852, June 17. He was, during the greater part of his life, the last 50 years of which were passed in Bath, an active and successful merchant, but is better known by his public services in his native state. At an early period of his career he became a member of the Massachusetts legislature, and in that capacity was distinguished by his efforts in behalf of religious freedom, and of securing to original settlers upon wild lands the benefit of their improvements. He was an early and ardent advocate of the separation of Maine from Massachusetts, and upon the consummation of that act presided over the convention which met in 1819 to frame the constitution of the new state. He was subsequently elected the first governor of Maine, and, after holding office a little more than a year, became one of the United States commissioners for the adjustment of Spanish claims. He also held other offices of importance under the general and state governments, including that of collector of port of Bath.

KING, WILLIAM RUFUS: 1786, Apr. 6—1853, Apr. 18; b. Sampson co., N. C.: lawyer. He graduated at the Univ.

KING-AT-ARMS—KING-BOLT.

of N. C., 1803; was admitted to the bar 1806; elected a member of the legislature 1806-7; appointed state solicitor for the Wilmington district 1807; again member of the legislature 1808-9; member of congress 1810-16; sec. of the U. S. legations to Naples and Russia 1816-18; U. S. senator 1819-44; U. S. minister to France 1844-46; U. S. senator 1848-52; pres. of the senate 1850; and vice-pres. of the United States 1853, Mar. 4—Apr. 18. While in the senate he supported the policies of Andrew Jackson and Martin Van Buren; as minister to France he prepared the way for the annexation of Texas free from foreign intervention. After his election as vice-pres. on the ticket with Franklin Pierce, his health failed rapidly, and, being unable to be inaugurated with the pres.-elect, the official oath was administered to him by order of congress in Havana, whither he had been ordered by physicians. He did not live to enter on his official duties.

KING-AT-ARMS, or **KING-OF-ARMS**: one of the principal heraldic officers of any country. There are four kings-at-arms in England, named respectively Garter, Clarencieux, Norroy, and Bath, but the first three only are members of the College of Arms.

KING'-BIRD: characteristic N. American bird, of genus *Tyrannus*, family *Tyrannidæ*, ord. *Passeres*. It is a summer visitant in Canada and the n. states, ranging as high as 57° n. lat., wintering in the south even as far as e. Peru. It is named from its imperious and pugnacious treatment of other birds, which the cock, in the breeding season, through care of either his mate or his young, attacks fiercely in their flight, forcing them to turn from their course. Every large bird that approaches his nest, even the eagle, is assailed by him and with loud piercing cries; and only more power of wing enables them to evade his repeated attacks. The American species, *Tyrannus papiri*, seems to feed entirely on insects which it seizes on the wing. Its nest is large and coarse, but neatly lined with fine grasses: its five or six eggs are of pale salmon color with purple, brown, and orange spots generally near the larger end. The king-bird is 8 to 9 inches long; color, dark bluish ash above, pale bluish ash on breast and throat, bluish black on top and sides of head. The king-bird resembles in several respects the Shrikes, in other respects the Flycatchers, with which indeed it has been confounded; but there is really no near affinity, and the differences are deep-seated.—The Petchary (q.v.) or Chicheree of the W. Indies (*T. dominicensis*) is nearly akin to the king-bird, and is even more pugnacious. Consult: Wilson, *American Ornithology* (1834); Baird, Brewer and Ridgway, *History of North American Birds* (1874); Coues, *Birds of the Northwest* (1874).

KING-BOLT, or **CENTRE-PIN**: in a locomotive, the bolt or pin which passes through the centre-casting and the

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centre of the truck, thus making a flexible connection between the engine and the truck, enabling the latter to turn about the king-bolt so as to allow the axles to assume positions approximating the radii of the curves of the track.

KING'-CRAB, or HORSE-SHOE CRAB—from the shape of its carapace or shield—(*Limulus*): genus of *Crustacea*, ranked by Cuvier among the *Entomostraca*; but so widely differing from all the rest of the *Crustacea*, that Milne-Edwards makes it a sub-class by itself. The head and thorax are united, and are covered by a shield convex above and concave beneath. The abdomen is more or less hexagonal, no division into rings appears in it, and it is covered by a shield not so broad as that of the head and thorax. On each side it has along the margin six movable spines directed backward and outward; and attached to it is a tail, which forms a long and strong dagger-like spine, sometimes exceeding in length the whole body of the animal. The legs are not large enough to be visible beyond the shield when the animal moves along the ground.—These remarkable animals are found only on the shores of tropical Asia, the Asiatic archipelago, and America. They feed on animal food; and are said to be themselves less agreeable food than crabs or lobsters. Some of them exceed two ft. in length, and the strong and jagged spine is a formidable weapon. In some of the Asiatic islands, the spine is often used for pointing arrows. In tropical America, the king-crab is called *Casserole Fish*, and the shell is used as a ladle. The number of species of king-crab is not great.—Fossil species are numerous. Trilobites are supposed to have been allied to the *Limuli*.

KINGFISH: the name of various fish of notable power or superior excellence; especially certain 'Spanish mackerels' of the genus *Scomberomorus*. One, the cavalla or 'King cero,' is a favorite game fish in Florida. The kingfish of the New York waters (*Menticirrhus saxatilis*) is one of the whittings, of the family *Sciænidæ*, closely allied to the drums. It is a moderately large migratory marine fish, 'dusky gray above, sometimes blackish, the back and sides with distinct dark oblique cross-bands running down and forward,' and a V-shaped blotch on each side of the nape. It is also known as 'sea-mink,' and is an excellent food-fish, but has become rare, although formerly ascending the Hudson river in schools, in early spring, for 40 miles or so. Other fishes so called are the little roncador of California, and the opah. Consult: Jordan and Evermann, *American Food and Game Fishes* (New York 1902).

KING'FISHER (*Alcedo*): genus of birds of the order *Insessores*, family *Halcyonidæ*. The name is often extended to the whole family; the only British and almost the only European species of which is the common king-

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fisher (*A. ispida*), a bird not much larger than a sparrow, in brilliancy of color rivalling the finest tropical birds—blue and green being prevailing colors. The kingfisher is found in all parts of Europe except the most northern, and over a great part of Asia and Africa. It frequents the banks of rivers and streams and is often seen flying near the surface of the water. Its food consists of small fishes, such as minnows, sticklebacks, and trout or salmon fry, and of leeches and water-insects. When it has caught a fish, it often kills it by beating on a branch, and always swallows it head foremost. The indigestible parts are afterwards disgorged.

It is very probable, although not certain, that the kingfisher is the *Halcyon* of the ancients, about which many wonderful fables were current among them: of its having power to quell storms, of its floating nest, and the stillness of the winds during the time necessary for its safety, etc. Shakespeare makes repeated allusion to the popular notion, that if the stuffed skin of a kingfisher or halcyon is hung up by a thread, the bill will always point to the direction from which the wind blows. See HALCYON.

The BELTED KINGFISHER (*Alcedo Halcyon* or *Ceryle Halcyon*) of N. America is a much larger bird than the kingfisher of Britain, being fully 12 inches in length. It is common on most of the rivers of N. America to 67° n. lat. in summer, but migrates southward in winter, and is then found in the W. Indies. Its colors are dull when compared with those of the common kingfisher.

Many species of kingfisher are found in the warmer parts of the world. Some of them, forming the genus *Ceyx*, lack the hind toe. The common European kingfisher may be regarded as the type of the family, which belongs to the group called *Syndactyle Birds*, and is characterized by the much-united toes. The form is bulky; bill long, straight, quadrangular, sharp and heron-like; wings, tail, and legs short, and feet small.

KING GEORGE'S SOUND: inlet at the s.w. angle of Australia, an excellent roadstead, containing two landlocked recesses, Princess Royal and Oyster Harbors. On the former stands Albany, a coaling depot.

KINGLAKE, *kīng'lāk*, ALEXANDER WILLIAM: 1811-1891, Jan. 2; b. near Taunton, England: historian. He studied at Eton and Trinity College, and, having chosen the law as a profession, was called to the bar 1837. His practice soon became very great; nevertheless, he found time to make a tour in the east, the result of which was a book, *Eothen* (1844), descriptive of his adventures and impressions. It attained astonishing popularity, passing through many editions both in England and America, and being extensively translated on the continent of Europe. The graceful vigor and liveliness of the style have made *Eothen* a model for subsequent works of a

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similar kind, but none have yet reached the exquisite talent of the original. In 1857, Kinglake entered parliament as member for Bridgewater. Vols. I. and II. of his *Invasion of the Crimea* appeared 1863, and fully sustained his literary reputation; but the violent antipathy shown toward the French emperor and all the actors in the *coup d'état* did not beget confidence in him as a historian. Vols. III., IV. were published 1868, V. in 1875, VI. in 1880, and VII. and VIII. before 1887.

KINGLET, *kīng'let* (*Regulus cristatus*): Golden-crested wren, smallest of British birds. This species is type of a small group of the Warblers, though by some classed with the Titmouse family. It crosses in vast flocks from Scandinavia to the e. coast of Britain in autumn. The kinglet is of generally olive-green color, with yellow head; and black wing coverts, sometimes white-tipped. It makes a beautiful and soft nest, and is a very social little bird, often joining bands of other species of titmouse. There are also Asiatic species of *Regulus*: and N. America has two well-known species, *R. satrapa* and *R. calendula*, or ruby-crowned wren, whose loud song resembles that of the sky-lark or canary.

KING OF THE HERRINGS: a fanciful name applied to various sea-fishes. One so called is the moonfish (*Lampris luna*). Another is the rare deep-sea ribbon-fish (*Trachipterus arcticus*) of the North Atlantic. A species of the same family (*Trachipteridæ*) occurs occasionally on the northwestern American coast, and was called by the Indians about the Straits of Fuca 'King of the Salmon,' in reference to their belief that the killing of this fish would be followed by a failure of the salmon supply.

KING OF THE MACKERELS: a strange oceanic fish of the genus *Ranzania*, allied to the ocean sunfish (*Mola*), various species of which are superstitiously so called in various parts of the world. One kind *R. truncata* is now and then taken in the North Atlantic; and a Hawaiian and Japanese species is *R. makua*. Consult Goode and Bean, *Oceanic Ichthyology* (1895).

KINGS, FIRST AND SECOND BOOKS OF (*Melakim*): two of the canonical books of the Old Testament. Originally they were but one, and were separated by the Seventy, by whom they are designated 'the third and fourth of the kingdoms'—the Books of Samuel forming the first and second. This division, copied by the Vulgate, passed thence into the general usage of Christendom. The exact titles of these books in the English Authorized Version are—*The First Book of the Kings, commonly called the Third Book of the Kings, and The Second Book of the Kings, commonly called the Fourth Book of the Kings*. They embrace (1) the reign of Solomon, (2) the history of the divided kingdoms of Judah and Israel, (3) the history of the kingdom of Judah after the dispersion of

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Israel, until the Babylonian captivity—a period of about 570 years in all. The books appear to be not vague compilations from royal annals and other—rather contradictory—sources, as is held by some, but rather the diligent work of a historian—with a clear and distinct tendency—who gathered together all the written and unwritten information useful for his purpose. The unity of style and language is indeed palpable throughout, nor are any later alterations of consequence apparent. The principal sources quoted are a *Book* [of the Chronicles] of *Solomon*, further a *Book of the Chronicles of the Kings of Israel*, and another of *the Kings of Judah*. The Talmud, and some of the earlier Christian theologians, ascribe it to Jeremiah; this view is maintained by Hävernack and other eminent modern scholars. Huet and Calmet are in favor of Ezra; but all that can be positively asserted is, that the compiler lived during the second half of the Captivity, and after the death of Joiachin, and probably in Babylon.

KING SALMON, or QUINNAT: the most important of the several species of salmon found on the Pacific coast of the United States; called also Chinook or Columbia river salmon (*Oncorhynchus tshawytscha*). It is especially abundant in the Columbia and Sacramento rivers, and its great economic importance is due to the fact that it enters the rivers in large numbers in the spring. See SALMON.

KINGSBURY, ALBERT: an American educator; b. near Morris, Ill., 1862, Dec. 23; graduated at Cornell Univ. 1889; later studied mechanical engineering at Ohio State Univ. and Cornell Univ.; was instructor in mechanical engineering and physics in the New Hampshire College, 1889-90; mechanical engineering at the H. B. Camp Co., O., 1890-91; professor of mechanical engineering at New Hampshire College 1891-99; professor of applied mechanics at the Worcester Polytechnic Institute 1899-1903, and since 1903 has been connected with the Westinghouse Electric and Manufacturing Company.

KING'S COLLEGE, Cambridge, England: founded 1441 by Henry VI., for a provost, 70 fellows and scholars, three chaplains, with clerks, choristers, servitors, and poor scholars—in all, 140. Its revenues were seriously diminished by Edward IV. The chapel is the work of the three Henries, VI., VII., VIII. The architect is supposed to have been Nicholas Cloos, or Klaus, fellow of the college, and Bp. of Lichfield, or, as others say, his father. It is perhaps the finest specimen of perpendicular Gothic in the world. Its internal dimensions are 290 ft. long, 45 wide, and 78 high. There is an inner roof of stone, which, though enormously massive, has, from its proportions and the beauty of the groining, the most airy and pleasing effect. Under the statutes of 1861, the foundation consists of 46 fellows, and not less than 48 scholars, gov-



KINGS COLLEGE, WINDSOR, N. S.

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erned by a provost. Twenty-four of the scholarships are appropriated to the scholars of Eton College. The fellowships are open to all members of the college of sufficient standing. In 1871 a scholarship of £80, tenable for three years, was established for natural science.

KING'S COLLEGE, London: proprietary institution, founded 1828 on the fundamental principle:—'that instruction in the Christian religion ought to form an indispensable part of every system of general education for the youth of a Christian community.' The college being strictly in connection with the Church of England, church service is a regular part of its routine. The course embraces theology, general literature and science, applied sciences, engineering, and medicine. The department of general literature and science is intended to prepare students for the universities, for the army, and the Indian and home civil service; and there are also special classes for civil service candidates. There is a department for women. The college possesses a library and museum, the latter containing Babbage's calculating machine and King George the Third's collection of philosophical instruments and mechanical models. It is now a constituent college of London University.

KING'S COLLEGE, Windsor: the oldest university in what is now the Dominion of Canada, and, with the exception of the French foundation of Laval (q.v.) at Quebec, the oldest college. Its establishment was the work of British Loyalists, chiefly from the state of New York, after the close of the War of the Revolution. First, a grant was obtained from the provincial legislature for an academy at Windsor. This academy (now known as the Collegiate School) was opened 1788, Nov. 1, and the following year an act was passed for 'the permanent establishment and effectual support of a college at Windsor,' and the sum of £400 sterling per annum granted toward its maintenance. Under this act, King's College was opened in 1790 in temporary quarters, and the erection of a building of wood was begun the following year. A royal charter, giving to King's College full university powers, was granted by George III. in 1802, and was accompanied by an imperial grant of £1,000 a year, which was continued until 1834. The board of governors under this charter was a political body, consisting of the lieutenant-governor, the bishop, and six members of the government. The requirement was made that all students, on matriculation, must subscribe to the Thirty-nine Articles. Although the religious tests were finally removed in 1829, in spite of repeated attempts to secularize it and amalgamate it with Dalhousie College, Halifax, King's College still retained its connection with the Church of England, and indeed the requirement that the president should be a clergyman was only abolished in 1902. Of the three King's Colleges established at Wind-

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sor, N. S., Fredericton, N. B., and Toronto, it is the only one which has maintained its original status, the others having relinquished their charters and become secularized.

In 1846 a meeting of alumni of the college was held, and it was determined to form an association for furthering the interests of the college. Accordingly a provincial act incorporating 'The Alumni of King's College, Windsor,' was obtained in 1847, and six years later another act abolished the old political board of governors and constituted a new board, the members of which were, for the most part, to be elected by the alumni. The provincial grant of £400 was discontinued in 1849, and for some years the smaller grant of £1,000 a year was continued, but this ceased in 1881, and since that time the college has been thrown upon its own resources. The progress of the college was rapid under the new régime. The number of students increased. A beautiful stone convocation hall and library was erected in 1861 and a chapel in 1877.

The present teaching staff of the college consists of a president, who is also professor of English literature, history and economics, two divinity professors, one of classics, one of chemistry and geology, one of mathematics and physics, one of engineering, and one of modern languages. Degrees are given in arts, divinity, engineering, and science, and a school of law, established at Saint John, N. B., in connection with the University of King's College, in 1892, is doing good work. The Engineering School, which is the oldest in Nova Scotia, has been removed to the Sydneys to take advantage of the splendid plant in operation in the Cape Breton metropolis.

KING'S DAUGHTERS, ORDER OF: organization of American women, irrespective of age or religious faith, founded in New York 1886, Jan., by Mrs. Margaret Botome, for the purpose of uniting all Christian women in a sisterhood of religious and charitable service. The badge of the order is a small Maltese cross in silver suspended from a royal purple ribbon; the motto, 'In His Name.' The various bodies, supreme and subordinate, are called 'Tens,' and each subordinate may have an unlimited number of members, and add to the 'Tens' any distinctive name that they choose, as 'Hospital Tens,' 'Reading Tens,' 'Floral Tens,' 'Sewing Tens'—all engaged in hospital work, etc. The injunctions of the order are: 'Look forward and not back'; 'Look out and not in'; 'Look up and not down,' and 'Lend a hand.' The badge is worn conspicuously at the throat or on the breast, and recognition is by members touching or pointing to their badges, shaking hands, and while doing so repeating the motto, 'In His Name.' The order proved so popular and beneficial that a co-operating order of King's Sons was established in 1889, and the organization is now known as the INTERNATIONAL ORDER OF

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KING'S DAUGHTERS AND SONS; it publishes a weekly paper, *The Silver Cross*. The membership in all parts of the world is over half a million.

KINGSFORD, WILLIAM: Canadian historian; b. London, Eng. 1819, Dec. 12; d. Ottawa, Ont., 1898, Sept. 29. He came to Canada in 1837 and took up engineering and surveying and was at various times employed upon the construction of the Grand Trunk and Canadian Pacific railways. He published: *The History, Structure and Statistics of Plank Roads* (1852); *Impressions of the West and South* (1858); *The Canadian Canals: Their History and Cost* (1865); *A Canadian Political Coin: A Minograph* (1874); *History of Canada* (10 Vols. 1887-97); *The Early Bibliography of Ontario* (1892); *Some Considerations on Education* (1896).

KINGSLEY, *kings'li*, CHARLES: English clergyman, poet, and novelist, late chaplain in ordinary to the queen: 1819, June 12—1875, Jan. 23; b. Holne Vicarage, Dartmoor, Devonshire. He entered Magdalen College, Cambridge, 1840, where he highly distinguished himself in classics and mathematics. In 1844, he became curate and shortly afterward rector of Eversley, Hampshire. In the same year he published *Village Sermons*, characterized as honest, downright wisdom, conveyed in plain and simple style deemed by many his best pulpit efforts. His sermons however were prepared for preaching rather than for print. In 1848, appeared *The Saint's Tragedy, or the True Story of Elizabeth of Hungary*, an admirable and truly catholic representation of mediæval piety. The next two or three years of his life were devoted—in company with his friend Mr. Maurice and others—to a series of efforts for the amelioration and Christianization of the working classes. To these efforts may be traced the origin of those beneficial co-operative associations in which the workmen are also the masters. His opinions on the social disquietude of modern times are given in his *Alton Locke, Tailor and Poet* (1849), a novel of extraordinary power and fascination, the hero of which is found in a London workshop. This was followed 1851, by *Yeast, a Problem*, in which Kingsley handles, among other questions, the condition of the English agricultural laborer; and 1853, by *Hypatia or New Foes with an Old Face*, a most vigorous and brilliant delineation of Christianity in conflict with rude Gothic paganism and the expiring philosophy of Greece, in the early part of the 5th c. Both these works appeared in *Fraser's Magazine*. Two years later he published *Westward Ho!* probably the greatest of his works. Its glowing pictures of S. American forests are said to have excited the admiration of Humboldt, who had himself really seen what Kingsley only imagined. Other works of his are—*Message of the Church to Laboring Men*; *Sermons on National Subjects, Preached in a Village Church*; *Phaethon, or Loose Thoughts for Loose Thinkers*; *Alexandria and her Schools*; *Sermons*

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for the *Times*; *Glaucus, or the Wonders of the Shore*; *The Heroes, or Greek Fairy Tales*; *Two Years Ago*; *The Water Babies*; *Good News of God*; *Hereward, the Last of the English* (1866); *The Hermits* (1867); *How and Why* (1869); *At Last, a Christmas in the West Indies* (1871). He was appointed prof. of modern history at Cambridge, 1859, and after resigning that post, was made, 1869, canon of Chester. He had bright wit, wide information, admirable powers of expression, a broadly catholic spirit, independence in thought and action, facility and industry in labor, and most tender and generous sympathy with all human suffering and need. He was a faithful Christian pastor to his humble flock. A biography by his wife appeared 1876.

KINGSLEY, ELBRIDGE: American artist and engraver; b. Carthage, Ohio, 1842, Sept. 17. He was graduated at Hopkins Academy, Hadley, Mass., and proceeded to New York where he studied art at Cooper Union. He began engraving for the Century Company in 1878, and started the School of Painter Engraving in 1880 with original work. He is one of the artists who have been instrumental in raising the school of American engraving to the high rank in the art world which it now enjoys.

KINGSLEY, FLORENCE MORSE: American novelist; b. Medina, Ohio, 1859, July 14. She was educated at Wellesley College and was married in 1882 to Charles R. Kingsley. She has published: *Titus; a Comrade of the Cross* (1894); *Stephen* (1896); *Paul* (1897); *Prisoners of the Sea* (1897); *The Cross Triumphant* (1899); *The Transfiguration of Miss Philura* (1901); *Through a Needle's Eye* (1902); *Wings and Fetters* (1902); *Kindly Light* (1904); *The Singular Miss Smith* (1904); *Tor; a Street-Boy of Jerusalem* (1905); *An Unrecorded Miracle* (1905); *Resurrection of Miss Cynthia* (1905); etc.

KINGSLEY, HENRY: English novelist, brother of C. Kingsley (q.v.); b. Barnack, Northamptonshire, 1830; d. 1876, May 24. After being educated at King's College, London, and Worcester College, Oxford, he went to Australia, where he spent five years, returning to England in 1858. He was editor of the *Daily Review*, Edinburgh, 1870-1, was its war correspondent during the Franco-Prussian war, and as such was present at the battle of Sedan. In 1859 he published *Recollections of Geoffrey Hamlyn*, a vigorous novel of Australian life, and this was succeeded by *Ravenshoe* (1861); and *The Hillyars and the Burtons* (1865).

KINGSLEY, JOHN STERLING, SC.D.: American zoologist; b. Cincinnatus, N. Y., 1854, April 7. He was graduated from Williams College in 1875, was professor of zoology at the University of Indiana 1887-9; and at the University of Nebraska 1889-91, and has filled a sim-

KING'S MOUNTAIN—KING'S COUNSEL.

ilar position at Tufts College from 1892. He edited *The American Naturalist* (1886-96), and has published *Elements of Comparative Zoology; Vertebrate Zoology; Popular Natural History* (1890); etc.

KING'S MOUNTAIN, BATTLE OF: 1780, Oct. 7, at the s. extremity of the King's Mountain range in York co., S. C.; between British troops under Lieut.-Col. Ferguson and American under Col. Cleveland. The British force was about 1,200, and was on the way to rejoin Lord Cornwallis at Charlotte, N. C., after having scoured the w. part of S. C. The Americans mustered about 900, and having intercepted several of Ferguson's letters to Cornwallis reporting his dangerous position, marched all night Oct. 6-7, and dividing into three bodies, suddenly attacked the British then encamped on the slope of the mountain. The battle was waged with great bravery on each side for an hour, and then with the death of the British commander his men surrendered. The British lost 240 killed and wounded and nearly 800 prisoners, and the Americans 20 killed and many more wounded.

KING SNAKE: a large colubrine snake of the southern part of the United States (*Osceola doliata*, of which the northern house-snake is a variety), so called on account of the belief in its power and prowess, especially in overcoming rattlesnakes. It is grayish white, marked by a series of black rings in a manner so variable that many color-varieties have been named. It sometimes reaches a length of ten feet, is extremely muscular and swift, and preys upon frogs, toads and upon snakes, including poisonous ones. Hence this serpent is much respected and rarely killed in the less settled parts of the southern states. Several other species are known, one of which (*O. coccinea*) is red with black bands, and called the red king snake. These snakes are reproduced by eggs buried in sandy soil or loose dust, like that of a rotting stump. The chain-snakes (q.v.) of the allied genus *Ophiobolus* have an equal right to the name king snake, and frequently receive it. Consult: Holbrook, *North American Herpetology*, Vol. III. (142).

KINGS OF THE ORIENT, THE THREE. See **MAGI.**

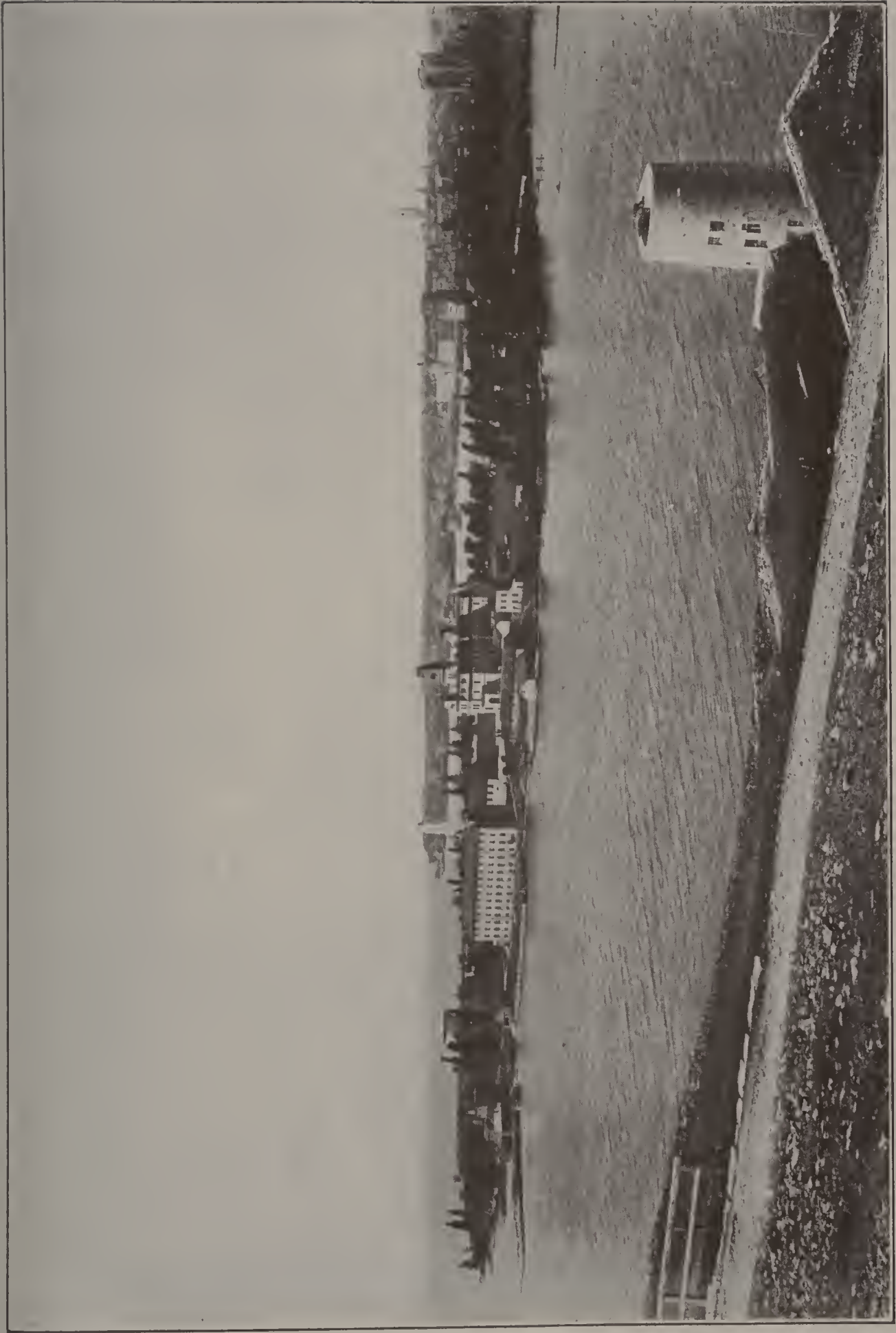
KING'S (OR QUEEN'S) COUNSEL (usually contracted **Q. C.**): in England and Ireland, certain barristers at law, who have been called within the bar, and have been appointed by letters-patent to be her majesty's counsel. The office is entirely honorary, but it gives a right of pre-audience in all the courts, according to the date of appointment. The appointment practically belongs to the lord chancellor. Though called her majesty's counsel, they are not prevented from being retained and acting for ordinary clients, except that in defending prisoners and acting in suits against the crown, they require a special license from the crown, which is, how-

KING'S EVIDENCE—KINGSTON.

ever, never refused. In Scotland, there is no distinction of queen's counsel, but the lord advocate and solicitor-general are so in reality. The appointment of queen's counsel is for life, but in case of disgraceful conduct, the letters-patent are revoked, as was done 1862 to Edwin James, who, 1873, applied in vain for restitution.

KING'S (OR QUEEN'S) EVIDENCE: in Britain, a person, who, having been an accomplice in some crime, has confessed, and offered to give evidence, and make full confession. The usual practice of the crown, in such cases, is to pardon the person so acting, though he is not absolutely entitled to a pardon; and an application is generally made to the judge, to admit the party as a witness, on the trial of the fellow-criminals. A similar practice exists in Scotland, the public prosecutor having the power and discretion to admit the confessing party.

KINGSTON, *kings'ton*: city, cap. of Ulster co., N. Y., on the Hudson river, Rondout creek, and the Delaware and Hudson canal; and on the West Shore, the Ulster and Delaware, and the Walkill Valley railroads; also connected with the main line of the New York Central and Hudson River railroad by steam ferry across the river. It has a wharfage front of 4 m.; co. court house; city hall; gas and electric light plants; municipal water-works; electric street railroads; a beautiful riverside park; fine churches; good graded schools, academies and seminaries. Lines of passenger and freight steamboats connect with New York, Albany and intermediate points, and Kingston is one of the river gateways to the celebrated Catskill Mountain region. The industrial interests comprise carriage manufactories; iron foundries and machine shops; brick yards; cement and lime manufactory; and the working of bluestone flagging quarries, which are scattered through a region nearly 100 m. long, extending from the Delaware river to the Hudson; besides breweries, and cigar, glue and leather factories. The city has also a large grain and flour trade. Kingston was chartered 1661, permanently settled 1665, incorporated by patent 1667, incorporated as a town 1805, and incorporated as a city, comprising the incorporated villages of Kingston and Rondout and the small village of Wilbur, 1872. In 1777, Feb., the first N. Y. state convention adjourned from Fishkill to Kingston and Apr. 20 the first state constitution was adopted here and proclaimed Apr. 22. In Sep. following the legislature assembled here, but adjourned on the approach of the British under Sir Henry Clinton, who occupied, plundered, and burnt the town Oct. 7. The government of the city is vested in a mayor, who holds office two years, and a council. The executive appoints the subordinate officials, subject to approval by the council, except the city judge and the recorder, who are elected by the people. Pop. (1910) 25,908.



V I E W O F K I N G S T O N F R O M O L D F O R T H E N R Y .

KINGSTON.

KINGSTON: borough in Luzerne co., Pennsylvania, on the Susquehanna river, opposite Wilkes-Barre; on the Lehigh Valley and the Delaware & Lackawanna railroads. Here is the seat of the Wyoming Methodist Seminary. The principal industry is coal mining. The repair shops of the Lackawanna railroad are located here. Kingston was incorporated as a borough in 1858. In the near vicinity in 1775 occurred the famous Wyoming Massacre. Pop. (1910) 6,449.

KINGSTON: city in the Canadian province of Ontario, lat. 44° 8' 30", long. 76° 30' 1", on the n.e. shore of Lake Ontario, at the mouth of the Cataract and the Bay of Quinté, where the waters of the great lakes issue into the St. Lawrence; 170 m. from Montreal, 165 from Toronto, 274 from New York. At Kingston the Rideau canal from the Ottawa river at Ottawa City, connects with the St. Lawrence river and the system of the Great Lakes. It is on the main line of the Grand Trunk railway, between Montreal and Toronto, and is connected with the Canadian Pacific railway, east, west and north, by means of the Kingston and Pembroke railway. During the season of navigation, the Richelieu and Ontario and other lines of steamers connect it with Montreal and other points on the St. Lawrence river, and with Rochester, Toronto, Bay of Quinté and intermediate points, in the west. Its site was occupied by a French fort named Frontenac 1673-1758, settled by the British about 1738, laid out 1793, incorporated as a town 1838, city 1846. On the union of the two Canadas, 1840, the seat of government was established at Kingston, but was removed in the year 1845. Its harbor is the place of trans-shipment of cargoes between the lakes and the St. Lawrence and the Rideau canal. The ship-building is second in Canada only to that of Quebec. There are several large foundries for manufacture of engines (locomotive and stationary), of agricultural implements, edge-tools, axles, nails, cotton, hosiery, leather, flour and cereals. The Grand Trunk railway, which passes within 2 m. of the city, was 1863 connected with it by a branch-line. Next to Quebec and Halifax, Kingston is the most important military position in British America.

The leading educational institutions are Queen's University (q.v.), with which is affiliated the Kingston School of Mines; the Royal Military College, the Dairy School, Regiopolis College, the Kingston Business College and the Collegiate Institute. The city has a General Hospital, the Hotel Dieu Hospital, an Orphans' Home and House of Providence, while just outside the city limits are the Provincial Penitentiary and Rockwood Hospital for the Insane. The Anglican and Roman Catholic cathedrals, and the city, county and university buildings are handsome stone edifices, adding to the attractions of the city. A bronze statue of Sir John A. Macdonald stands at the main entrance to the city park,

KINGSTON—KINGSTONE VALVE.

while the Sir George A. Kirkpatrick memorial fountain faces the park in front of the county buildings. Pop. (1901) 18,043.

KINGS'TON: commercial capital of Jamaica (q.v.), on the n. of a landlocked harbor, the best in the island, and one of the best of its size in the world. It was founded 1693, after the neighboring town of Port Royal had been destroyed by an earthquake. From this place, afterward rebuilt, it is separated by its noble haven; while with Spanish Town, toward the interior, it has, since 1846, been connected by railway. Kingston was visited 1880 by an unusually destructive hurricane, and 1882, Dec., by a disastrous conflagration. Though part of the city is filthy and disorderly, it yet presents several handsome features. A large square, the Parade, contains spacious barracks, a Wesleyan chapel, a theatre, and some tolerable dwelling-houses. The negro market for fruits and vegetables is a lively and interesting scene. The temperature, generally oppressive on the immediate margin of the bay, becomes gradually mitigated toward the head of the sloping streets, which rise into the region of the sea-breezes. Most of the trade of Jamaica passes through Kingston. Pop. (1901) 46,542.

KINGS'TON-UPON-THAMES: municipal borough and market-town of England, county of Surrey, 10 m. s.w. of London, on the right bank of the Thames, here crossed by two handsome bridges, one of stone, the other an iron viaduct on the London & S. W. branch railway connecting Twickenham with Wimbledon. The county spring assizes are held in Kingston-upon-Thames, alternately with Croydon and Guildford. Educational and benevolent institutions are numerous; there are flour, cocoanut-fibre, and oil mills, and brick-works. Around the Surbiton station, on the main line of the London & S. W. railway, about a mile and a half from Kingston market-place, has grown up, since 1838, the elegant suburb of Surbiton, now joined to the town. In the neighborhood are Hampton Court Palace, and Bushy and Richmond parks. Numerous Roman remains have been discovered in the vicinity of Kingston-upon-Thames, and as early as the Saxon period it had risen into importance. Here, 838, a great council was held under Egbert of Wessex and Ethelwolf of Kent, and a treaty agreed to; and here seven of the Anglo-Saxon kings were crowned. The town is said to be named from the stone on which the ceremony was performed, which stands in one of the streets, inclosed by a railing. Hampton Wick (pop. 2,163), is really part of Kingston-upon-Thames, being connected by the bridge, though on the other side of the Thames, and in Middlesex. Pop. Middlesex (1901) 34,375.

KINGSTONE VALVE: a wing valve used as a suction valve for a marine condenser, and as a blow-off for a marine boiler. It opens towards the sea, but is capable of closing itself in case of the breaking of the spindle.

KINIC ACID—KINO.

KINIC ACID, n. *kĭn'ĭk* [from *kina-kina*, a name for cinchona]: an organic acid found in combination with quinia in the bark of various species of cinchona, principally yellow and pale Peruvian bark.

KINK, n. *kĭngk* [Dut. and Sw. *kink*, a twist in a cable: Icel. *kengr*, a crook of metal, a bend or bight]: the spontaneous twist of a rope or thread when doubled, or from stiffness; seldom occurring in the best rope: V. to double and twist spontaneously. **KINK'ING**, imp. **KINKED**, pp. *kĭngkt*.

KINKAJOU, *kĭng'ka-jô* (*Cercoleptes caudivolvulus*): quadruped of family *Ursidæ*, and allied to the raccoons and coatis. By some naturalists it is referred to *Viveridæ*. It has six incisors, one canine tooth, and five molars in each jaw, the three hinder molars tuberculous. The Kinkajou is larger than a pole-cat, has a yellowish woolly fur, climbs trees, feeds on fruits, honey, etc., as well as on small animals, and from its ravages among the nests of wild-bees, is in some countries called *Honey Bear*. It is a native of warm parts of America. The negroes have transferred to it the name of **POTTO**, from a lemurine animal of Africa. It is easily tamed.

KINKEL, *kĭnk'ĕl*, **JOHANN GOTTFRIED**: German author: 1815, Aug. 11—1882, Nov.; b. Oberkassel. He studied theology at Bonn, and was a distinguished Protestant preacher; but becoming involved in the revolutionary movements of 1848, he was imprisoned in the fortress of Spandau. He escaped, and came to America, but soon went to London, where he taught. In 1860, he became a prof. of archeology and art at Zürich, where he died. Kinkel was both a poet and a distinguished author on art. His principal works are: *Predigten über Bildreden Christi* (1842); *Gedichte* (1843); *Otto der Schütz* (1843), beautiful narrative poem which had at his death passed through more than 40 editions; *Die Altchristliche Kunst* (Bonn 1845), history of the arts among Christian nations; *Nimrod*, drama (1857); *Der Schmied von Antwerp* (1872); works on Euripides, Rubens (1874), and on Mosaics. **JOHANNA KINKEL** (d. 1859), wife of Johann, distinguished musician, wrote *Acht Briefe über den Clavierunterricht* (Stutt. 1849); and with her husband, *Erzählungen* (Stutt. 1849). After her death appeared her novel, *Hans Ibeles in London* (Stutt. 1860).

KINO, *kĭ'nō* [F. *kino*]: astringent substance, resembling **CATECHU** (q.v.) and **GAMBIER** (q.v.), the concrete exudation of certain tropical trees, especially of *Pterocarpus marsupium*, native of the mountains of Coromandel, which yields **EAST INDIAN KINO**; and of *P. erinaceus*, native of Gambia, which yields **AFRICAN KINO**. The genus *Pterocarpus* belongs to nat. ord. *Leguminosæ*, sub-ord. *Papilionaceæ*, and has a 5-toothed calyx, and an irregular, nearly orbicular one-seeded pod, surrounded with a wing.

KINOLOGY—KINSTON.

East Indian Kino is the kind which now chiefly occurs in commerce, and is the ordinary kino or *gum kino* of the shops. It is in small angular glistening fragments, the smaller reddish, the larger almost black. Thin pieces are ruby red. It is brittle and easily powdered, has no smell, but a very astringent taste. BENGAL KINO is a similar astringent substance, produced by *Butea frondosa* (see BUTEA). It has been found capable of the medicinal uses of true kino. BOTANY BAY KINO is the produce of *Eucalyptus resinifera*. See EUCALYPTUS.

The astringency of kino is due mainly to its containing tannic and catechuic acid, and in consequence of this property, it is employed in medicine in certain forms of diarrhea (specially when a flux continues from want of tone in the intestinal capillaries), the best mode of prescribing it being as *compound kino powder*, a mixture of kino, cinnamon, and opium—the dose for an adult ranging from ten grains to a scruple. There is also a *tincture of kino*, which, properly diluted with water, forms an excellent gargle for relaxation of the uvula.

Kino is employed to a considerable extent in the E. Indies as a cotton dye, giving to the cotton the yellowish brown color known as nankeen.

KINOLOGY, n. *kī-nōl'o-jī* [Gr. *kineō*, I move; *logos*, a discourse]: branch of physics which treats of the laws of motion.

KINOSTERNON, n. *kī-no-stēr'nōn* [Gr. *kineō*, I move; *sternon*, the breast]: in *zool.*, a genus of *Emydes* (river and marsh tortoises). *K. Pennsylvanicum* is the Penn. terrapin.

KINSOL'VING, GEORGE HERBERT: American Protestant Episcopal bishop: b. Bedford co., Va., 1849, Apr. 28. He was graduated from the Theological Seminary at Alexandria, Va., and was ordained to the priesthood in 1875. He was successively rector of churches in Baltimore, Cincinnati, and Philadelphia, and in 1892 was consecrated bishop of Texas.

KIN'STON: town, county-seat of Lenoir co., North Carolina, on the Neuse river, and on the Atlantic & North Carolina and the Atlantic Coast Line railroads; about 78 miles southeast of Raleigh and about 60 miles from Pamlico Sound. It is situated in a fertile agricultural region in which tobacco and cotton are the chief productive crops. Kinston is an important trade centre and contains a number of large warehouses. Its chief industrial establishments are stemmeries, packing houses, cotton-mills, machine-shops, foundry, wagon works, turpentine distillery, box and barrel factories, shingle-mills, and knitting-mills. It is the seat of the Rhodes Military Institute. The city owns the electric light plant. Pop. (1900) 4,106; (1910) 6,995.

KINSTON, BATTLE OF: on Mar. 1, 1865, Gen. Cox, with three divisions of infantry, pushed forward from

KIOLEN—KIOTO.

Newbern, N. C., toward Goldsboro to open communication with Gen. Sherman, who was marching northward from Savannah, and on the 7th two of his divisions were at Wise's Forks, near Southwest creek, a tributary of the Neuse river, with one division three miles in rear. A brigade was advanced to a cross-road about midway between the main line and the creek. Gen. Hoke, with his Confederate division, crossed the creek on the night and early morning of the 7th and 8th, flanked, surprised, and routed the advance brigade, taking over 900 prisoners and, pressing on, fell upon the left of Cox's line, but was repulsed. He renewed the attack and was again repulsed. On the 9th there was sharp skirmishing and the Confederates made repeated efforts to turn Cox's right, which were foiled. On the morning of the 10th Hoke and D. H. Hill made vigorous and successive attacks first upon the left and then on the right of Cox's line, but were repulsed, and Gen. Bragg, who was in supreme command, made no further effort, retreated across Neuse river during the night, burning all bridges behind him, left a small guard at Kinston and, with the rest of his command, hastened through Goldsboro to join J. E. Johnston, who was concentrating everything available to oppose Sherman. Gen. Schofield joined Cox with troops from Wilmington, and reached Goldsboro on the 21st, Sherman joining him two days later. The Union loss at Kinston was 65 killed, 319 wounded, and 930 missing; the Confederate loss is not known. D. H. Hill reports a loss in five brigades of 118 killed and wounded and 16 missing. Schofield estimated the entire Confederate loss at 1,500, which is probably excessive.

KIOLEN, or KJOLEN, *kyō'len* or *chō'len*: an extensive plateau in Scandinavia (q.v.).

KIOSK, n. *kē-ōsk'* [Tur. *kiosk*; F. *kiosque*]: small ornamental pavilion, much used in Turkey and countries farther east in decoration of the tombs, ghats, dams, and other works. It consists of a dome, supported on four or more detached columns, the space under the dome being left open, like the open niches under canopies in Gothic architecture.

KIOTO, *kē-ō'to*, or SAI-KIYO, *sī-kē'yo* (formerly MIAKO, *mē-ā'ko*): ancient capital of Japan, in the s.w. of the island of Nipon. Broad and clean streets cross each other at right angles, the houses are mostly of the better class, and the whole aspect of the city is pleasant. During the double rule in Japan, it was the residence of the mikado, then only the spiritual emperor, and was and is the stronghold of the national religion. Some of the temples are of great size and splendor. In 1868, the great revolution broke out; the shogun, or temporal ruler, was deposed, and the mikado, who was then invested with complete authority, both temporal and spiritual, removed his court to Tokio. Many of the aristo-

KIOWAS—KIPLING.

cratic dwellings are consequently tenantless, and the population has decreased. Kioto is still, however, the seat of considerable trade with the interior. It is also a centre of Japanese literature and art, and is well provided with public schools for boys and girls. It is famed for the manufacture and dyeing of silks. The former imperial palace surrounded by beautiful gardens is now a museum of Japanese arts and manufactures. Kioto is connected by railway with Osaka and Hiogo. Pop. about 353,000.

KIOWAS, or KIOWAYS, *kī'o-wāz*: tribe of American Indians of the Shoshone family, noticed by Capts. Lewis and Clarke on the Paducah river, and settled by the govt. in Indian Terr. 1869. The Kiowas and other tribes occupy a reservation of 3,712,503 acres in Oklahoma and the Kiowas number 1,126. They are nomadic, warlike and intractable.

KIP, n. *kīp* [etym. doubtful]: leather of yearlings or small cattle; a grade between calf and cowhide.

KIP, *kīp*, WILLIAM INGRAHAM, D.D., LL.D.: 1811, Oct. 3—1893, Apr. 7: bishop of the Prot. Episc. Church; b. New York. He graduated at Yale College 1831, and the General Theol. Seminary 1835, took orders in the Prot. Episc. Church 1835, was rector of St. Peter's Church, Albany, 1838-53, was then appointed missionary bp. of Cal., and was elected full bp. 1857. The following are the most notable of his many published works: *The Lenten Fast* (1843); *The Double Witness* (1844); *Early Jesuit Missions in North America* (1846); *The Church of the Apostles* (1877). He also contributed largely to periodical literature.

KIP'LING, RUDYARD (originally JOSEPH RUDYARD): Anglo-Indian author: b. Bombay, India, 1865, Dec. 30. After studying at the United Services College, Westward Ho, North Devon, he returned to India in 1882 as sub-editor of the *Lahore Civil and Military Gazette*, and was for some time special correspondent on the frontier, in Rajputana, and elsewhere, for that paper and for the *Allahabad Pioneer*. He left India in 1889 and went to England, after visiting China, Japan, Africa, Australia, and the United States. For several years he resided at Brattleboro, Vt., but later returned to England, and lived at Rottingdean, Sussex. During the second Boer war he visited South Africa as a newspaper correspondent. He first made himself known to a restricted circle of English readers by a volume entitled *Departmental Ditties* (1886), in which he dealt with the salient features of Anglo-Indian life with directness, insight, and metrical facility. An enlarged edition appeared in 1890. In *Plain Tales from the Hills* (1887) he gave the public the first collection of the striking and characteristic stories of English life under Indian conditions, on which his reputation chiefly rests. It was followed by *The Phantom Rickshaw* (1889), including *The Man Who*

KIPPER.

Would be King; Soldiers Three; Stories of Barrack-Room Life (1890), 'almost a classic in its way,' whose heroes are a kind of latter-day 'Trois Mousquetaires'; *The Story of the Gadsbys* (1890); *In Black and White* (1890), including eight tales; *Wee Willie Winkie, and Other Stories* (1890), including *The Drums of the Fore and Aft* and *Under the Deodars* (1890). *The Light that Failed* (1891) was his first attempt at sustained fiction. *Life's Handicap: being Stories of Mine Own People* (1891), contains some of his best short stories, among them *Without Benefit of Clergy*. His reputation was greatly enhanced by the publication in 1892 of *Barrack-Room Ballads, and Other Verses*, including such poems as *Fuzzy-Wuzzy; Gunga Din; and The Road to Mandalay*. To the same year belongs the rather unsuccessful novel *The Naulakha: a Story of the West and East*, written with Wolcott Balestier. *Many Inventions*, published in 1893, is a collection of 14 short stories, and the *Jungle Book* (1894), illustrated by his father and others, is partly in verse, partly in prose. Many regard this volume, with its beast-fables of a primitive India, as Kipling's best work. A *Second Jungle Book* appeared in 1895, and in 1896 a volume of poems was issued under the title *The Seven Seas, and Other Verses*. *Captains Courageous* (1897) is a story of the Newfoundland cod banks, and *The Day's Work* (1898) is a collection of 12 short stories, including *The Bridge-Builders*. Among more recent works are *Kim* (1901), whose hero is an agent in Indian secret service, a book in which 'the last word upon native India seems to have been said'; *The Just-So Stories* (1902), a clever juvenile; and *The Five Nations* (1903), a collection of somewhat uneven verse. Of Kipling's occasional poems the most famous is *The Recessional*, written on the occasion of Queen Victoria's Diamond Jubilee (1897). Kipling's best work must always rank high, but he is very unequal, and at times journalistic or mediocre. At his best, however, he is skilful in character-drawing, and his word-pictures are often extremely vivid. Consult: Clemens, *A Ken of Kipling* (1899); Knowles, *A Kipling Primer* (1900); Le Gallienne, *Rudyard Kipling* (1900); Parker, *The Religion of Kipling*; and many magazine articles.

KIPPER, n. *kīp'ér* [Icel. *keppr*, a hill, a protuberance, a knob—the jaw of the salmon after spawning time is said to become hooked: comp. Dut. *kippen*, to hatch; Icel. *kippa*, to pull, to snatch]: a salmon after spawning—and as they were unfit to be eaten fresh in this state, they were cured; hence a salmon split open and cured: V. to prepare or cure fish for keeping. KIP'PERING, imp. KIP'PERED, pp. *-pērd*, split open, salted, seasoned, and smoked for keeping—applied to fish, as *kippered* salmon or herring. KIPPER-NOSE, in *Scot.*, a beaked or hooked nose.

KIPTCHAK—KIRBY.

KIPTCHAK, *kîp-châk'*, or KAPTCHAK, *kâp-châk'*: in the middle ages, the vast territory n. of the Caspian Sea from the Don to Turkestan, occupied by the Kumans and Polovises. This tract formed one of the four empires into which the huge dominion of Genghis Khan was divided, and was the portion of his eldest son Jûjy, under whose son and successor, Batû Khan, it became the terror of w. Europe, and held Russia in iron subjection from 1236-62. Batû also conquered Bulgaria, and invaded Hungary, Austria, and e. Germany, though making there no permanent conquests. This extensive empire was dismembered toward the end of the 15th c., and gave rise to the khanats of Kazan, Astrakhan, and Krim-Tartary. Parts of the region were annexed to Russia. The Tartars or Mongols of Kiptchak were known also as the 'Golden Horde.' Ruins of villages are in many places, especially near the Volga, and have been visited and described by Pallas, Klaproth, Göbel, etc. They no doubt belong partly to the era of the Kiptchak empire, but many are more ancient.

KIRAL'FY, IMRÉ: organizer and manager of spectacular exhibitions: b. Budapest, Hungary, 1845, Jan. 1. He commenced the composition of music at the age of 12; introduced many grand spectacular compositions in the United States 1869-94. His many productions include *Venice; Paris* (1902); *Columbus; Nero; India; America* (1893); *Our Naval Victories* (1898); *Women of All Nations* (1900); *China, or the Relief of the Legations* (1901). Some of these tableaux and panoramas have had a success unexampled in the history of such undertakings.

KIRÂTÂRJUNÎYA: one of the celebrated poems of Sanskrit literature. Its author is Bhâravi, its principal subject the conflict of *Arjuna* with the god Siva in his disguise of a *Kirâta*, or mountaineer.

KIRBY, *kér'bî*, EDMUND: 1840—1863, May 28: b. Brownville, N. Y.: soldier. He graduated at the U. S. Milit. Acad. 1861; entered the army as 2d lieutenant of artillery; drilled newly-arrived volunteers at Washington till the army was organized; was promoted 1st lieutenant and assigned to Rickett's battery 1861, May 14; and succeeded to its command on the capture of Capt. Ricketts in the first Bull Run battle. He commanded his battery at Ball's Bluff, 1861, Oct.; at Yorktown, Fair Oaks, Savage Station, Glendale, and Malvern Hill in the peninsular campaign 1862; and at Fredericksburg and Chancellorsville in the Rappahannock campaign 1863. He was mortally wounded at Chancellorsville, and was promoted brigadier-general of volunteers while on his death-bed for distinguished bravery in action.

KIRBY, *kér'bî*, WILLIAM: English clergyman and entomologist: 1759, Sep. 19—1850, July 4; b. Winesham Hall, Suffolk. He was educated at Caius College, Cam-

KIRBY—KIRGHIS.

bridge, and appointed to the curacy of Barham, which he held 14 years, when he became the rector and held that office till his death. His principal works are *Monographia Apum Angliæ* (Ipswich 1802), and *Introduction to Entomology* (4 vols. 1817-26), published jointly with Mr. Spence. The first was very favorably received both at home and abroad, and at once secured for Kirby a distinguished place among European savants. The second work is in the form of letters, and was and still is remarkably popular. Kirby also contributed a variety of very important entomological papers to the Linnæan Transactions. His greatest discovery in this department of science is that of the genus *Stylops*—type of a new order of insects, living for a time parasitically in the bodies of bees. He also wrote one of the Bridgewater Treatises, *Habits and Instincts of Animals*. Kirby was one of the first members of the Linnæan Soc. (founded 1788), honorary pres. of the Entom. Soc., and fellow of the Royal and Geol. Societies.—See *Life* by the Rev. John Freeman (1852).

KIRBY, WILLIAM: Canadian author: b. Kingston-upon-Hull, Eng., 1817, Oct. 13; d. 1896. He came to Canada in 1832 and for 20 years edited a newspaper at Niagara, Ont.; was appointed collector of customs there in 1871 and retired in 1895. Among his works are: *The United Empire* (1859); *Le Chien d'Or* (1877); *Memoirs of the Servos Family* (1884); *The Canadian Idylls* (1888); *Annals of Niagara* (1896).

KIRCHHOFF, *kîrch'hof*, GUSTAV ROBERT: scientist: b. Königsberg, 1824, Mar. 12; d. 1887, Oct. 17. He graduated at Königsberg Univ. 1846; became a lecturer on mathematical physics in Berlin 1848, lecturer on experimental physics in Breslau 1850, and prof. of nat. philosophy at Heidelberg Univ. 1854; and was appointed prof. of nat. philosophy in the Univ. of Berlin, and elected a member of the Acad. 1875. He made important researches in electricity, elasticity, magnetism, and the tension of vapors; but was best known for his ingenious discovery in conjunction with R. W. Bunsen of the spectroscope and its application for spectrum analysis.

KIRGHIS, *kîr-gēz'*, or KIRGHIS-KAISAKI, *kîr-gēz'kî-zâk'ē*, or COSSACKS OF THE STEPPES: a people spread over the immense territory bounded by the Volga, desert of Obshtchei (55° n. lat.), the Irtish, Chinese Turkestan, Ala-Tau Mountains, the Sir-Daria, and Aral, and Caspian Seas. A few tribes of Kalmucks also live within these boundaries. This vast tract presents a dismal monotony; the country has scarcely any important elevation or depression, no important river runs through it, no great forest breaks the uniform scene; it is a vast steppe, containing 850,000 English sq.m., sterile, stony, streamless, covered with rank herbage five ft. high. It abounds in lakes and marshes, the water of which is generally

KIRK.

brackish and unserviceable, and in the s. portion is the Kara-Kum, an extensive salt desert.—The Kirghis are a Turkish race, and speak the dialect of the Uzbeks, from whom they profess to be descended. They have, from time immemorial, been divided into the *Great, Middle, and Little Hordes*. The first of these wander in the s.w. portion of the Russian steppe, partly in the Russian possessions n. of the Ala-Tau and Khokan, partly in the territory of China. They are subject to the rulers within whose bounds they dwell. The Middle Horde possess the territory (called the *country of the Siberian Kirghises*) between the Ishim, Irtysh, Lake Balkhash, Khokan, and the territory of the Little Horde; also a great portion of the Russian province of Semipalatinsk. Russia has gradually absorbed them, the result being finally achieved by the victory over Khiva 1873, and the formation of the new province of Amu Daria. The Little Horde (now more numerous than the other two together) ranged over the country bounded by the Ural, Tobol Siberian Kirghis, and Turkestan. Like the Middle Horde, they are claimed as subjects of the czar, though completely independent. This horde is partly agricultural, partly nomad. A small offshoot of the Little Horde has, since 1801, wandered between the Volga and the Ural river, and has been under rule of the governor of Astrakan. S. of Lake Issikul is a wild mountain tribe, the *Diko-Kamennaja*, the only tribe which calls itself Kirghis. They are called by their neighbors Kara-Kirghis, or Black Kirghis, and are of Mandshûr stock. All of them are now subject to Russia. Their collective numbers are estimated at more than 1,250,000, more than half of whom belong to the Little Horde.

KIRK, n. *kêrk* [AS. *cyrc*, or *cyrice*; Ger. *kirche*; Dan. *kerk*, or *kirke*; Icel. *kirkja*, a church (see CHURCH)]: the Church of Scotland as distinguished from other Reformed churches, or from the R. Cath. Church; a place of worship; a church. *Note*.—KIRK may be referred also to F. *cirque*—from L. *circus*, a circle; W. *cyrch*, a centre, a circle. It is said, also, that people used to say in England in the 9th and 10th c., when going to church, *ad cruce[m]*, i.e., ‘to the cross,’ or, as the former phrase for which it was substituted might have been translated, ‘to the stones’ or ‘circle of stones’; indeed, the primary sense of *kirk* and *church* had no connection with Christian worship. The terms *kirk* and *church*, and *ad cruce[m]*, if ever in use, are spellings merely in accommodating a previously existing heathen word or phrase to a new Christian etymology and meaning. The derivation of *kirk* from L. *quercus*, an oak, is incorrect.

KIRK, *kêrk*, EDWARD NORRIS, D.D.: 1802, Aug. 14—1874, Mar. 27; b. New York. He graduated at Princeton College 1820, and at Princeton Theol. Sem. 1825; was pastor of a new church in Albany, the Fourth Presb., 1829-37; travelling sec. (in Europe) of the American

KIRK--KIRKBRIDE.

and Foreign Evangelical Soc. 1837-42; pastor of Mt. Vernon Church (Congl.), Boston, 1842-71. In 1856, as agent of the Amer. and Foreign Christian Union, he spent some time in Paris preaching and gathering Prot. congregations. He was an earnest promoter of evangelical work in Rom. Cath. countries of Europe. In his last years he was nearly blind, but still active in Christian work. He published several translations of theological works from the French. As a pastor he was laborious and faithful; as a preacher he was noted for fervor and earnestness, and attracted large audiences, gaining great numbers of converts.

KIRK, ELLEN WARNER OLNEY: American novelist: b. Southington, Conn., 1842, Nov. 6. She was educated in Stratford, Conn., and was married to John Foster Kirk (q.v.) in 1879. Her novels have been popular, and among them are: *Love in Idleness* (1877); *A Midsummer Madness* (1884); *The Story of Margaret Kent* (1886); *Sons and Daughters* (1887); *A Daughter of Eve* (1889); *Walford* (1890); *The Story of Laurence Garthe* (1895); *Dorothy Deane* (1899); *Through Winding Ways* (1880); *Lesson in Love* (1883); *Queen Money* (1888); *Ciphers* (1891); *Maidens Choosing* (1892); *A Revolutionary Love Story* (1898); *The Revolt of a Daughter* (1898); *Dorothy and her Friends* (1900); *Our Lady Vanity* (1901); *A Remedy for Love* (1902); *Good-bye, Proud World* (1903); *The Apology of Ayliffe* (1904); etc.

KIRK, JOHN FOSTER: historian: b. Fredericton, N. B., 1824, Mar. 22; d. 1904. He removed to Boston 1842, was sec. to William H. Prescott 1847-59, was editor of *Lippincott's Magazine*, Philadelphia, 1870-86; and was appointed lecturer on European history in the Univ. of Penn. 1886. He aided Prescott in his historical work, contributed to the *North American Review* and the *Atlantic Monthly*, published *History of Charles the Bold*, 3 vols. (Philadelphia and London 1863-68), and edited the complete works of William H. Prescott (1870-74).

KIRKBRIDE, *kérk'brīd*, THOMAS STORY, M.D., LL.D.: 1809, July 31—1883, Dec. 16; b. Morrisville, Bucks co., Penn.: physician. He was educated in the schools of the Soc. of Friends; graduated at the medical dept. of the Univ. of Penn. 1832; was appointed the same year resident physician of the Friends' Asylum for the Insane, Frankfort, Penn.; was in charge of the newly established insane ward in the Penn. hospital (the first in the country) 1833-5; in private practice 1835-40; and was then elected supt. of the new Penn. hospital for the insane, holding the office at his death. He was a member of numerous medical societies in Europe and America; was an authority on mental alienations, the treatment of the insane, and management of insane institutions; and published a large number of reports and treatises on his specialty. He received the degree LL.D. from the Univ. of Penn. 1874.

KIRKDALE CAVE—KIRKLAND.

KIRKDALE CAVE, *kérk'dāl*: near Kirkdale Church, in the vale of Pickering, Yorkshire; famous for numerous remains of Tertiary mammals. It was discovered 1821, in the cutting back of an oolitic limestone rock in which it is situated. It was examined by Buckland, and fully described by him in *Reliquiæ Diluvianæ*. Its greatest length is stated at 245 ft., and its height generally is said to be so small that there are only two or three places where a man can stand erect. The fossil bones are in a deposit of mud on the floor of the cave; this is covered by stalagmite formed by the water highly charged with carbonate of lime dropping from the roof. Remains have been discovered of the hyena, tiger, bear, wolf, weasel, elephant, rhinoceros, hippopotamus, horse, ox, deer, hare, rabbit, water-rat, raven, pigeon, lark, and duck.

KIRKE, *kérk*, Sir DAVID: 1596—1656: b. Dieppe, France: colonist. He was the son of an English merchant in Dieppe; removed to England during the Huguenot persecutions; with two brothers commanded an expedition to break up the French settlements in Canada and Nova Scotia 1627; blockaded Quebec and captured a French squadron sent to relieve it 1628; compelled Champlain to surrender the city, and reduced Nova Scotia 1629; was knighted 1633; and soon afterward received a grant of Newfoundland, which he colonized, and governed for 20 years, when Cromwell dispossessed him. Quebec and Nova Scotia were surrendered by England to France, and Kirke recovered a part of his Newfoundland property by bribing Cromwell's son-in-law.

KIRK'LAND, CAROLINE MATILDA STANSBURY: American author: b. New York, 1801, Jan. 12; d. there 1864, Apr. 6. In 1827, she married William Kirkland, a professor in Hamilton College, Clinton, N. Y., removing with him to Michigan in 1839. She lived for a few years a pioneer life and her experiences furnished the basis of her earlier books published under the pseudonym, 'Mary Clavers.' These include: *A New Home: Who'll Follow?* her best work (1839); *Forest Life* (1844); and *Western Clearings* (1846). In 1842 she made her home in New York, where she established a boarding school for girls and contributed frequently to periodicals. Among her later works are: *The Helping Hand* (1853); *Memoirs of Washington* (1857); *The Destiny of Our Country* (1864).

KIRK'LAND, JAMES HAMPTON, A.M., PH.D., LL.D., D.C.L.: American educator: b. Spartanburg, S. C., 1859, Sep. 9. He was graduated from Wofford College (Spartanburg, S. C.) in 1877, was assistant professor of Latin and Greek there in 1881-2, and professor of Latin and German in 1882-3. After European study (1883-6), he was professor of Latin in Vanderbilt University (Nashville, Tenn.) in 1886-93, and in 1893 became chancellor and professor of Latin language and literature. He wrote several monographs, and published a *Study of the*

KIRKLAND—KIRKMAN.

Anglo-Saxon Poem called by Grein 'Die Höllenfahrt Christi' (1885), and an edition of the *Satires and Epistles of Horace* (1893).

KIRKLAND, JOHN THORNTON: American Unitarian clergyman and college president: b. Little Falls, N. Y., 1770; d. Boston, 1840, Apr. 26. He was the son of Samuel Kirkland (q.v.), was graduated at Harvard College in 1789, and ordained pastor of the Congregational (Unitarian) Church in Summer street, Boston, in 1794, where he remained till elected president of Harvard College in 1810. He held this office until 1828. His *Life of Fisher Ames* (1809) is perhaps the most valuable of the several biographies of which he was the author, and his *Eulogy of General Washington* was much admired. He exerted a very great influence during his life, by the force of his intellect and character, and during his presidency the college flourished, both in its internal condition and in its external relations.

KIRKLAND, JOSEPH: American novelist: b. Geneva, N. Y., 1830, Jan. 7; d. Chicago, 1894. He was a son of Caroline Kirkland (q.v.) and made his home in Illinois after 1856. During the civil war he served in the Federal army, attaining the rank of major, and after engaging in coal mining for a time, practised law in Chicago. He published *Zury, the Meanest Man in Spring County* (1887), a faithful story of the beginning of pioneer life in Illinois; *The McVeys* (1888); *The Captain of Company K* appeared in 1891; *The Chicago Massacre of 1812* (1893); *The Story of Chicago* (1892-4).

KIRKLAND, SAMUEL: 1744, Dec. 1—1808, Feb. 28; b. Norwich, Conn.: missionary. He graduated at the College of N. J. 1765; was ordained a Congl. minister 1766; went on a mission to the Six Nations of Indians; learned the Mohawk and Seneca languages; was appointed Indian missionary by the Congl. Missionary Soc.; and spent more than 40 years among the N. Y. Indians. He was brigade chaplain to Gen. John Sullivan 1779, and to various continental armies during the remainder of the revolutionary war. In 1785, congress granted him a tract of land 2 m. sq., to which the state of N. Y. and the Indians added more 1788, and on this he founded the present town of Kirkland. He was the founder of Hamilton College.

KIRKMAN, MARSHALL MONROE: American railway official: b. Illinois, 1842, July 10. He entered the railway service of the Chicago & Northwestern line in 1856, held various posts in different departments, was comptroller in 1881-9, and in 1889 became second vice-president. His chief works are: *The Science of Railways* (1894); *The Classical Portfolio of Primitive Carriers* (1896); *The Air Brake* (1901); *Building and Repairing Railways* (1901); *The Romance of Gilbert Holmes* (1900); *How Oil is Used for Fuel on Locomotives*

KIRKPATRICK—KIRKWOOD.

(1902); *Iskander* (1903); *Surplus Material and Track Accounts, etc.* (1904); *Basis of Railway Rates; etc.*

KIRKPATRICK, Sir GEORGE AIREY: Canadian statesman: b. Kingston, Ontario, 1841, Sep. 13. He was graduated with honors at Trinity College, Dublin, in 1861, studied law and was called to the bar in 1865. He succeeded his father as representative of Frontenac in the Dominion Parliament and sat from 1870 to 1891, when he was made lieutenant-governor of Ontario. He retired from this office in 1897.

KIRKSVILLE, *kérks'vīl*: city, and county-seat of Adair co., Missouri, on the Omaha, K. C. & E. and the Wabash railroads; 204 miles northwest of St. Louis. It was first settled in 1840, and under a charter of 1893 is governed by a mayor and city council elected biennially. There is a normal school here, court-house, public library and numerous churches. It lies in the centre of an extensive agricultural district and has manufactures of iron, wagons, carriages, etc. Pop. (1910) 6,347.

KIR'KUS, WILLIAM, A.M., LL.B.: American Episcopal clergyman: b. Yorkshire, England, 1830, May 9; d. Brooklyn, N. Y., 1907, July 10. After 16 years spent in the Congregational ministry in London he came to this country and entered the Episcopal ministry in 1871. He was for many years prior to 1892 rector of St. Michael and All Angels Church, Baltimore. He has published: *Christianity, Theoretical and Practical* (1854); *Miscellaneous Essays, Critical and Theological* (1863); *Orthodoxy, Scripture and Reason* (1865); *Religion: a Revelation and a Rule of Life* (1886).

KIRKWOOD, *kérk'wūd*, DANIEL, LL.D.: mathematician: b. Harford co., Md., 1814, Sep. 27; d. Riverside, Cal., 1895, June 11. He was educated in York Co. Acad., Penn.; mathematical instructor there 1838-43; principal of the Lancaster high school 1843-8; of Pottsville Acad. 1848-51; prof. of mathematics in Delaware College 1851-4; pres. 1854-6; prof. of mathematics in Indiana Univ. 1856-66; in Washington and Jefferson College 1866-7; and after 1867 in Indiana Univ. He published a large number of mathematical and astronomical works, including *Meteoric Astronomy* (1867); *Comets and Meteors* (1873); and *The Asteroids or Minor Planets between Mars and Jupiter* (1887). He was a member of numerous scientific societies; was elected a member of the American Philosophical Soc. 1851; and received the degree LL.D. from the Univ. of Penn. 1852.

KIRKWOOD, SAMUEL JORDAN: American statesman: b. Hartford co., Md., 1813, Dec. 20; d. Iowa City, Iowa, 1894, Sep. 1. Having removed to Richland county, Ohio, in 1835, he studied law, was admitted to the bar in 1843, in 1845-9 was prosecuting attorney of the county, and in 1850-1 a member of the state constitutional convention. In 1855 he established himself in milling and farming in

KIRMESS—KIRWANITE.

Iowa, the next year was a member of the state senate, and in 1860-4 republican governor of Iowa. During the civil war he levied 48 regiments of volunteers and equipped them at \$500,000 less than the usual cost. He was United States senator in 1865-7 (completing the unexpired term of James Harlan, resigned), was again elected governor of Iowa in 1875, in 1877-81 was a member of the senate, and from 1881, Mar. 5, to 1882, Apr. 6, when he resigned, was secretary of the interior in Garfield's cabinet. He then withdrew from political life.

KIR'MESS. See KERMESSE.

KIRN, n. *kérn*: in *Scot.*, a churn; the feast of harvest-home. KIRN-MILK, the milk left in the churn after the butter has been extracted.

KIRSCHWASSER, n. *kérsh-vás'ér* [Ger. cherry-water—*kirsche*, cherry; *wasser*, water]: an alcoholic liquor distilled from a variety of *Cerāsus aviūm*, ord. *Rosācēæ*, the sweet black cherry; Swiss brandy. This liqueur is highly esteemed in Germany. The cherries, gathered quite ripe, and freed from their stalks, are pounded in a wooden vessel, but so that the stones are not broken. They are then left to ferment, and when fermentation has begun, the mass is stirred two or three times a day. The stones are afterward broken, and the kernels broken and thrown in. By distillation, Kirschwasser is obtained. Kirschwasser is sometimes called *Cherry Brandy*, but the common cherry brandy is made by mixing brandy with the juice of cherries.

KIRTLAND, *kért'land*, JARED POTTER: American physician and educator: b. Wallingford, Conn., 1793, Nov. 10; d. Cleveland, Ohio, 1877, Dec. 10. He studied in the medical department of the University of Pennsylvania and was graduated from that of Yale in 1815; practised at Wallingford (1815-18) and Durham (1818-23), Conn., from 1823 at Poland, Ohio; in 1829-32 and 1834-5 was a member of the Ohio legislature; and was professor of the theory and practice of medicine in the Ohio Medical College (Cincinnati) in 1837-42. In 1843, he assisted in founding the medical department of the Western Reserve University, where he was professor of the theory and practice of medicine in 1843-64. He assisted in founding and became president (1845) of the Cincinnati Academy of Sciences, from 1865 the Kirtland Society of Natural History.

KIRTLE, n. *kért'l* [AS. *eyrtel*; Dan. *kjortel*, a garment; Icel. *kyrtill*, a kirtle, a gown]: an upper garment; a sort of petticoat; a short jacket. KIRTLED, a. *kért'ld*, wearing a kirtle. *Note.*—Skeat suggests that KIRTLE may be a dim. of Eng. *skirt*; that Icel. *kyrtill* may also be dim. of Icel. *skyrta*, a shirt; and Dan. *kjortel*, of *skjorte*, a shirt.

KIRWANITE, n. *kér'wăn-īt* [after *Kirwan* of Dublin]: a mineral of a dark olive-green color, with a

KISCHINEFF—KISHINEFF.

radiating fibrous texture, consisting of hydrated silicates of alumina, lime, and iron—probably only a variety of *green earth*.

KISCHINEFF', or KISHENAU'. See KISHINEFF.

KIS'FALUDY, KAROLY (CHARLES): 1790, Mar. 19—1830, Nov. 21; younger brother of Sándor Kisfaludy. in the development of the Hungarian theatre he was more important than his brother, being regarded as the founder of the national drama. In 1817, he took up his residence in Pesth, and published in rapid succession poems, tales, dramas, and comedies, which secured the highest popularity. Of these, his comedies are by far the most valuable. The best were translated into German by Gaal (*Theatre der Magyaren*, Bonn, 1820). Kisfaludy died at Pesth.—The *Kisfaludy Society*, so named in honor of the brothers, was established 1817, and has rendered important services to Hungarian literature.

KISFALUDY, *kish'föh-lô-dē*, SÁNDOR (ALEXANDER): Hungarian patriot, who exercised great influence on the development of the language and literature of his country: 1772, Sep. 22—1844, Oct. 30; b. Sümegh (county of Szalad). He studied at Raab and Presburg, and after serving several years in the Austrian army, retired to his paternal estate, and applied himself to literature and farming. The first part of lyrical masterpiece, *Himfy's Szerelmei* (Himfy's Love), which appeared anonymously 1800, was received with unbounded applause. Kisfaludy was spoken of as the 'Great Unknown.' On the publication of the second part 1807, the author threw aside his mask. In the same year he published his *Regék á Magyar Elöidlöböl* (Legends of the Olden Time in Hungary), marked by depth of feeling, and by elegant simplicity of style. Kisfaludy then attempted tragedy, and took Schiller as his model. Some of his historical dramas are worthy of mention, e.g., *János Hunyadi*, and *Ladislau the Cumanian*. Some of his pieces, illustrating the family life of his countrymen, are among the best on the Hungarian stage. A complete edition of his writings appeared at Pesth, 8 vols., 1833-38. He died at Sümegh.

KISH, n. *kish*: a substance resembling plumbago produced in iron-smelting furnaces; a workman's name for graphite scales; a fish-basket.

KISHINEFF, *kish-î-něf'*, or KICHENEV, *kish-é-něv'* (Moldavian *Kishlanow*): town of Russia, capital of the government of Bessarabia, 95 m. n.w. of Odessa, on the right bank of the Byk, a tributary of the Dniester. Until 1812, when it came into the possession of Russia, it was an unimportant place; since then it has rapidly increased in size and prosperity. It has become the centre for the whole Bessarabian trade in grain, wine, tobacco, wool, and skins. Fairs, held twice a week, are estimated to make annual returns of \$1,500,000. Kishineff was the chief centre of the Russian invasion in the late war with

KISHM—KISS.

Turkey. About 12,000 acres of gardens in the suburbs produce great quantities of fruit and tobacco. Kishineff has a college, an ecclesiastical seminary, and extensive manufactures. The buildings are plain and the streets mostly unpaved. In 1903, commencing on Easter Sunday, April 10, Kishineff was the scene of a riot and massacre, in which more than 50 persons were killed, 400—500 seriously injured, and 4,000 families were financially ruined. Though partly due to a widely spread feeling of discontent and dissatisfaction with the government the disturbance was largely anti-Semitic in character. Pop. 108,800, composed of Russians, Jews, Cossacks, Poles, Germans, Armenians, Bulgarians, Greeks, gypsies, and many other nationalities. Kishineff dates from a village built around the monastery of Kishnozarev in the 15th c.

KISHM, *kīshm*, or **TAWILAH**, Eng. 'Long Island' (ancient *Oaracta*), island of Persia, belonging to the Imaum of Muscat; at the mouth of the Persian Gulf; about 70 m. in length by 12 in average breadth. It is separated from the mainland by a deep and dangerous strait, in which are several small wooded islets. Kishm yields in abundance grain, timber, dates, and vegetables, and supports numerous cattle. At its e. extremity is a town of the same name, capital of the island. Entire pop. estimated 5,000.

KISHON, *kīsh'on*: water-course in central Palestine. The stream rises near the foot of Mt. Tabor and Little Hermon, winds w. through the plain of Esdraelon, and empties into the Mediterranean at the Bay of Acre. A torrent in winter, it is dry through a large part of the year except for the few miles nearest the sea. In the rainy season it receives the rainfall from the mountains and rushes through the plain with destructive volume and speed. Thus doubtless was Sisera's host overwhelmed in it. The modern stream is called Nahr Mukutta. See Judg. iv. 7; v. 21; I K. xviii. 40; Ps. lxxx. 9.

KISS, n. *kīs* [AS. *cyssan*; Ger. *küssen*; W. *cusanu*, to kiss; Skr. *kus*; Icel. *koss*, a kiss: comp. Gael. *cis*, tribute, homage]: a salute with the lips: V. to salute with the lips; to touch with the lips; to touch gently. **KISS'ING**, imp. **KISSED**, pp. *kīst*. *Note.*—The word **KISS** seems to have had its origin in the practice of feudal times of expressing homage to a superior by kissing his hand, foot, or some part of the body, or in his absence some object belonging to him, as a gate or a lock—and not connected with Icel. *kostr*, choice; Goth. *kustus*, a proof, a test; L. *gustus*, taste.

KISS, *kīs*, **AUGUST**: distinguished German sculptor: 1802, Oct. 11—1865; b. Plesz, in Upper Silesia. He studied under Rauch at Berlin, and gradually acquired high reputation, which was greatly increased on the completion, 1839, of the model of his celebrated colossal

KISSING-COMFIT—KIT-KAT CLUB.

group, *Amazon Attacked by a Panther*, for the execution of which in bronze, now the ornament of the Museum stairs in Berlin, the sum of 40,000 thalers was subscribed with great enthusiasm on the part of the public. Among his works are *St. Michael overthrowing the Dragon*, *A Tiger destroying a Serpent*, and a statue of Frederick the Great.

KISSING-COMFIT, n. *kĭs'ing-kŭm'fĭt* [see COMFIT]: in *OE.*, a spiced or medicated sweetmeat for sweetening the breath.

KISTNA, *kĭst'na*, or KRISHNA, *krĭsh'na*: river of the peninsula of Hindustan. It rises within 40 m. of the Arabian Sea, at a height of 4,500 ft., lat. 18° 1' n., and flowing e. and s., falls into the Bay of Bengal, after a course of 800 m. It forms a considerable delta at its mouth.

KISTVAEN, or CISTVAEN, n. *kĭst'vān* [W. *cist*; Gael. *ciste*, a chest, a box, and W. *maen*, a stone: Gr. *kistē*, a chest]: in *areh.*, an inclosure formed of a few large stones placed on edge with a stone cover, used as a sepulchre at some remote time: see CIST. KIST, n. *kĭst*, in *Scot.*, a chest or box of good construction for the safe-keeping of articles of dress, etc.

KIT, n. *kĭt* [Dut. *kit*, a hooped beer-can]: a large bottle; a milk-pail or tub; a wooden vessel for holding salted butter.

KIT, n. *kĭt* [Dut. *kudde*, a flock: Bav. *kütt*, a covey of partridges: Norw. *kitte*, a space shut off, a corn-bin: comp. Gael. *eeud* = *keut*, first, hence an article of first necessity]: a brood; a collection; a collection of travelling necessaries, or of tools, as those of a soldier or workman; a soldier's stock of clothes, etc., such as shirts, boots, brushes, but not including his uniform, arms, or accoutrements; a composition of resin, pitch, or tallow.

KIT, *kĭt*: small narrow-bodied violin, about 16 inches long, capable of being carried in the coat pocket, and used chiefly by teachers of dancing.

KIT'-CAT CLUB: famous club instituted in London 1703, consisting of noblemen, and gentlemen favorable to the succession of the House of Hanover, and whose ostensible object was the encouragement of literature and the fine arts. Jacob Tonson, an eminent publisher, was founder and secretary. The club, according to Defoe, derived its name from having met for some time in the house of Christopher Catt, a pastry-cook. The spectator (No. 9) derives the name from the pies of Christopher, known as 'Kit-kat-pies'; and another story is that the name was from an inn where the club met, with the sign of the cat and fiddle, in Gray's Inn Lane. The club was dissolved about 1720, previous to which each of the members presented his portrait (half-length figure) to Tonson, painted in a uniform size by Sir Godfrey Kneller.

KITCHEN—KITCHEN CABINET.

These interesting portraits, forty-two in number, are now in possession of W. R. Baker, Hertfordshire. The designation *Kit-Kat* is applied to a canvas for portraits of the size of those of the club, 28 or 29 by 36 inches.

KITCHEN, n. *kīch'ĕn* [AS. *cicen*; L. *coquīna*; It. *cucina*, Ger. *küche*; Dut. *kokene*, a kitchen—from L. *coquĕrĕ*, to boil]: the room in a house where the food is cooked; in *Scot.*, anything eaten with bread as a relish, such as butter, cheese, and the like. KITCHEN-FEE, the fatty drippings from meat while roasting. KITCHEN-STUFF, refuse fat or dripping, etc.

KITCHENER OF KHARTUM, HORATIO HERBERT, LORD: British military officer; b. County Kerry, Ireland, 1850, Sept. 22. He was educated at the Royal Military Academy, Woolwich; joined the Royal Engineers, 1871; employed for some time on the Palestine and Cyprus surveys; major of cavalry in the volunteer service of the Egyptian army in 1882-84; served in the Sudan campaign, 1883-85; governor of Suakin, 1886-88; adjutant-general in the Egyptian army, 1883-93, and in the latter year was made Sirdar. He subsequently organized the Anglo-Egyptian campaign against the Khalifa, which resulted in his defeat at Omdurman, near Khartum, 1898, Sept., and for this was raised to the peerage as Baron Kitchener of Khartum, and of Aspall in the county of Suffolk. He was appointed chief-of-staff in the South African campaign, 1899, Dec., and joining Lord Roberts, rendered invaluable aid during the closing weeks of the Boer war. On Lord Roberts' return to England, 1901, Jan., Kitchener was given supreme command. At the termination of the war he was created Viscount Kitchener of Khartum and of the Vaal; received a grant of \$250,000 in recognition of his great services during the war; returned to England; and afterward was made commander-in-chief of the Indian Army. Upon his arrival in India Kitchener began a thorough reorganization of the army as it was antiquated in methods and equipment. The army was subordinate to the civil power in the council of which it was represented by an officer of lower rank than the commander-in-chief, and in attempting to change this Kitchener came into conflict with Viceroy Curzon (q.v.). Kitchener was, however, supported by the home government and eventually secured supreme control of the armed forces in India. In consequence Curzon resigned 1905, Aug. 12.

KITCHEN CABINET: a popular name applied to certain intimate political friends of President Andrew Jackson, who were supposed to have more influence over his actions than his official advisers. They were: General Duff Green, editor of the *United States Telegraph* at Washington, the confidential organ of the administration; Major William B. Lewis, of Nashville, Tenn., second auditor of the treasury; Isaac Hill, editor of the

KITCHEN-MIDDENS—KITE.

New Hampshire Patriot, and Amos Kendall (q.v.), of Kentucky. He was leader of the kitchen cabinet; worked for the Jackson 'second choice' movement in Kentucky; and received the office of fourth auditor of the treasury.

KITCHEN-MIDDENS, n. plu. *kĭch'ĕn-mĭd'nz* [Dan. *kjokken-moddings*; Scot. *midden*, a dunghill]: moldering shell-mounds. They are supposed to date from the neolithic age, and to be the moldering refuse heaps remaining from the feasts of pre-historic men. With the shells of mollusks and bones of fishes are found various implements, well shaped and polished. No remains of extinct animals are found, and no agricultural tools whatever. Some of these middens are of great size, about 1,000 ft. long, 200 ft. wide, 10 ft. high.

KITCH'IN, GEORGE WILLIAM: English historian and clergyman; b. Hadleigh, Suffolk, 1827, Dec. 7. He was educated at Oxford, took orders in the English Church, and was prominent as tutor and lecturer at the university for many years. He became dean of Winchester in 1883 and in 1894 was translated to the deanery of Durham. He is widely known by his *History of France*, a standard work (1873-7); but has also published *Winchester* in the *Historic Towns* series (1890); *Life of Harold Browne, Bishop of Winchester* (1895); *Life of Pope Pius II.* (1881); etc.

KITCH'INER, WILLIAM: English physician and author; b. London 1775; d. there 1827. He inherited a handsome fortune, was educated at Eton, obtained the degree of M.D. from Glasgow, and settled in London. He treated eating and drinking as the only serious business of life; and having caught the attention of the public by singularity of conduct, proceeded to promulgate, under the title of *The Cook's Oracle*, the laws of the culinary art, professedly founded on his own practice. Besides his *Cook's Oracle* (or *Apicius Redivivus*), Kitchiner wrote *Practical Observations on Telescopes*, etc. (1815); *Peptic Precepts* (1821); *Art of Invigorating and Prolonging Life* (1822); *Brief Memoir of Charles Dibdin* (1823); *The Economy of the Eyes* (on spectacles, telescopes, etc., 1824-5); *Traveler's Oracle* (1827); etc.

KITE, n. *kĭt* [AS. *cyta*; W. *cŭd* for *barcud*, a kite; Bret. *kidel*, a hawk]: a bird of prey; a light frame of wood covered with paper, etc., as a toy for flight in the air; in *familiar language*, a belly; an accommodation bill. FLY THE KITE, to obtain money on worthless or accommodation bills.

KITE (*Milvus*): genus of *Falconidæ*, or a sub-family including *Elanets*, etc. The kites have much weaker bill and talons than the falcons and hawks, but the wings are much longer, and the tail is rather long and forked. Their legs are short. They are remarkable for gracefulness of flight, and power of sailing and wheeling about, or gliding in the air. A Scotch and local English name

KITH—KITTIWAKE.

of the COMMON KITE (*M. vulgaris*), GLEAD or GLED, is believed to be from the same root with *glide*. The common kite is found in almost all parts of Europe, the n. and centre of Asia, and n. Africa. It is fully two ft. in length, from the tip of the bill to the tip of the tail, the plumage mostly brown, of various shades, in some parts mixed with gray. It feeds on reptiles, mice, moles, and other small quadrupeds, and the young of gallinaceous birds, searching for its prey on the ground, and often from no small elevation in the air. It sometimes catches fish. In former times, when it was much more plentiful in Britain than now, it was the scourge of poultry-yards, pouncing on young chickens. It was also the scavenger of London and other English towns, devouring the offal, as it still does in some of the towns of eastern Europe, and performing its office fearlessly even in the midst of the people. This was the case in London till the time of Henry VIII. The kite's nest is usually in the fork of a tree in a thick wood. It is easily tamed.—A widely ranging species in N. America is the Swallow-tailed Kite (*Elanoides furcatus*), a smaller bird than the common kite, but with longer wings and tail and with immense power of flight.—The GOVINDA K. (*M. Govinda*) is common in India.—Other species are found in different parts of the world.

KITH, n. *kīth* [AS. *cyth*, kindred; *cydthe*, native land; AS. *cūth*; Ger. *kund*, known—from AS. *cennan*; Ger. *kennen*, to know]: kindred; acquaintance. KITH AND KIN, blood relatives; friends and relatives.

KITTATINY MOUNTAINS, *kīt-a-tīn'ī*: name sometimes given to the Blue Ridge (q.v.), ranging from Ulster co., N. Y., to n. Alabama.

KITTEN, n. *kīt'n*, also in *prov. Eng.*, KIT'LING, n. [Norw. *kjetla*, to bring forth young, as of cats; *kjetling*, a kitten: F. *chaton*, a young cat]: a young cat: V. to bring forth kittens. KITTENING, imp. *kīt'nīng*. KITTENED, pp. *kīt'nd*.

KITTERY, *kīt'ēr-ī*: town in York co., Me.; at the mouth of Piscataqua river, directly opposite Portsmouth, N. H.; on the Portland, Saco and Portsmouth railroad; 42 m. s.w. of Portland. It is connected with Portsmouth by bridge, and is the seat of the Portsmouth U. S. navy yard. It was settled 1623, incorporated 1647, and was the birthplace of Sir William Pepperell (q.v.). The town contains numerous hotels, churches, public schools, and the Rice Public Library. Pop. 3,000.

KITTIWAKE, n. *kīt'tī-wāk* (*Larus tridactylus*, or *L. rissa*): a species of GULL (q.v.), named from its peculiar call; interesting on account of its abundance in far northern regions, and its importance to their inhabitants. The young of the Kittiwake has dark markings in its plumage which disappear in the adult, is known on some parts of the British coast as the TARROCK, and was for

KITTLE—KITTREDGE.

some time regarded by naturalists as a distinct species. The flesh of the Kittiwake is much more pleasant than that of most gulls, and its eggs very good; it lays usually three eggs, fully two inches in length. It is found plentifully in all northern parts of the world, wherever the coast is high and rocky, migrating s. in winter, extending its range as far as the Mediterranean and Madeira. It is found on the Caspian Sea. See GULL.

KITTLE, a. *kīt'l*, or KICKLE, a. *kīk'l* [Norw. *kita*, to tickle, to touch; *kitl*, tickling; *kitla*, to tickle, to touch a sore place: Ger. *kitzeln*, to tickle]: in *OE.* and *prov. Eng.*, ticklish; unsteady; easily moved; in *Scot.*, nice; attended with difficulty; intricate: V. in *Scot.*, to tickle. KITTLING, imp. *kīt'l-īng*. KITTLED, pp. *kīt'ld*.

KITTO, *kīt'ō*, JOHN, D.D.: industrious English writer on biblical subjects: 1804, Dec. 4—1854, Nov. 25; b. Plymouth. In his 12th year, he lost his power of hearing, in consequence of a fall from a height of 35 ft. His father's circumstances were at this time so poor, that young Kitto was sent to the workhouse. Here he learned the trade of shoemaking, and was also enabled to indulge his taste for reading. In 1824, he went to Exeter to learn dentistry with a Mr. Grove, who had become interested in him at Plymouth, and encouraged his literary aspirations; and 1825 he published *Essays and Letters by John Kitto*. In the same year he was sent, by the kindness of friends, to the printing-office of the Church Missionary Soc. at Islington, to be trained for useful employment abroad. In 1829, May, he accompanied Mr. Grove and family on a tour to the East, visiting St. Petersburg, Astrakhan, the Kalmuck Tartars, the Caucasus, Armenia, Persia, and Bagdad. He returned to England 1833, and spent the rest of his life in the service of the booksellers, chiefly in that of Charles Knight, by whom he was liberally treated. He died at Cannstadt, in Würtemberg, whither he had gone for the benefit of his health. His principal works are—*The Pictorial Bible* (1838; new edition by W. and R. Chambers, 1855); *Pictorial History of Palestine* (1839-40); *History of Palestine* (1843); *The Lost Senses—Deafness and Blindness* (1845); *Journal of Sacred Literature* (1848-53); and *Daily Bible Illustrations* (1849-53). He also edited the *Cyclopædia of Biblical Literature* (published by A. and C. Black). Kitto's biography has been written by Dr. J. E. Ryland (1856); a later and better biography is by Prof. Eadie of Glasgow. In 1844, the Univ. of Giessen gave him the degree D.D.

KITTREDGE, *kīt'rēj*, THOMAS, M.D.: 1746, July—1818, Oct.; b. Andover, Mass.: physician. He was educated at Byfield Acad. and at Newburyport; began practicing at Andover 1768; was surgeon of Col. Frye's regt. and served in the battle of Bunker Hill 1775; and was several times member of the Mass. legislature and gen-

KITTS—KIZIL-TEREK.

eral council. He was an early member of the Mass. Medical Society.

KITTS, ST. See CHRISTOPHER, SAINT; CHRISTOPHER'S, ST. (island).

KITTYSOL, n. *kīt-tī-sōl'* [Sp. *quitasol*]: the Chinese paper parasol.

KIUNG-CHOW-FOO, *kē-ŭng-chow-fô'*, or KIUNG-CHAU, *kē-ŭng-chow'*: city, cap. of the Chinese island of Hainan (q.v.). Kiung-Chow-Foo is in the n. of the island, on a river, about three m. from the sea. It is compact and well built. Its chief industrial products are scented wood, and carved articles of cocoa-nut. The river is nearly dry at low tide, and the port of the city is at its mouth. There is a large British trade: the exports which find their way to this port comprise leather, hides, skins, tallow, sugar, hemp, grasscloth, and silk. Pop.—often stated 200,000—is by recent authorities thought to be about 100,000.

KIUSHIU, *kū-shū*, or KIU-SIU, *kū-sū'*, or XIMO, *zē'mō*: island of Japan, in the Pacific Ocean: lat. 31°—34° n., long. 129°—134° e.; 3d largest in the archipelago; separated from Corea by the Strait of Corea and from Nippon by the Strait of Sikokf; length 210 m.; greatest width 150 m.; 13,871 sq. m.; cap. Nagasaki. The coast is rocky and dangerous to navigation, and the interior very mountainous and with numerous active volcanoes; but the valleys are fertile, well watered, and generally cultivated. The industries comprise the manufacture of paper, silk goods, and cotton cloth. Kiushiu is divided into 9 provinces—whence its name—Satsuma, Ozumi, Hiuga, Higo, Hizen, Bungo, Buzen, Chikugo, and Chikuzen; and since 1874 for administrative purposes into *ken* or prefectures, taking their names from the principal cities, as Nagasaki, Kagoshima, Kumamoto, Fukuoka, and Oita. Pop. 6,637,551.

KIVE, n. *kīv* [Dut. *kuip*, a tub]: in *Scot.* and *prov. Eng.*, a mash-vat.

KI'WI, or KI'WI-KI'WI, or KI'VI: rare New Zealand bird. See APTERYX.

KIZIL-KUM, *kīz'īl-kôm* (Red Sand): sandy desert in Russian Turkestan, between the Amu-Daria and Sir-Daria, stretching from the Sea of Aral to Khokan, lat. 41°—46° 30' n., and long. 60°—60' e. A continuation of this desert northward across the Sir-Daria is called KARA-KUM (Black Sand), and forms portion of the Kirghis Steppe.

KIZIL-TEREK, *kīz'īl-tā-rēk'* (Red River), ancient HALYS: largest river in Asia Minor; rising in Pontus, flowing s.w. to the Mons Argæus, then n.e. through Galatia to the boundary of Paphlagonia, whence turning n.e. it empties into the Black Sea; length 500 m. It is scarcely anywhere navigable, and in summer is very shal-

KLAGENFURT—KLAPKA.

low. A frequent division of Asia Minor anciently was Asia cis-Halyn and Asia trans-Halyn.

KLAGENFURT, *klâ'ghén-fôrt*: town of Austria, cap. of the duchy of Carinthia, on the river Glau, two m. e. of the *Wörthsee*, with which it is connected by a canal, and about 80 m. n.n.e. of Trieste. It is the seat of the Prince-bishop of Gurk, and has a library of 50,000 vols. Klagenfurt has a white-lead factory—the largest in Austria—and manufactures woolen, silk, and cotton fabrics. An active transit trade is here carried on. Here the Hungarian general Görgei was confined some years after his surrender to the Russians at Világos 1849. Pop. about 20,000.

KLAMATH, *kläm'at*, RIVER: outlet of Lower Klamath Lake in Jackson co., Or., at the base of the Cascade range. It flows s.w. into Siskiyou co., Cal., intersects Del Norte co., continues s.w. to Trinity river, then turns sharply n.w., and empties into the Pacific Ocean about lat. 41° 30' n., after a total course of about 275 m. It passes through a uniformly mountainous region and a deep and narrow cañon, abounds in salmon and other choice fish, has a number of rich gold diggings on its banks, and is navigable by steamers 40 m., though its mouth has a dangerous bar.

KLAMATHS, *kläm'ats*: tribe of American Indians belonging to the n. Cal. group, known among themselves as *Lutuami*, and occupying several reservations near the Klamath lakes and the Klamath and Rogue rivers in s. Or. and n. Cal. The Klamath family proper includes also the MODOCS, SHASTAS, EUROCS, CAHROCS, HOOPAHS, WEYOTS, PITT RIVER, ROGUE RIVER, and several smaller bands, to all of whom the name of Digger Indians has been applied in contempt. But the real Klamath tribe are far superior to the other members of the family; are peacefully inclined; tall, muscular, and well-made; thrifty, ingenious, and fond of trading; but withal superstitious, given to gambling, polygamous, and of low moral tone. In 1864 they ceded all their lands to the U. S. govt. excepting a tract of 1,300 sq. m. near the Klamath lakes. They number about 800.

KLAPKA, *klöp'köh*, GEORGE: 1820, Apr. 7—1892, May 15; b. Temeswar, Hungary; one of the most heroic and skilful generals of the Hungarian war. In 1838 he entered the Austrian army, and had attained the rank of lieut.-col. when the revolution of 1848 burst out. Klapka instantly placed himself at the service of the Hungarian govt., and was prominent throughout the struggle. The plan of the Hungarian campaign in the opening of 1849, which was carried out with such great success, was Klapka's work. In several of the battles, the fortune of the day was decided by the troops under his command. But the crowning glory of his patriotic career, was his defense of Comorn (q.v.), at the close of the revolution.

KLAPROTH.

His famous sally, Aug. 5, was perhaps the most splendid deed of arms in the whole war. The Austrian army besieging the fortress was utterly routed, losing 30 pieces of artillery, 3,000 muskets, vast quantities of provisions, and about 2,000 head of cattle. Klapka was prepared to carry the war into Austria or Styria, but the news of the surrender of Görgei, and the flight of Kossuth, paralyzed his action. He held out, however, until Sep. 27, when he capitulated to Gen. Haynau, on condition that the garrison should retain their lives and liberties. Klapka then went to England, and afterward to Genoa. In 1859 he was requested by the Sardinian govt. to form a Hungarian Legion in the war against Austria, but the peace of Villafranca destroyed his hopes of active service. He published, among other works, *The National War in Hungary and Transylvania* (1851), one of the best works on the subject; and *The War in the East*, etc. (1855). Klapka's judicious proclamation 1862, when Garibaldi made a rash and unfortunate attempt on Rome, kept Hungarian fighters at home. In 1866, after the defeat of Austria at Königgrätz, he endeavored to effect a revolution in Hungary; but failed, and fled to Oderberg. In 1873 he undertook the reorganization of the Turkish army.

KLAPROTH, *klâp'rôt*, HEINRICH JULIUS VON: 1783, Oct. 11—1835, Aug. 23; b. Berlin; son of Martin Heinrich Klaproth (1743-1817), distinguished analytical chemist). He studied the Chinese language, when only 14 years of age, and 1801 entered the Univ. of Halle. Here he published his *Asiatischer Magazine*, which gave him high reputation. Having gone to Russia 1805, he was appointed interpreter to the Russian embassy to China. The embassy entering Mongolia, was ordered by the Chinese emperor to return, but Klaproth took the opportunity of exploring Siberia. He was soon dispatched on a scientific mission to the Caucasus: the results are in his *Reise in den Kaukasus und Georgien in den J. 1807 und 1808* (2 vols. Halle 1812-14; French, with numerous additions, Paris 1823). Finally in 1815 he settled at Paris, where he died. Klaproth's literary activity, especially after 1815, was prodigious; yet it was strangely accompanied by an excessive love of pleasure, for the gratification of which Paris afforded him too many facilities. His writings relate to the languages and history of the East, more particularly of China, and to the geography of the Russian empire; they are marked by immense learning and extraordinary acuteness, but are blemished by venturesome hypotheses, and by virulent attacks on other scholars; much of his work is now superseded. Among his books are *Geographisch-historische Beschreibung des Oestlichen Kaukasus* (Weim. 1814); *Beschreibung der Russ. Provinzen zwischen dem Kaspisee und Schwarzen Meere* (Berl. 1814); *Verzeichniss der Chines. und Mandschuischen*

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Bücher und Manuscripte der Königl. Bibliothek in Berlin (Paris 1822); *Asia Polyglotta* (with tables, 1823; 2d edit., Paris 1829, with a life of Buddha according to the Mongolian legends, a work in which the various Asiatic nations are classified according to the affinities of their languages, and the beginning of their authentic history is determined); *Tableaux historiques de l'Asie depuis la Monarchie de Cyrus jusqu'à nos jours* (4 vols. Paris 1824-26, with 24 maps); *Mémoires relatifs à l'Asie* (Paris 1834); *Collections d'Antiquités Egyptiennes* (Paris 1829); *Examen Critique des Travaux de M. Champollion jeune sur les Hiéroglyphes* (Paris 1832); *Notice d'une Mappemonde et d'une Cosmographie Chinoises publiées en Chine, l'une en 1730, l'autre en 1793* (Paris 1833).

KLAUSENBURG, or CLAUSENBURG, *klow'zén-bôrg* (Hungarian *Kolozsvár, kō-lōzh-vâr'*): one of the chief cities in Transylvania, on the Little Szamos, 80 m. e.s.e. of Grosswardein. It is surrounded by old walls, and is divided into the old and the new town. Among its public buildings are a university, a lyceum, a gymnasium, several hospitals and other institutions, benevolent and educational. Woolens, earthenware, and paper are manufactured. The trade is not important. Pop. (1900) 49,295.

KLAUSTHAL, or CLAUSTHAL, *klovs'tâl*: celebrated mining-town of Hanover, on a bleak plateau of the Upper Harz, 25 m. n.e. of Göttingen; 1,792 ft. above sea-level. The potato is the chief crop that can be cultivated here with success, and the inhabitants find their principal employment in the mines and foundries. The ores raised are silver, lead, zinc, copper, and iron; 2,000 workmen are employed in the mines, 1,000 in the foundries. American as well as German silver ore is worked. Zellerfeld, divided from Klausthal by a brook, also is a mining centre. Although the arrangements and appointments of the mines are complete, their product has greatly declined. They have become the property of the Prussian government, and are managed for it. Pop. about 15,000.

KLEBER, *klē'bér*, F. *klā-bär'*, JEAN BAPTISTE: distinguished general of the French Republic: 1753 or 4—1800, June 14; b. Strasburg, where his father was a garden-laborer. Having received a good education, he entered the Austrian army, but returned to France, and embracing the cause of the Revolution, rapidly rose to high military rank. He accompanied Bonaparte to Egypt as a general of division, was dangerously wounded at the capture of Alexandria, but recovered so as to take part in the expedition to Syria, and won the battle of Mt. Tabor. When Bonaparte left Egypt, he intrusted the chief command there to Kleber, who concluded a convention with Commodore Sidney Smith for its evacuation; but on Admiral Keith's refusal to ratify this convention, Kleber

KLEENE BOC—KLEIST.

adopted the bold resolution of reconquering Egypt, and with 10,000 men destroyed the Turkish army of 60,000 at Heliopolis. During an attempt to conclude a treaty with the Turks, Kleber was assassinated by a Turkish fanatic at Cairo.

KLEENE BOC, *klēn'bōk* (Dutch, little goat), or **CAPE GUEVEI**, *kāp gwā-vā'ē* (*Antilope perpusilla* or *pygmæa*, or *Cephalopus pygmæa*): species of very small antelope, very plentiful in s. Africa. It is only about 32 inches high at the shoulder; the limbs are slender, the head long and pointed, the horns very short; the color slaty brown. It lives singly or in pairs, in bushy districts, and is very nimble and active. Similar species are found in w. Africa.

KLEIN, *klīn*, **BRUNO OSCAR**: American composer and pianist; b. Osnabrück, Germany, 1858, June 6. He was graduated from the Gymnasium Carolinum in his native town and studied music at the Royal Music School at Munich. He came to the United States in 1878 and has since made his home in New York, where he is professor of music at the Convent of the Sacred Heart. He has published many songs and motets, a large number of compositions for the piano, and various other works. In 1895 his grand opera, *Kenilworth*, was produced at Hamburg.

KLEIN, *klīn*, **FELIX**: German mathematician; b. Düsseldorf, 1849, April 25. He was educated at Bonn, became Plücker's assistant in the physical institute in 1866, was appointed lecturer at Göttingen in 1871, professor at Erlangen in 1872, and held chairs from 1875 in the Technical High-school of Munich, from 1880 at Leipsic, and from 1886 at Göttingen. In 1893 he represented Göttingen at the World's Columbian Exposition at Chicago. He exercised large influence on American mathematics, having taught many instructors in institutions in this country. Among his works are *Ueber Riemanns Theorie der algebräischen Funktionen* (1882); *Vorlesungen über das Ikosaeder und die Auflösung der Gleichungen vom fünften Grad* (1884); *Einleitung in die höhere Geometrie* (1893), and *Evanston Colloquium* (1893).

KLEIST, *klīst*, **HEINRICH BERNT WILHELM VON**: German dramatist; b. Frankfort-on-the-Oder, 1777, Oct. 18; d. Wannensee, near Potsdam, 1811, Nov. 21. He entered the army in 1795, but left it in 1799 to study at Frankfort and Berlin, and later engaged in journalism in Dresden and Berlin. His first drama, *Die Familie Schroffenstein*, was published in 1803, and was followed by *Amphitryon* (1807); *Penthisilea*, a tragedy (1808); *Käthchen von Heubronn* (1810); *Der zerbrochene Krug* (The Broken Jug) (1811). A volume of *Tales* appeared (1810-11); and posthumously, *The Battle of Hermann*, and *Der Prinz Von Homburg*. He exhibits some of the worst faults of the Romantic school, to which he belongs,

KLEISTOGAMOUS—KLINGER.

but nevertheless his best plays, such as *The Prince of Homburg* and *The Broken Pitcher*, possess sufficient vigor and fidelity to life to make them popular even at the present day. The best of his tales is *Michael Kohlhaas*, a story of Brandenburg in the Middle Ages. He failed to gain recognition and shot himself, after first shooting a woman whom he loved, and who like him was weary of life. His works did not receive notice till after his death, when they were made known by Tieck.

KLEISTOGAMOUS, a. *klīs-tōg'ă-mūs* [Gr. *kleistos*, closed; *gamos*, marriage]: in *bot.*, having the fertilization effected in closed flowers, as certain grasses.

KLENZE, *klĕn'tseh*, LEO, Chevalier VON: distinguished German architect: 1784-1864; b. in the principality of Hildesheim. He studied architecture in Berlin and Paris, was appointed architect to King Jerome of Westphalia 1808; held a similar position at the court of Bavaria 1815-39, and was raised to the rank of hereditary nobility in that kingdom 1833. In 1834, he was sent to Athens, to superintend the reconstruction of that capital, and 1839 went to St. Petersburg, to execute works for the emperor of Russia. Many of the finest buildings of the present century on the continent of Europe are monuments of Klenze's genius; e.g. the Glyptothek, the Pinakothek, the Walhalla, and many other structures in Munich, and the Imperial Museum at St. Petersburg. Klenze wrote several works.

KLEPHTS, *klĕfts*: Greek brigands. See ARMATOLES.

KLEPTOMANIA. See CLEPTOMANIA.

KLIAZMA, *klī-âz'ma*, RIVER: in Russia, affluent of the Oka, rising in the govt. of Moscow, flowing e. through Vladimir and Nijni Novgorod, and joining the main stream near the town of Gerbatof, after a course of 327 m., for the last 150 of which it is navigable. Passing through the most industrial govts. of Russia, it is one of the principal commercial arteries of the empire.

KLICK, n. *klĭk*: another spelling of CLICK, which see.

KLIEFOTH, *klĕ fōt*, THEODOR FRIEDRICH DETLEV, D.D.: Lutheran theologian; b. Kōrchow, Mecklenburg, 1810, Jan. 18; d. 1895. He was tutor of Duke Wilhelm of Mecklenburg and of Grand Duke Friedrich Franz of Mecklenburg-Schwerin; was appointed supt. of the diocese of Schwerin 1840, and has been chief ecclesiastical councilor and member of the ecclesiastical upper court of Mecklenburg-Schwerin since 1850. His numerous publications include *Liturgische Abhandlungen*, 8 vols. (1854-61), and commentaries on *Zechariah* (1861), *Ezekiel* (1864-5), *Daniel* (1868), and *Revelation* (1874); etc.

KLINGER, *klĭngĕr*, MAX: German painter, etcher and sculptor; b. Leipsic, 1857, Feb. 18. He was a pupil of Gussow at Karlsruhe and later at Berlin; studied also at the Berlin Academy; was active at Rome in 1888-92;

KLINKET—KLONDIKE.

and from 1893 in Leipsic. He was at first chiefly an etcher (1879-86), perhaps the best of his work in this sort being the *Brahms-Phantasien* (1894) deriving their subjects from various music of that composer. Then he directed his attention to painting in oils, and executed heroic canvases of *The Crucifixion* and *Christ on Olympus*. One of the best of his plastic works is his polychromatic statue of Beethoven (Leipsic Museum), in which onyx, bronze, and differently colored marbles are combined. He published *Malerei und Zeichnung* (3d ed. 1899).

KLINKET, *klīngk'ēt*: in fortifications a small postern or gate in a palisade.

KLIP, n. *klīp* [Dut.]: in s. Africa, a stone. KLIP SPRUIT, *sprō'it* [Dut.]: a stony stream.

KLIPSPRINGER, *klīp'sprīng-ēr* (Dut., cliff-springer), or KAINSI (*Antilope oreotragus*, or *Oreotragus saltatrix*): species of antelope, about equal in size to the chamois, and resembling it in habits, found in the highest mountainous districts of s. Africa. It is of a yellowish-gray color, and the hair is long, and stands out from the skin as a rough fur. The legs and the general form are more robust than in most species of antelope. The flesh of the klipspringer is particularly esteemed for food; the hair also is valued for stuffing saddles; and it has therefore become rare in localities where it was formerly common. The pinnacles and precipices in which it delights, make hunting it with dogs impossible, but to approach within rifle-shot of it is not difficult.

KLONDIKE, *klōn'dīk*, THE: a creek or river, of the province of Yukon, Canada (the name being a corruption of *Trondik*, an Indian word), also a district noted for its gold fields. The creek enters the Yukon 45 m. below the mouth of Sixty Mile creek, and 15 m. above old Fort Reliance. The Klondike district, drained by Klondike creek and its tributaries, lies just across the boundary line between Alaska and the British possessions; is at least 500 m. long, is upwards of 100 m. wide in places, has a mean elevation of about 3,000 ft. and is covered with rough, wooded hills. The most important gold bearing streams are Bonanza creek (with its tributary, Eldorado creek), Bear and Hunker creeks, all flowing into the Klondike, and Quartz and Dominion creeks, with Gold run and Sulphur creek, tributaries of the latter, emptying into Indian river. For seven months of the year intense cold prevails, varied by furious snow storms which begin in September and occur at intervals till May. By Oct. 20 ice is formed over all the rivers, which remain frozen all winter, but in spring break up with dangerous floods. The temperature in summer sometimes rises to 100° in the shade; the heat is humid, and mosquitoes add to the discomforts of life. The shortness of the summers and the frequency of frosts forbid the raising of crops, unless cabbages and lettuce

KLONDIKE.

be so designated. Mining is prosecuted with difficulty, the ground for the better part of the year being frozen to the depth of from 3 to 10 ft. When the warmer weather comes the earth is washed in running water, which carries away the dirt and pebbles, leaving the gold at the bottom of the pan or sieve. In time, with the introduction of machinery, quartz mining will doubtless be carried on with profit. In 1886 gold was reported on Stewart river, in the Yukon district, and in 1887 an expedition sent out by the Canadian government, which explored the Upper Yukon and reported the existence of an abundance of gold. A few hundred miners attempted to seek their fortunes there, established Circle City on the Alaska side of the boundary, and by 1892 were taking out an annual total of about \$300,000. In 1897 the riches of the Klondike region were made known through George McCormick, or Cormack, who went from Illinois to Alaska in 1890. In 1896, he, in company with some Indians, explored Bonanza creek for gold. They found large quantities of paying dust and located an extensive claim. The news spread and miners from every direction poured into the newly found gold fields. Before the spring of 1897 nearly a ton and a half had been taken out of the frozen ground; nuggets weighing a pound troy each were found; one man washed \$212 out of a single ton of earth; the total amount secured from Jan. to June, 1897, was estimated at \$1,500,000. The wildest excitement was aroused all over the United States, with which the Californian 'gold fever' of 1849 stands no comparison. The almost unknown towns of Juneau, Dyea and Skaguay, sprang into sudden prominence. Dawson City, in which the first hut was built in Sept., 1896, in 1901 had grown to a prosperous city with handsome residences, hotels, banks, schools, churches and many modern improvements. Its population in 1902 was 9,140, and that of the whole district about 27,220. The gold production of the Klondike is estimated at \$35,000,000. The falling off in gold production is due to the scarcity of supplies, caused by the remoteness of the district, and the great difficulty of the transit thither. While many of the miners are from the U. S. the Klondike district is under Canadian mining laws, which are very favorable, allowing only one claim to be entered by any one person, though miners may unite to work their claims in common. Order is maintained by mounted police. The Klondike district is reached by several routes. One is by way of the Yukon river, involving a voyage of 2,200 m. from Seattle, another by the Yukon and White Horse railroad, from Skaguay, Alaska, to Lake Bennett, where boats connect with Dawson City and the Yukon valley; another over the difficult and precipitous Chilkoot Pass (23 m.; 3,500 ft. at highest point), thus reaching the chain of lakes connecting with the upper waters of the Yukon; still another by Chil-

KLOPSCH—KLOPSTOCK.

koot Pass to the west of Chilkoot; a long journey. In 1902 the Great Northern Consolidated Company of Canada was incorporated to build a railroad from Duluth, Minn., to Dawson City. A telegraph line connects Dawson City and Skaguay.

KLOPSCH, *klöpsh*, LOUIS: American journalist and philanthropist; b. Germany, 1852, March 26. As proprietor of the *New York Christian Herald* he has instituted several extensive international charities. Since 1892 he has raised through his paper and distributed for the relief of human suffering over \$2,500,000. In 1892, during the Russian famine, he was received by the present Czar Nicholas II., and in 1898 President McKinley appointed him one of the commissioners to relieve the reconcentrados of Cuba. In 1900 he visited the famine fields of India; in 1901 Li Hung Chang by cable interested him in behalf of the starving people of Shensi, and in 1903 he visited the famine districts of the north of Europe, where he had audiences with the King and Queen of Sweden, Queen Alexandra of England, the Empress of Russia, and the King of Denmark. From 1900-06 he supported and educated 5,400 famine orphans in India.

KLOOF, n. *klôf* [Dut. *kloof*, a crevice]: in *s. Africa*, a glen; a gorge or valley closed at the highest end.

KLOPSTOCK, *klöp'stök*, FRIEDRICH GOTTLIEB: German poet: 1724, July 2—1803, Mar. 14; b. Quedlinburg. He went to Jena 1745, to study theology. He had resolved to write a great epic poem, and thought of Henry the Fowler as a good subject; and at Jena he composed the first cantos of his *Messiah*. In 1746, he went to Leipsic, and there became acquainted with the editors of the *Bremische Beiträge*, in which the first three cantos of the *Messiah* appeared 1748. They attracted great attention; the author was pronounced a religious poet of the highest order, and was invited to Copenhagen, on recommendation of the minister Bernstorff, and introduced to the king, whom he accompanied on his travels. In 1771, Klopstock settled in Hamburg, with a sinecure appointment and a pension from the Danish govt., and subsequently received an honorary title and a pension from the Markgraf, afterward Grand Duke, of Baden. In 1773, the last five cantos of his *Messiah* were published at Halle. Klopstock's name has (rather *had*) a very high place in German literature. Whatever was the intrinsic value of his poetry, he certainly exercised a very important and beneficial influence on the national taste. The greatest of his successors, Goethe, acknowledged this, though he also expressed the opinion, that Klopstock had become obsolete, or at least that his conception of poetry had become so. When Klopstock began to write, the literature and social life of Germany were penetrated by French influences. A cold, correct, unimaginative spirit tyrannized over the thought and

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habits of the people. Klopstock broke loose at once from this shallow despotism, and breathed the air of Freedom into German poetry. Many passages in the *Messiah* show a high order of lyrical genius, though its conception lacks unity and its style lacks precision. Odes, of which many are scarcely intelligible, tragedies—in which he introduces Hermann (q.v.) the Cheruscian as a national hero—and biblical dramas, with some hymns, which still find a place in collections, constitute the remainder of Klopstock's poetry. His dramas are of no value. His works were collected and published in 12 vols. (Leip. 1799-1817), 18 vols. (1823-29), 9 vols. (1839). The *Messiah* has been translated both into verse and prose in English.

KNACK, n. *nāk* [Ger. *knacken*, to break: Ir. *cnag*; Gael. *cnac*, a knock, a crack, a crash: W. *cnec*, a snap, a crash: comp. Gael. *gnath*, a habit, a custom]: *literally*, a quick motion; a snap; a readiness in performance; trick or dexterity in doing, as if at a snap; adroitness; a toy. **KNICK-KNACKS**, n. *nīk'nāks*, trifles or toys; articles of small value, for show, and not for use. **KNACK'ER**, n. *-ér*, a maker of knacks or toys.

KNACKER, n. *nāk'ér* [Icel. *knakkr*, a saddle]: one whose business is to slaughter old worn-out horses, an office which seemed to have fallen to the knacker or coarse harness maker; a dealer in worn-out horses and dog's meat. **KNACKER'S YARD**, a place where worn-out horses or diseased animals are destroyed, and cut up and boiled down for their commercial products.

KNAG, n. *näg* [Dan. *knag*; Ir. *cnag*, a knob, a crack: Gael. *cnag*, a pin, a peg: W. *cnwc*, a lump, a bump: Sw. *knaglig*, rugged: It. *nocco*, any bunch or knob]: a knot in wood; a peg for things to hang on; the shoot of a deer's horn; the rugged ridge of a hill. **KNAGGY**, a. *näg'gǐ*, full of knots; rugged.

KNAP, v. *năp* [Ger. *knappen*, to crack, to gnaw: Dut. *knappen*, to snatch, to snap: Dan. *kneppe*, to snap: Gael. *cnap*, to thump]: to bite; to break short; to make a short sharp noise. **KNAP'PING**, imp. **KNAPPED**, pp. *năpt*.

KNAP, *năp*: for **NOB**, which see.

KNAPP, *knâp*, ALBERT: 1798—1864; b. Württemberg: German poet, author of many of the best modern German hymns. He studied theology, and became the principal clergyman in Stuttgart. Knapp breathed a new life into a neglected branch of poetry—the religious hymn. Many of his effusions are in the *Christoterpe*, a periodical edited by him from 1833. His *Christliche Gedichte*, 2 vols. (Stuttg. 1829; 3d edit., Basel 1843), to which a 3d vol. was added under the title of *Neuere Gedichte* (Stuttg. 1834), were published by his friends. His later hymns are in his *Gedichte* (Stuttg. 1843). Knapp was distinguished equally as a hymnologist. His *Evang. Liederschatz für Kirche und Haus* (2 vols. 1837)

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is a valuable collection of Christian hymns of all ages, to which his *Christenlieder* (Stuttg. 1841) forms a splendid supplement. The *Bilder der Vorwelt* appeared 1862. His *Hohenstaufen* (Stuttg. 1839) is a cycle of religious poems.

KNAPSACK, n. *năp'säk* [Ger. *knappsack*; Dut. *knapsak*, a provision-bag, a knapsack—from Dut. *knap*, eating; *sak*, a bag: Ger. and Dut. *knappen*, to crush, to crack, to eat (see KNAP)]: a provision-sack; a soldier's or traveller's bag of canvas or skin, carried on his back in a march or walking-tour, containing food and clothing.

KNAP'WEED. See CENTAUREA.

KNARESBOROUGH, *närs'bür-rüh*: market-town in the W. Riding of Yorkshire, England, 18 m. w.n.w. of York. St. Robert's Cave, in the vicinity, is well known for the murder committed there by Eugene Aram 1745. Manufactures of linen and cotton goods are carried on here; there are also flour-mills and trade in corn. Pop. about 5,000.

KNAURS, n. plu. *nawrs*, or GNAURS, n. plu. *nawrs* [Dut. *knarren*, to growl: Sw. *knorla*, to twist, to curl: Ger. *knorren*, a protuberance]: a hard woody lump projecting from the trunk of a tree, as in the oak, horn-beam, etc. See GNAUR.

KNAUS, *knows*, LUDWIG: German painter: b. Wiesbaden, 1829, Oct. 5. From 1845 to 1852 he studied art at Düsseldorf under Sohn and Schadow, but soon shook himself free from their influence and started on a path of his own. He chose scenes from country life and in 1850 painted *The Country Dance*; *The Players*, now in the gallery at Düsseldorf, a replica being in the gallery of Leipsic. His early pictures in this style were received with favor, although characterized by the dark, dull coloring of the Düsseldorf school. In 1852, he went to Paris, and resided there for eight years, which were fruitful in many well-known pictures of his early style, *The Golden Wedding* (1858); *The Baptism* (1859); and *Starting for the Dance*. Returning to Düsseldorf in 1866, he remained there for eight years, during which period he produced the pictures on which his reputation as a genre painter is chiefly founded. Amongst these is *The Child's Party* (1869), in the Berlin National Gallery; *Funeral in a Hessian Village* (1871); *The Goose-Girl* (1872). These works are distinguished by naturalness and naïveté, by delicate humor, mastery of detail, lifelike coloring and vivid expression. After his appointment to the direction of a studio in the Art Academy at Berlin he reached his latest manner, which was formed largely by his study of the Dutch school, from which he acquired his final skill as a colorist. His pictures, however, no longer showed the naïveté, the directness of his earlier productions; which were replaced by thoughtfulness and a striving after the didactic or admonitory.

KNAVE—KNEE.

The most remarkable paintings of this period are *The Holy Family* (1876); *Tavern Scene—Bad Ways* (1876); *The Refractory Model* (1877); etc. He has also painted many portraits combining the picturesqueness of genre with lifelike expression. Among his miscellaneous works are his designs in Watteau style for room decorations, his lead pencil sketches and aquarelles. Very many of his works have been reproduced by photography or engraving.

KNAVE, n. *nāv* [AS. *enapa*; Icel. *knapi*; Ger. *knabe* and *knappe*, a boy, a youth: Dut. *knegt*, a boy or servant]: *originally*, a boy or servant; a false, dishonest man; a petty rascal; a court card in a pack next below the queen, marked with the figure of a knave or servant. **KNAVERY**, n. *nāv'vér-ī*, dishonesty; petty villainy. **KNA'VISH**, a. fraudulent; given to dishonesty. **KNA'VISHLY**, ad. *-lī*. **KNA'VISHNESS**, n. *-nēs*, dishonesty.

KNAVESHIP, *nāv'shīp*, in the Law of Scotland: a proportion of the grain given to the miller's servant who performs the work of the mill, such mill being an ancient mill to which a right of thirlage is attached. See **THIRLAGE**; **INSUCKEN MULTURES**.

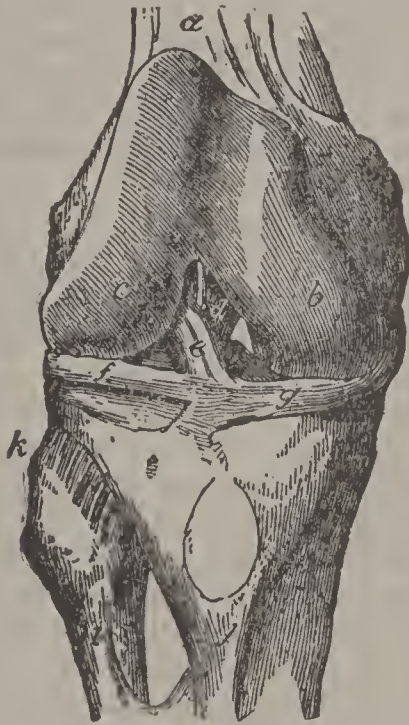
KNEAD, v. *nēd* [AS. *cnedank*: Icel. *knodak*: Dut. *kneedenk*: Ger. *kneten*, to knead: Dan. *gnide*, to rub]: to work and press ingredients with the hand into a mass called dough. **KNEAD'ING**, imp.: N. the act of one who kneads. **KNEAD'ED**, pp. **KNEAD'ER**, n. *-ēr*, one who. **KNEADING-TROUGH**, *-trōf*, a hollow vessel in which the materials of dough are worked and mixed. **KNEADING BY MACHINERY**, process in bread-making for avoiding the contact of hands with the dough, and the labor of thorough kneading. On the continent of Europe bread-making is now conducted scientifically on a large scale by the aid of machinery; and the forms of kneading-machines are very various—the general principle being, however, the same in all. In France, the preferred machine is called *Pétrisseur*. It consists of an iron cylinder, in which is an axle around which are set curved, blunt metal blades. The upper half of the cylinder opens for the supply and removal of the dough. In large bakeries, the machines are worked by steam-power.

KNEE, n. *nē* [Ger. *knie*; Icel. *kné*; Sw. *knä*; Gr. *gonu*; L. *genu*, a knee]: the joint formed at the junction of the leg and thigh (see **KNEE-JOINT, THE**): anything in the shape of the angle formed by the leg and thigh when bent or inclined to each other; in *ship-building*, angular piece of wood or iron used to connect the deck-beams with the ribs of the vessel's sides. The knees are fastened on both vertically, above and below, and horizontally, whereby great stability is imparted to the whole framework of the ship: V. in *OE.*, to supplicate by kneeling. **KNEE'ING**, imp. **KNEED**, pp. *-nēd*: **ADJ.** having joints like the knees when bent; having prominent or

KNEE-JOINT.

abnormal knees, as *in-kneed*. KNEE-CAP, a capping on the knees of horses; the small round bone at the front of the knee-joint. KNEE-DEEP, rising to the knees; sunk to the knees. KNEE-HOLLY, or KNEE-HOLM, the plant butchers'-broom; the *Ruscus aculeatus*, ord. *Liljæcæ*. KNEE-PAN, a little round bone on the knee, slightly convex on both sides; the patella. KNEE-RAFTER, a rafter whose lower end or foot is crooked downwards, so that it may rest more firmly on the walls. KNEE-TIMBER, a natural bent piece, formed out of a tree that grows crooked. KNEE-TRIBUTE, homage or worship shown by kneeling; genuflection. KNEEL, v. *nēl* [Dan. *knæle*, to kneel, dim. of *knee*]: to bend the knee; to rest or fall on the knee or knees. KNEEL'ING, imp.: ADJ. falling or fallen on the knees: N. act of one who kneels. KNELT, pt. or pp. *nēlt*, or KNEELED, *nēld*.

KNEE'-JOINT, THE: the articulation between the femur or thigh-bone, above, and the tibia or shin-bone, below. A third bone, the patella, or knee-cap—one of



Internal view of the Right Knee-joint.

(From Gray's Human Anatomy.)

a, the femur; *b* and *c*, the internal and the external condyles; *d* and *e*, the two crucial ligaments; *f* and *g*, the external and internal semilunar cartilages; *k* and *i*, the upper part of the fibula; *j*, the upper part of the tibia.

the sesamoid bones (q.v.), and not a true bone of the skeleton—also enters into the structure of this joint anteriorly. The articular surfaces of these bones are covered with cartilage lined by a synovial membrane or sac, the largest and most extensive in the body, and are connected together by ligaments, some of which lie external to the joint, while others occupy its interior.

The most important of the external ligaments are the

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anterior or *Ligamentum Patellæ*, which is in reality that portion of the *Quadriceps extensor cruris* tendon which is continued from the knee-cap to the tubercle of the tibia; one internal, and two external lateral ligaments; a posterior ligament; and a capsular ligament, which surrounds the joint in the intervals left by the preceding ligaments: the positions of these ligaments are indicated by their names. Of the internal ligaments, the two crucial, so called because they cross one another, are the most important: their position is shown in the figure. The external and internal semilunar cartilages are usually classed among the internal ligaments; they are two crescentic plates of cartilage. The outer part of each cartilage is thick; the inner free border thin. Each cartilage covers nearly the outer two-thirds of the corresponding articular surface of the tibia, and by its form deepens these surfaces for firmer articulation with the condyles of the femur.

The chief movements of this joint are those of a hinge-joint—namely, flexion and extension; but it is capable also of slight rotatory motion when the knee is half flexed. During flexion, the articular surfaces of the tibia glide backward upon the condyles of the femur; while in extension, they glide forward. The whole range of motion of this joint, from extreme flexion to extreme extension, is about 150°.

KNEEL. See under KNEE.

KNEELAND, *nē'land*, ABNER: 1774, Apr. 6—1844, Aug. 27; b. Gardner, Mass.: editor. He began studying theology at an early age, was ordained a Bapt. minister, soon afterward became a Universalist, and ultimately a deist. In 1821-23, he was editor of a Universalist publication in Philadelphia, 1828 edited the *Olive Branch and Christian Enquirer* in New York, and 1832 founded in Boston *The Investigator*, organ of free-thought. In 1836, he was tried in the Mass. supreme court on a charge of blasphemy in his paper. The jury failed to agree, and a second trial resulted in his conviction and sentence to a short imprisonment. There was a widely-signed protest against his prosecution, which had been instituted because of the publication of a sentence in which the wrongful insertion of a comma made him deny a belief in the existence of God. His publications include *The Deist* (1822); *Lectures on Universal Salvation* (1824); a translation of the New Test. (1823); a *Rev. of the Evidences of Christianity* (1829).

KNEELAND, *nē'land*, SAMUEL, M.D.; naturalist: b. Boston, 1821, Aug. 1; d. Hamburg, Germany, 1888, Sept. 27. He graduated at Harvard 1840, and at its medical school 1843; studied two years in Paris; practiced in Boston, and was demonstrator of anatomy in the Harvard Medical School, and dispensary physician 1845-50; served through the civil war as surgeon in the army, and

KNEIPP—KNELLER.

attained the rank of lieut.col.; was instructor in the Mass. Institute of Technology 1867-9, prof. of zoology and physiology 1869-78, sec. of the corporation 1866-78, and of the fac. 1871-78; and afterward applied himself to literary work, lecturing, and investigating the phenomena of earthquakes and volcanic disturbances. He edited the *Annual of Scientific Discovery*, 1866-69, and published *Science and Mechanism* (New York, 1854), *The Wonders of the Yosemite Valley and of California* (Boston, 1871), and *An American in Iceland* (1876).

KNEIPP, *knīp*, SEBASTIAN: a German clergyman; 1821, May 17—1897, June 17; b. in Stefansried: a Rom. Cath. priest in 1852; studied med. in order to develop the system of water-cure. This method was based on water, fresh air, sunshine, and a scheme of regular activity, and included walking barefoot in dew-moistened grass and on snow. Kneipp wrote: *Meine Wasserkur* (1887; Eng. trans. 1891); *Mein Testament* (1894); *Vorträge in Wörishofen* (1894-8); and other works.

KNEISEL, *nī'zěl* or *knī'zěl*, FRANZ: German-American musician; b. Rumania 1865. He was a pupil in violin-method of Grün and Hellmesberger, became concert-master of the orchestra at the Hofburg Theatre of Vienna, of Bilsé's orchestra at Berlin, and later of the Boston Symphony Orchestra. He appeared prominently with the Symphony as solo violinist, and organized under his leadership the Kneisel quartette for chamber-music, in which he played the first violin part. This quartette, all of whom were also members of the Symphony, withdrew from the latter in 1903 to undertake an extensive tour.

KNELL, n. *něl* [Sw. *knall*, explosion, loud noise; *knalla*, to make a loud noise; Norw. *gnell*, a shrill cry; Icel. *gnella*, to scream; AS. *cnyll*, a knell; *cnyllan*, to beat noisily]: the stroke or tolling of a bell; the sound of a bell or bells rung at a person's death or funeral. KNELL'ING, n. a sounding or tolling, as a funeral bell.

KNELLER, *něl'ér*, Ger. *kněl'ér*, SIR GODFREY: eminent portrait-painter, 1648, Aug. 8—1723 or 6, Nov. 7; b. Lübeck, Duchy of Holstein; of an ancient family. He studied painting under Rembrandt and Ferdinand Bol. At first he chose historical subjects, but afterward applied himself entirely to portrait-painting. In 1674, he went to London, and, on the death of Sir Peter Lely 1680, was appointed court-painter to Charles II. In 1684, he visited Paris, at the invitation of Louis XIV., and painted portraits of the king and royal family. He retained his office at the English court during the reign of James II., and continued to fill it till after the Revolution. In 1692, William III. bestowed on him the honor of knighthood, which he afterward received also from Emperor Joseph I.; and in 1715, George I. made him a baronet. A monument was erected to him in Westminster

KNICKERBOCKERS—KNIGHT.

Abbey, with a highly laudatory inscription by Pope. Kneller's best-known productions are the *Beauties of Hampton Court* (painted by order of William III.), and his portraits of the 'Kit-Cat Club.' He painted avowedly for money, hence never did justice to his talent, so that it is difficult for posterity to understand his reputation, until it is remembered that he had no competitors of any ability, and that his period marked a decline in art from Vandyck and Lely. His coloring was brilliant, and his drawing was good; but his pictures are monotonous, and his works show little of genuine natural simplicity.

KNICKERBOCKERS, n. plu. *nĭk'kēr-bōk'ērz* [so called after Diedrich *Knickerbocker*, the imaginary author of a humorous fictitious history of New York, written by Washington Irving: Ger. *knicker*, a niggard; *bock*, a he-goat, a box]: trousers sitting loosely on the thigh and ending at the knee, as worn in n. Ger. and Holland.

KNICK-KNACKS. See under **KNACK**.

KNIEBIS MOUNTAINS, *knē'bĭs*: range of the Lower Black Forest, bordering Würtemberg and Baden and opposite Alsace, containing several popular watering-places belonging to Baden, and the scene of many important military movements in the wars of France.

KNIFE, n. *nĭf*, **KNIVES**, n. plu. *nĭvz* [Icel. *knifr*; Dan. *kniv*; AS. *cnif*; Dut. *knĭjf*, a knife: Ger. *kneif*, a hedging-bill, a knife; *kneifen*, to nip or pinch: F. *canif*, a pen-knife]: an instrument for nipping or snipping; a well-known cutting instrument, made of steel. **KNIFE-BLADE**, the cutting part of a knife. **WAR TO THE KNIFE**, ferocious and exterminating war.

KNIGHT, n. *nĭt* [AS. *eniht*, a boy, an attendant; Dan. *knegt*, a man-servant, a knave: Ger. *knecht*, a servant. Swiss, *knecht*, a strong, active youth; *knechten*, to put forth strength]: title of rank next below that of a *baronet*, with the privilege of prefixing to the Christian name *Sir*, as 'Sir John,' 'Sir James'; anciently, a young man admitted to the privilege of bearing arms, or to military rank: V. to dub or create a knight, which is done by the sovereign, or the high officer acting in her name, giving the person to be knighted, who kneels at the ceremony, a touch with a sword, while the words are uttered, 'Rise, Sir James,' or 'Sir John,' as the person's name may be. **KNIGHT'ING**, imp. **KNIGHT'ED**, pp. created or made a knight. **KNIGHT'LY**, a. *-lĭ*, or **KNIGHTLIKE**, a. pertaining to a knight; becoming a knight. **KNIGHT-BANNERET**, formerly in *England* and *France*, a knight who carried a banner, and who, possessed of superior fiefs, was obliged to bring into the field a greater number of attendants. **KNIGHT-BARONET**, a baronet; a hereditary knight. **KNIGHT-ERRANT**, *-ēr'rānt*, a knight who travelled in search of adventures. **KNIGHT-ERRANTRY**, *-ēr'rānt-rĭ*, the practice of knights-errant. **KNIGHT-TEMPLAR** (see **TEMPLAR**).—**KNIGHTHOOD**, n. *-hūd*, the char-

KNIGHT.

acter or dignity of a knight; the order or fraternity of knights. KNIGHT'S SERVICE, one of the ancient tenures in England which was abolished in the reign of Charles II. and converted into Freehold (q.v.). A KNIGHT OF THE SHIRE, *shīr*, otherwise called in England, Knight of Parliament; an M.P. (member of parliament) for a county. CARPET-KNIGHTS, not military, but knights in civil life. KNIGHT OF THE POST, a rogue; a false witness—so said in reference to the old punishment of the pillory. KNIGHT OF THE ROAD, a highwayman; a footpad; a robber. KNIGHT'LESS, a. in *OE.*, unbecoming a knight. KNIGHT'LINESS, n. in *OE.*, the character or bearing of a knight.

KNIGHT, *nīt*, CHARLES: English publisher and author: 1791, Mar. 15—1873, Mar. 9; b. Windsor, where his father was a bookseller. Knight early turned his attention to publishing. Among his first attempts was *The Etonian*, a periodical supported by the Eton boys, which—in spite of its juvenility—obtained reputation. He next started (1823) *Knight's Quarterly Magazine*, in London, to which place he removed in 1824: it had but a short life, but it was the beginning of his honorable career in popular literature, of which he was one of the earliest and most accomplished advocates. Among the works which Knight published or edited are the *Penny Magazine* 1832-45, started a month or two after *Chambers's Edinburgh Journal*, and having at one time a circulation of nearly 200,000 copies weekly; the *British Almanac*, and *Companion to the Almanac*; *Penny Cyclopædia* (30 vols. 1833-56); *Library of Entertaining Knowledge*—the volume on the Elephant (1831) being written by himself; *Pictorial History of England*; *Pictorial Bible* (1838), now the property of Messrs. Chambers; *Pictorial Book of Common Prayer* (1838); *London Pictorially Illustrated* (6 vols. 1841-44); *Old England, a Pictorial Museum of National Antiquities* (2 vols. 1845); *Half-hours with the Best Authors* (4 vols. 1847-8); *The Land We Live In* (4 vols. 1848); *Cyclopædia of the Industry of all Nations* (1851); and *The English Cyclopædia* (22 vols. 1854-61), based on the *Penny Cyclopædia*, but a great advance even on that admirable work, and, in fact, one of the most complete and accurate cyclopædias in the world. Knight was author of *Pictorial Shakspeare*, accompanied by a 'Biography' and a 'History of Opinion, with Doubtful Plays,' etc. (8 vols. 1839-41); library ed. (12 vols. 1842-44); national ed., with 'Biography' and 'Studies' (8 vols. 1851-53); *Life of Caxton* (1844); *Plays and Poems, with Glossarial Notes* (7th ed. 1857); *Knowledge is Power* (1855); and (most notable) *Popular History of England, an Illustrated History of Society and Government from the Earliest Period to our own Times* (1856-62), an original work in 8 vols.—For Knight's life, see *Passages of a Working Life during Half a Century* (3 vols. 1864-5).

KNIGHT.

KNIGHT, DANIEL RIDGEWAY: American painter: b. Philadelphia, Pa., 1850. He has been a pupil of Gleyre and a student at the Ecole des Beaux Arts, at Paris (1872), and four years later was in the studio of Meissonier, from whom he learned many of the secrets of brilliant technique. He has received honors from Paris, Munich, and Antwerp for his exhibited works, and has also been awarded medals in his own country. He is a painter, rather French than American, and he has idealized the French peasantry in more than one of his refined and delicately designed pictures, among which we may mention as especially characteristic of his charming qualities *The Veteran* (1870); *The Old Beau* (1873); *Washerwoman* (1875); *Harvest Scene* (1877); and *Sans Dot* (1883).

KNIGHT, EDWARD FREDERICK: English journalist and author: b. 1852, Apr. 23. He was graduated from Cambridge and in 1891 became a member of the staff of the *London Times* as a correspondent, being with the armies in the Sudan campaign of 1896, and in Greece in 1897. He has written: *Albania and Montenegro*; *The Cruise of the Falcon*; *The Threatening Eye*; *Sailing*; *The Falcon on the Baltic*; *The Cruise of the Alerte*; *Save Me from My Friends*; *Madagascar in War Time*; *Rhodesia of To-day*; *Letters from the Sudan*; *A Desperate Voyage*; *Small Boat Sailing*; *With the Royal Tour*; etc.

KNIGHT, EDWARD HENRY: American mechanical expert: b. London, England, 1824, June 1; d. Bellefontaine, Ohio, 1883, Jan. 22. After studying both surgery and steel engraving he came to this country in 1845 and settling in Cincinnati was a patent attorney for several years. In 1863, he entered the civil service in Washington, D. C., where he prepared the annual reports of the Patent Office and established the *Official Gazette of the United States Patent Office* in 1871. He served on the international juries of world's fairs at Philadelphia (1876), Paris (1878), Atlanta (1881), and was made a chevalier of the Legion of Honor in 1878. He published *The American Mechanical Dictionary* (1872-6); *The New Mechanical Dictionary* (1876-80).

KNIGHT, RICHARD PAYNE: English numismatist and archæologist: b. Wormsley Grange, near Ludlow, Herefordshire, 1750; d. London, 1824, Apr. 24. Having been bequeathed a fortune, he traveled extensively, wherever he went, and especially in Italy, where he went in 1767, 1777, and 1785, making a specialty of collecting ancient coins, bronzes, gems, drawings, and other antiques. From 1780 to 1806 he was a member of parliament, and for 10 years, 1814-24, served as one of the trustees of the British Museum, to which, upon his death, he left his magnificent archæological collection. His works, which were numerous, included: *An Account of the Remains of the Worship of Priapus lately existing at Isernia in the*

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Kingdom of Naples (1786); *Analytical Essay on the Greek Alphabet* (1791); *An Inquiry into the Symbolic Language of Ancient Art and Mythology*; *Principles of Taste* (1805); etc. He also published several volumes of poems and an edition of Homer (1816).

KNIGHT, SARAH KEMBLE: American author: b. Boston, 1666, Apr. 19; d. near Norwalk, Conn., 1727, Dec. 25. In 1706-13, she conducted at Boston a school in which Samuel Mather and Benjamin Franklin were at one time pupils. By New England custom she was styled 'Madam' Knight as a token of respect. Her *Journal, Kept on a Journey from Boston to New York in the Year 1704* (1825) is a diary record evidently compiled from daily notes made on the way. It is valuable for its account of customs and manners and its descriptions of the settlements, being at the same time interesting for its original orthography and interspersed rhymes.

KNIGHT, THOMAS ANDREW: English horticulturist: b. Wormsley Grange, near London, Herefordshire, 1758, Oct. 10; d. London, 1838, May 11. After graduating from Baliol College, Oxford, he took up the study of horticulture. He first brought himself before the public in 1795 by the publication of the results of his researches into the propagation of fruit-trees and the diseases prevalent among them. Beside the papers, 46 in number, which he contributed to the *Transactions* of the Royal Society, he wrote: *A Treatise on the Culture of the Apple and the Pear* (1797); *Pomona Herefordiensis, or Natural History of the Old Cider and Perry Fruits of the County of Hereford* (1809). His *Physiological and Horticultural Papers* were published in 1841, together with a biographical sketch of his life.

KNIGHT, WILLIAM ANGUS, LL.D.: Scottish philosopher and author: b. Mordington, Scotland, 1836, Feb. 22. He was educated at the University of Edinburgh and from 1876-1902 was professor of moral philosophy at the University of St. Andrews. He is widely known as a student of Wordsworth, whose works he has edited in 12 volumes (1896-7). Among his own writings may be cited *Studies in Philosophy and Literature* (1879); *Essays in Philosophy, Old and New* (1890); *The English Lake District as Interpreted in the Poems of Wordsworth* (1878-91); *Through the Wordsworth Country* (1892); *Varia* (1901); *Some 19th Century Scotsmen* (1902); etc. He has also edited the works and letters of Wordsworth and selections from that author, Scott, Davidson, Coleridge, and others.

KNIGHTHOOD: the order of knights. Originally knights, men-at-arms bound to the performance of certain duties, among others to attend their sovereign or feudal superior on horseback in time of war. The institution of knighthood, as conferred by investiture, and with certain oaths and ceremonies, arose gradually

KNIGHTS OF COLUMBUS.

later heraldry have appropriated to knights, entitling them to place it over their arms, is full-faced, of steel, decorated with bars, and with the visor a little open. See HELMET.

KNIGHTS OF COLUMBUS: a fraternal and beneficial order exclusively for Catholics, instituted in New Haven, Conn., 1882, Feb. 2, and incorporated under the laws of the state of Connecticut 1882, Mar. 29. While the primary object of the founders was to provide insurance for its members at nominal rates, the scope of the order expanded with its growth, and the social strength of the order is now as pronounced as was its object of insurance during the first 10 years of its existence.

From Connecticut the order spread into Rhode Island, Massachusetts, New York, and New Hampshire. After its introduction into Massachusetts its growth became phenomenal, and each succeeding year since 1892 has witnessed marked accretions to its membership and to its financial strength. The Knights of Columbus issue insurance policies for \$1,000, \$2,000, and \$3,000 to desirable risks between the ages of 18 and 60. The rate of each member increases once in five years, until the age of 60 is reached, when the member pays a level rate for the rest of his life, this level premium being based upon his age at initiation. The Knights of Columbus operate in every state and territory of the United States, and also in the provinces of Quebec, Ontario, Prince Edward Island, and New Brunswick. On Jan. 9, 1904, a charter was granted for an associate council in Manila, P. I. The total membership is 166,494. There are 33 state councils and 1,118 subordinate councils.

The order aims to develop a practical Catholicity among its members, and its four degrees serve to impress upon candidates the nature and sacredness of their obligations to church and state. In 1904, the Knights of Columbus presented \$50,000 to the Catholic University in Washington for a chair of American history.

KNIGHTS AND LADIES OF HONOR: a fraternal beneficiary society founded in the United States in 1877. In 1907, it reported a membership of 92,000; benefits disbursed since organization, \$24,000,000. The benefits disbursed in 1906 amounted to \$1,365,224. The society has a supreme protector, 15 grand lodges, and 1,400 sub-lodges.

KNIGHTS OF THE GOLDEN CIRCLE: a secret organization in the United States, established a few years before the civil war, and formed with the object of destroying the republic and setting up a great southern empire with negro slavery as its cornerstone, and also with the purpose of controlling the great commercial interests of cotton, sugar, and tobacco. With its centre at Havana, Cuba, the 'Golden Circle' intended to embrace in the territory of the new government a radius of 1,200

KNIGHTS OF THE MACCABEES.

miles, and to include parts of Central America. The organization was never fully consummated, although thousands of persons joined in the movement and many lodges or councils were instituted.

KNIGHTS OF THE GOLDEN EAGLE: a secret society founded in the United States in 1873. It had in 1906, 15 grand castles, 819 sub-castles, and 70,431 members. The benefits disbursed during 1906 amounted to \$247,041.

KNIGHTS OF HONOR: a fraternal benevolent society founded in the United States in 1873. Its membership in 1906 was reported at 40,126; benefits disbursed since organization, \$86,692,268, and during 1905 the amount was \$2,741,885. It has a supreme dictator, 36 grand lodges, and 1,672 subordinate lodges.

KNIGHTS HOSPITALLERS. See HOSPITALLERS.

KNIGHTS OF LABOR. See LABOR, KNIGHTS OF.

KNIGHTS OF THE MACCABEES OF THE WORLD: a fraternal beneficiary association having its general offices at Port Huron, Mich. An association bearing this name was first organized in the city of London, Canada, in the year 1878, by W. D. McLaughlan and several other gentlemen of that city. The association grew rapidly, and its tents, as its local lodges were called, sprung up all over the Canadian provinces and in many of the states of the American Union. The association takes its name from the Maccabees (q.v.). The main purpose of this association is to provide social and fraternal intercourse for its members, and benefits in the way of insurance to the families of deceased members. It does not now provide for the payment of other than temporary disability benefits in case of sickness or accident and death benefits. It has distributed about twenty-three millions of dollars among its disabled members and the beneficiaries of its deceased members. Its rates of contribution are based upon the Fraternal Congress Mortality Table and 4 per cent. Its death benefits are provided under two plans, one, the 'whole life' plan, in which its rates of contribution are uniform throughout the continuance of membership; the other, the 'term' plan, under which the rate of contribution continues until the member reaches the age of 65, when it changes and becomes uniform for the balance of life at \$3 per month per \$1,000. Careful medical examination is required of all benefit members. Its accumulated funds amount to about \$4,250,000. Its work is conducted on the lodge system under ritualistic ceremony. Its form of government is thoroughly representative, every member having a voice in the conduct of its affairs, making of its laws, the election of its officers, and the fixing of their compensation.

In 1904, the name of the Association was changed to 'The Knights of the Maccabees of the World.' The gen-

KNIGHTS OF THE MODERN MACCABEES.

eral meeting of the law-making body (the Supreme Tent) is held once in three years, at which the members are represented through delegates chosen from subordinate tents, conventions, and great camps. In the interim between the meetings of its governing body its affairs are administered by a board of seven trustees, consisting of the supreme commander and six others elected by the Supreme Tent. The board of trustees has the general custody and management of the funds of the Association; under its direction all investments are made, the laws of the Association requiring that all investments shall be made in government, state and municipal bonds.

KNIGHTS OF THE MODERN MACCABEES: a fraternal beneficiary society. The order derives its name from the ancient Maccabees. The conception of the 'Modern Maccabees' as outlined in the objects of the order is: 'To unite fraternally all white male persons of sound bodily health and good moral character, who are socially acceptable, between the ages of 18 and 70 years of age; and to provide for life and disability benefits to those between the ages of 18 and 51 years.' The name 'Maccabees' was first applied in modern times to a society organized in London, Ontario, in 1878, which in 1881 became defunct. The plans of the organization proved to be crude and unbusinesslike, as the rate of assessments was fixed at 10 cents for all ages, and no medical examination was required. As the deaths came in at a rapid rate, those members who had been trained along careful business lines soon realized that the order could not long exist with such loose methods, and hence an effort was made to change the laws and plans of the society. It was reorganized and incorporated under a special act of the Michigan legislature on June 11, 1881, which date has always been observed as the anniversary of the birth of the organization. This order, up to the year 1902, confined its membership to the state of Michigan, when the Great Camp, the governing body, voted to extend its jurisdiction, and it is now operating successfully in 28 states and territories. Its present membership is approximately 130,000, 115,000 of whom reside in Michigan, while its ladies' auxiliary body, known as the Ladies of the Modern Maccabees, has about 90,000 members. The Great Camp meets biennially at such place as it may have determined at the previous session. No one but a regularly elected delegate is allowed to vote, no officer of the association being accorded this privilege. Delegates are chosen by county conventions of tents or local bodies, on the basis of 1 for each 300 members. In case the governing body should pass any law that would appear to be objectionable to the members, upon a petition of 5 per cent of the tents the matter must be submitted to a vote of the members in the local organizations, and if it fails of approval there it becomes inoperative. It is claimed

KNIGHTS OF MALTA—KNOB.

that this is the only organization of this character that has its provision in its laws. There is no profit accruing to any one connected with the order, outside of the salaries which the members vote to pay the officers. The plan of collecting assessments is upon the current cost basis, no reserve fund being deemed necessary.

KNIGHTS OF MALTA. See MALTA, KNIGHTS OF.

KNIGHTS OF PYTHIAS. See PYTHIAS, KNIGHTS OF.

KNIGHTS OF THE ROUND TABLE. See ARTHUR.

KNIGHT TEMPLARS. See MASONS.

KNIT, v. *nīt* [from Eng. *knot*; Icel. *knyta*, to knit—from *knutr*, a knot; Low Ger. *knutte*, a knot; *knutten*, to make into a knot]: to weave by the hand; to unite closely; to tie or fasten; to connect into a kind of network; to draw together as the brows. KNIT'TING, imp. N. the forming of network; junction or union. KNIT'TED, pp. KNIT'TER, n. *-ēr*, one who knits. KNITS, n. plu. *nīts*, in *Derbyshire*, a mining term for small particles of lead ore. KNITTING-NEEDLE, a long needle used in knitting.—SYN. of 'knit': to unite; tie; weave; join; contract; close; fasten; connect.

KNITTING: art allied to weaving, but of comparatively modern date. The time and place of its invention are disputed. Some historians assign the invention to Scotland, at a date somewhat before 1500; others assert that it came from Spain, in the time of Henry VIII.; but there is no proof that the silk stockings worn by that monarch were knitted, and in the absence of such proof, the evidence favors Scotland. Knitting consists in using a single thread, and with it forming a continual series of loops across the whole fabric; the next row passes through these, and they in their turn receive another set, until the whole is completed. Crochet is analogous but differs in the fact that each separate loop is thrown off and finished successively. Till recently knitting was employed to make only small articles, such as stockings, gloves, etc.; furnishing an easy and amusing employment for the hands, without engaging the attention much. But the knitting-machines have now rendered it impossible for hand-work to compete with them in point of economy or beauty of workmanship; and their ingenious and complicated mechanism is now applied to the production on a vast scale of knitted fabrics of large size. See HOSIERY.

KNOB, n. *nōb* [Dut. *knoppe*, a knot, a bud: Ger. *knopf*, a knob, a button: comp. Gael. *cnap*, a lump, a boss—connected with KNOCK, which see]: a ball or lump at the end of anything; a hard protuberance. KNOBBED, a. *nōbd* and *nōb'bēd*, full of knobs. KNOBBY, a. *nōb'bī*, full of knobs or hard protuberances. KNOB'BILY, ad. *-lī*. KNOB'BINESS, n. *-nēs*, the quality of being full of knobs.

KNOCK—KNOLL.

KNOB'STICK, n. *-stīk*, applied to one who refuses to join a trades-union, or who retires from one.

KNOCK, n. *nōk* [AS. *cnucian*, to knock—from Gael. *cnac*, to crack, to crash: Ir. *cnag*, a crack, a noise: W. *cnwc*; Gael. *cnag*, a knob, a lump: Low Ger. *knobbe*, a knotty stick]: a blow or stroke with something hard or heavy; a stroke on a door; a rap: V. to strike with a noise and with heaviness; to rap; to drive against. **KNOCK'ING**, imp.: N. act of one who beats with a hard substance, as on a door; also the noise caused in a pump when the motion for suction and delivery are reversed, and is due to the absence of an air vessel, or one of sufficient area. **KNOCKED**, pp. *nōkt*. **KNOCK'ER**, n. a small hammer fastened on a door, used in seeking admittance by rapping. To **KNOCK DOWN**, to strike down; to prostrate by blows; to assign to the highest bidder, as at an auction. To **KNOCK OFF**, to force off by beating; to cease, as from work. To **KNOCK ON THE HEAD**, to stun or kill by a blow on the head; to put on end to; to frustrate. To **KNOCK OUT**, to force out by blows. To **KNOCK OVER**, to upset; to overturn. To **KNOCK UNDER**, to yield; to acknowledge to be conquered; humbly to submit. To **KNOCK UP**, to arouse by knocking; to weary much; to become fatigued.

KNOCK-KNEE: a deformity marked by a lateral angle at the knee joint so that the knees touch while the feet are separated to a greater or lesser extent as the person stands. The affection usually involves both sides, but occasionally only one knee is bent laterally, the other being straight or curving out in the opposite direction. The deformity almost always begins in early childhood, but it may remain of slight extent until adolescence, when, in consequence of general relaxation of the joints induced by rapid growth, it becomes rapidly worse. Rickets is a common cause of the deformity or it may come on in children with poorly knit joints and lax ligaments, from simple giving way under the weight of the body. The treatment in the less marked cases in young children consists in forcible straightening of the legs by the hand, massage, and support of the body by steel braces attached to the shoes and having a broad pad to make constant pressure on the inner side of the knee. In very severe cases occurring in adolescents or adults, it is sometimes necessary to cut through the femur at its lower end and then put it in a plaster splint in a straight position, treating it in the same way as a fracture of the bone.

KNOLL, n. *nōl* [AS. *cnol*, the top, as of a hill: Dut. *knol*, a turnip from its roundness: Sw. *knöl*, a bump, a knob: Ger. *knollen*, a knob, a bunch (see **KNOB** and **KNOCK**)]: a little round hill; a small elevation.

KNOLL, v. *nōl* [another spelling of **KNELL**, which

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see]: to toll or ring a bell, as for a funeral. **KNOLL'ING**, imp. **KNOLLED**, pp. *nöld*.

KNOP, n. *nöp* [Dut. *knop*; Sw. *knopp*, a bud; Icel. *knapper*, a knot: another spelling of **NOB**, which see]: a knob; a protuberance; a button; in *arch.*, an ornament of a bunch of flowers or leaves; foliage on the capitals of pillars. **KNOPPED**, a. *nöpt*, having knops.

KNORRIA, n. *nör'ri-ä* [after *Knorr*]: in *geol.*, a genus of coal-measure plants, being a decorticated condition of some *Lepidodendra*.

KNORTZ, *nörtz*, **KARL**: American miscellaneous writer; b. Garbenheim, near Wetzlar, 1841, Aug. 28. He was educated at Heidelberg University and came to the United States in 1863. He taught in Detroit, Oshkosh, and Cincinnati, 1864-74, edited a German daily in Indianapolis for some years, and since 1892 has been superintendent of German schools in Evansville, Ind. Among his numerous works are: *Tales and Legends of the North-American Indians* (1871); *American Sketches* (1876); *Longfellow* (1879); *From the Wigwam* (1880); *Indian Legends; Pictures of American Life* (1884); *History of American Literature*, in German (1891); *Individuality* (1897); *Child Study* (1899); *The Public School of the United States* (1904); etc. He has very materially assisted in making American authors known in Germany.

KNOSP, n. *nösp* [etym. doubtful]: in *arch.*, a bud or unopened leaf or flower, used as an architectural ornament.

KNOT, n. *nöt* [Dut. *knodse*, a club; *knodde*, a knot; Ger. *knotc*; Icel. *knútr*; L. *nodus*, a knot (see **NOB** and **KNOCK**)]: a tie (see **KNOT**); loop; an interweaving or uniting of thread, cord, or rope at one point; any bond of union; a dark hard part in wood; a collection; a group; a cluster; a small band; a difficulty; something so intricate as not easily to be solved; among *seamen*, a division of the logline; also the rate at which a ship sails at sea; a nautical mile (see **KNOT**, in Navigation): in *bot.*, a swelling in some stems where the attachment of the leaves takes place; a bird, a species of sandpiper: V. to tie; to unite; to form knots or joints. **KNOT'TING**, imp. **KNOT'TED**, pp.: **ADJ.** full of knots; in *bot.*, swollen at intervals into knobs, as a stem. **KNOT'LESS**, a. *-lēs*, free from knots. **KNOT'TY**, a. *-tī*, containing knots; difficult. **KNOT'TINESS**, n. *-nēs*, state of being full of knots; difficulty of solution. **KNOTTING**, a compound, either of shellac and methylated spirit, or of red lead and glue, used for filling-in or covering knots to prevent the absorption of oil paint. **KNOT-GRASS**, a plant having numerous knots in the roots or underground stems; the *Polyg'ōnūm avicūlārē*, or knot-wort, ord. *Pāronychiācēα* (see **POLYGONUM**).—**SYN.** of 'knot, n.': complication;

KNOT.

bond; protuberance; joint; intricacy; intrigue; perplexity; confederacy; association; band; clique; epaulet; entanglement;—of 'knotty': hard; rugged; intricate.

KNOT, *nōt* (*Tringa canutus*): bird of the family *Scolopacidae*, and of same genus with the dunlin, stints, etc.; called sometimes the RED SANDPIPER: see SANDPIPER. Its whole length is about ten inches. The general color, in summer, is reddish brown, finely mingled with black, gray, and white; in winter, the plumage becomes mostly ash-gray, and on the under parts white. The knot frequents high n. latitudes in summer, and breeds there; but migrates southward in winter, and is then found, sometimes in large flocks, in Europe, Asia, and America, as far s. as the W. Indies, chiefly on flat sandy shores. It runs about with great activity as the wave retires, seeking its food on the sands. Its food consists in great part of small bivalve mollusks, which it swallows shell and all. It is in high esteem for the table.

KNOT: loop or twist in a rope or cord so made that the motion of one piece of the line over the other shall be stopped. The knot owes its power of passive resistance to the friction of the rope. The uses of knots are numberless. On shipboard, knots are of various sorts, each appropriated to a specific duty. In these diagrams the position of the rope or cord is shown before tightening, so that the mode of formation may be more readily understood.

The simplest knot is the 'overhand' (fig. 1). Its use is



Fig. 1.

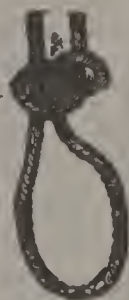


Fig. 2.

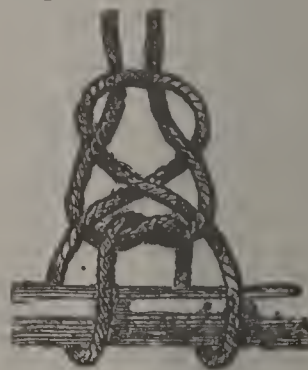


Fig. 3.

to form a knob in a rope to stay it from slipping. By a slight alteration, the 'single sling,' or slip knot (fig. 2), is obtained, always in the middle of the rope. More complicated, but still more useful, is the 'double sling' (fig. 3), for suspending a beam or bar horizontally. The bow-line knot (fig. 4) serves to give a tight grasp round a pole or beam, which would occupy the loop *a*, or, drawn close on the rope, it forms a large knob, to prevent the rope passing a hole. The sheep-shank (fig. 5) affords a means of shortening a rope temporarily, without diminishing its power of rectilinear tension. All the foregoing have been at the double or middle parts of the rope: for the end of the cordage

KNOT.

(fig. 6) shows an admirable slip-knot, which maintains its gripe until loosened by hand; *a* is a common over-hand knot at the end of the string, to prevent it slipping through the loop *b*, when tightened.

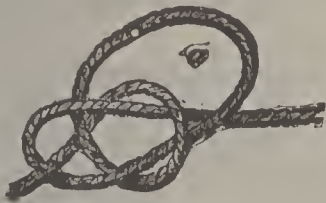


Fig. 4.

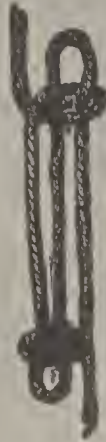


Fig. 5.

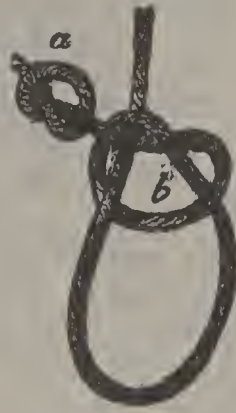


Fig. 6.

For modes of joining two ropes, the weaver's or fisherman's knot (fig. 7) may be adduced as strong and neat. The sailor's knot (fig. 8) has the advantage, when prop-

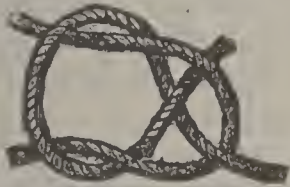


Fig. 7.

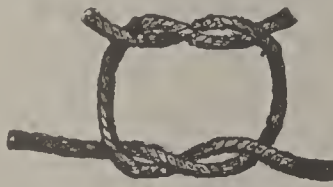


Fig. 8.

erly made, of resisting all separating strain on the two ropes, and at the same time of being loosened immediately by a pull at one of the short ends. For an interlacing of two doubled ropes, the 'Carrick bend' (fig. 9) has no superior; the point of junction cannot slip, and the moment the tension ceases, the two ropes are again free from each other. Knots have many technical names, such as bight, hitch, etc.

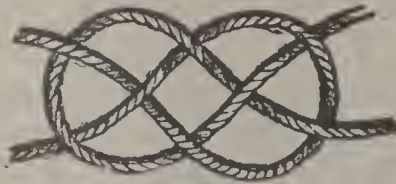


Fig. 9.

KNOT, in Heraldry: heraldic badge. Knots of differ-



Knots :

1, Wake and Ormonde knot; 2, Lacy knot; 3, Bowen knot;
4, Heneage's knot; 5, Dacre's badge.

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ent kinds are borne by different families as heraldic badges, and are occasionally introduced as charges in shields. The forms of some of them appear to be suggested by the initial letter of the name or title of the bearer. In the Wake or Ormonde knot, it is not difficult to trace a *W* and two *O*s. The Bouchier knot, as seen on the tomb of Abp. Bouchier, at Canterbury, has a resemblance to two *B*s, and the Stafford knot to two *S*s. The Lacy knot contains a rebus on the four letters of the name.

KNOT, in Navigation: appliance for measurement of the rate at which a vessel is moving. Thus used, a knot represents a mile. The log-line is divided into equal parts of 50 ft. length (practically only 47.42 ft.), by knots, i.e. pieces of string rove through the strands, each of which parts is to a geographical mile as half a minute is to an hour—i.e., as 1 to 120. The log being cast overboard, note is carefully taken of how many of these knots run out in a half minute, and it follows that the vessel is passing through the water at the same number of geographical miles per hour. The proportion of a geographical to a statute m. being nearly that of 7 to 6 (see MILE), a vessel making 12 knots an hour is traveling at the rate of 14 statute miles.

KNOTT, *nōt*, JAMES PROCTOR, LL.D.: lawyer; b. near Lebanon, Ky., 1830, Aug. 29. He was licensed to practice law 1851; elected member of the Missouri legislature and appointed chairman of the judiciary committee 1858; elected attorney-general 1860; returned to Kentucky 1862; elected member of congress as a democrat 1866, re-elected 1868, 74, 76, and 80; and was governor of Kentucky 1883-7. He was chairman of the house judiciary committee several terms, and with his 'Duluth' and other speeches won reputation as a humorist. He was professor of civics and economics in Centre College (Danville, Ky.) in 1892-4, and from 1894-1901 professor of law and dean of the law faculty of Central University.

KNOUT, n. *nowt* [Rus. *knut*]: heavy whip, an instrument of punishment or torture used in Russia: V. to punish with the knout. KNOUT'ING, imp. KNOUT'ED, pp. The *knout* was the usual instrument of punishment in Russia after the Tartar period, and still, or within a few years, in use at two penal settlements. It was a whip with a handle 9 inches long and one complex lash, comprising a lash 16 inches long, with a metal ring; a continuation with another ring; and finally, a flat lash of hard leather, 21 inches long, and ending in a beak-like hook. The offender was tied to two stakes, stripped, and received on the back the specified number of lashes; 100 or 120 were equivalent to sentence of death, but in many instances the victim died under the operation long before this number was completed. The whipping was

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inflicted by a criminal. In earlier times the nose was slit before the whipping, the ears were cut off, and the letter V for *vor* (rogue) was branded on the forehead. For the knout Nicholas substituted the *pleti*, a three-thonged lash, and this was disused by Alexander II. [Knout is by Russians, Germans, and French pronounced *kĕnoot*; in English, usually but absurdly *nowt*.]

KNOW, v. *nō* [AS. *cnawan*, to know: Icel. *kná*, to know how to do, to be able: Skr. *jna*; Pol. *znac*, to know: Gr. *gnōō*; L. *gnosco*, I know]: to understand clearly; to be informed of; to be familiar with; not to be doubtful; to recognize; to distinguish. KNOW'ING, imp.: ADJ. cunning; skilful; well informed: N. in *OE.*, learning; education. KNEW, pt. *nū*, did know. KNOWN, pp. *nōn*, understood clearly. KNOW'ABLE, a. *nō'ā-bl*, capable of being known. KNOW'INGLY, ad. *-lĭ*, with full understanding; as one having knowledge. KNOWLEDGE, n. *nōl'ĕj* [Eng. *know*, and Icel. *leik*; Norw. *leikje*, usually employed in the composition of abstract nouns, much as *ness* is used in English]: certain perception; learning; that which is known; information; skill in anything. KNOW NOT WHAT, some trifle or thing difficult to name or describe, or of no definite name. *Note.*—The *lock* in 'wedlock' and the *ledge* in 'knowledge' are the same postfix, the latter Scandinavian, the former AS.: *ac-knowledge* is a misspelling for *a-knowlege*, the AS. *a* being changed into the L. *ac* for *ad.*—SYN. of 'knowledge': literature; erudition; science; letters; art; cognition; instruction; acquaintance, scholarship, enlightenment; skill; cognizance; notice.

KNOW, or KNOWE, n. *now* [see KNOLL 1, and KNOB and KNOT]: in *Scot.*, a little hill; a knoll.

KNOWLEDGE: in Psychology, the process or state of knowing, or cognition. One of the three aspects of the mind, knowing, feeling, and willing. Two kinds of knowledge are often spoken of by psychologists: 'knowledge of acquaintance,' and 'knowledge about.' The first is illustrated by sensations, which are merely presented or apprehended; while the second is illustrated by ideas, which are comprehended. 'Knowledge about' results only from comparison and is, therefore, less immediate. Genetically it represents a later development. (For the psychological classification of the cognitive processes, see INTELLECT.) In philosophy, knowledge is a fact or truth, or whole system of truths. It is distinguished from belief in that its conclusions rest upon objective grounds, while beliefs rest more upon feeling. Knowledge has reference to things outside of the individual consciousness, as distinguished from feelings which are subjective. The problem is raised whether we can know the ultimate truth. This is discussed in epistemology, or the theory of knowledge which treats of the origin, nature and extent of knowledge. In logic, perfect knowl-

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edge is defined by setting forth conditions it must satisfy. Knowledge is classified into the various departments of science: physics, chemistry, biology, etc. It has also been classified as immediate and mediate, the latter being attained through some process of reasoning, and the former by direct observation or intuition. See EPISTEMOLOGY.

KNOWLES, *nōlz*, FREDERIC LAWRENCE: American writer: b. Lawrence, Mass., 1869, Sep. 8; d. Roxbury, Mass., 1905, Sep. 20. He was graduated from Wesleyan University in 1894 and was literary adviser of the Boston publishing firm of Dana, Estes & Co. Beside editing *Cap and Gown* (1897); *Golden Treasury of American Lyrics* (1897); *A Year Book of Famous Lyrics* (1901); he was the author of *Practical Hints for Young Writers, Readers, and Book Buyers* (1897); *A Kipling Primer* (1900). *On Life's Stairway*, verse (1900).

KNOWLES, G. SHERIDAN: English painter: b. Manchester, 1863, Nov. 25. He was educated at private schools and studied art at Manchester and London, working at the Royal Academy Schools from 1884 to 1888. From that date he has actively pursued painting as a profession and has exhibited in the Royal Academy every year. His pictures are popular and romantic genre, and many of them have been engraved. His principal works are: *The Last Minstrel* (1889); *The Return from the War* (1892); *The Wounded Knight* (1895); *Glasgerion* (1897); *The Flight of Huguenots from France* (1900); etc.

KNOWLES, SIR JAMES: English architect and editor: b. 1831, Oct. 13; d. London, 1908, Feb. 13. He was educated as an architect and among professional works of his are Tennyson's Surrey home, Aldworth; several churches in Clapham, and the fountain in Leicester Square, London. He originated the Metaphysical Society in 1869, edited the *Contemporary Review* 1870-7, and founded the *Nineteenth Century*, of which he was the editor and proprietor till his death.

KNOWLES, *nōlz*, JAMES SHERIDAN: English dramatist: 1784, May 21—1862, Nov. 30; b. Cork, Ireland; son of James Knowles, the lexicographer, who was cousin-german to Richard Brinsley Sheridan. The family removed to London 1792, and here young Knowles received his education. After holding a commission in the army, he became an actor, and made his first appearance at the Crow Street Theatre, Dublin; but he attained no eminence in this profession. Subsequently, during several years in Belfast and Glasgow, as a teacher of elocution, he laid the foundation of his fame as a dramatist. His *Caius Gracchus* was first performed at Belfast 1815. It was followed by *Virginus*, his most effective piece, afterward recast for the London stage, where Macready took the principal part. He wrote 13 other plays. None

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of his productions show great genius; they are, however, the best 'acting plays' produced by an Englishman in modern times. About 1845, he relinquished the stage from religious scruples, and 1852 joined the Baptist Church, became a preacher, and was distinguished for religious zeal. In 1851, he published a little controversial work, displaying considerable acuteness, *The Idol Demolished by its own Priest*, in answer to Cardinal Wiseman's Lectures on Transubstantiation. Knowles died at Torquay. A publication of his *Lectures on Dramatic Literature* began 1876.

KNOWLES, LUCIUS JAMES: American inventor: b. Hardwick, Mass., 1819, July 2; d. Washington, D. C., 1884, Feb. 25. He became a clerk in a shop at Shrewsbury, Mass., turned his attention to inventing, devised the Knowles safety steam-boiler feed-regulator, and constructed and operated several models of steam-engines. In 1843, he invented a machine for the spooling of thread, and this machine he manufactured at New Worcester in 1843-5. He then built spinning-machines for the manufacture of four- and six-cord thread, and manufactured cotton thread and warps at Spencer and Warren, Mass. (1847-53), and woolen goods at Warren (1853-9). Subsequently he manufactured a safety boiler-feeder, a steam pump, and a tape loom, under his own patents. He was elected to the lower house of the Massachusetts legislature in 1862 and 1865, and in 1869 became state senator.

KNOWLTON, *nōl'ton*, FRANK HALL, B.S., PH.D.: American botanist: b. Brandon, Vt., 1860, Sep. 2. He was graduated from Middlebury College, Vt., in 1884, was assistant palæontologist on the United States Geological Survey 1889-1900, and palæontologist from the last named date. Among his scientific monographs are: *Fossil Wood and Lignite of the Potomac Formation* (1889); *Fossil Flora of Alaska* (1894); *Catalogue of the Cretaceous and Tertiary Plants of North America* (1896); *Flora of the Montana Formation* (1900); *Fossil Flora of the John Day Basin* (1902); etc.

KNOWLTON, HELEN MARY: American artist and author: b. Littleton, Mass., 1832, Aug. 16. She studied art under William M. Hunt (q.v.) and Duverneck and has for 30 years taught art in Boston. Besides compiling Hunt's *Talks on Art*, she has written *Hints to Pupils in Drawing and Painting* (1879); *Life of William Morris Hunt* (1899).

KNOWLTON, THOMAS: American soldier: b. West Boxford, Mass., 1740, Nov. 30; d. battle of Harlem Plains, N. Y., 1776, Sep. 16. A farmer at Ashford, Conn., at the beginning of the Revolution, he was elected captain of a militia company organized after Lexington, and with 200 other Connecticut troops was sent to Charlestown. His detachment, ununiformed farmers with

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shot-guns, fought at Bunker Hill. On Jan. 8, 1776, he made a successful invasion of Charlestown, and subsequently became lieutenant-colonel of a regiment of Connecticut rangers. He was killed while leading his command at the battle of Harlem Heights.

KNOW-NOTHINGS: popular name given to a secret, oath-bound political fraternity in the United States, founded 1852 for the purpose of preventing the election or appointment of any alien to office under federal, state, or municipal govts. Whenever questioned concerning their movements or intentions, the members invariably answered 'I don't know;' hence their popular name. Stimulated by the extension of slavery, the increasing power of the Rom. Cath. Church, and the great influx of immigrants, no less than by the determination of large numbers of naturalized citizens to secure public offices, the members of the Know-Nothings raised the cry, 'Americans must rule America,' and 1854 organized a distinct political party under the name American party. In the elections of that year the new party surprised the old ones and showed unexpected strength by carrying several of the n. states, including New York. In 1855, its influence was seen slightly in the w. and strongly in the s.; and 1856 it nominated Millard Fillmore for president, elected 8 'American' governors in 32 states, and secured a popular vote of 874,534 and an electoral vote of 8 (Md.) for its national candidate. After a second failure to establish itself 1860, the Know-Nothings dropped out of active politics and soon ceased to exist.

KNOX, nōks, ADELINE TRAFTON: American novelist; daughter of Mark Trafton; b. Saccarappa, Me., 1845, Feb. 8. She was married to Samuel Knox, a lawyer of St. Louis, Mo., in 1889. She has written: *Katherine Earle* (1874); *His Inheritance* (1878); *An American Girl Abroad*; *Dorothy's Experience* (1891); etc.

KNOX, GEORGE WILLIAM, D.D., LL.D.: American Presbyterian clergyman: b. Rome, N. Y., 1853, Aug. 11. He was graduated from Hamilton College, Clinton, N. Y., in 1874, and from Auburn Theological Seminary in 1877. He subsequently was employed in missionary labors in Japan and was professor of philosophy and ethics in the Imperial University of Japan in 1880. On returning to the United States he became pastor of a Presbyterian church in Rye, N. Y., and has been professor at Union Theological Seminary, N. Y., since 1897. He has written (in English): *A Japanese Philosopher* (1893); (in Japanese) *A Brief System of Theology*; *Outlines of Homiletics*; *Christ, the Son of God*; *The Basis of Ethics*; *The Mystery of Life*; *The Christian Point of View* (1902); *Japanese Life in Town and Country* (1904); *The Spirit of the Orient* (1906); *The Development of Religion in Japan* (1907); etc.

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KNOX, *nōks*, HENRY: 1750, July 25—1806, Oct. 25; b. Boston: soldier. He received a common-school education, engaged in business as a bookseller, and became active in military matters when 18 years old. Immediately after the battles of Lexington and Concord, he abandoned his business, joined the army, served as a volunteer aide to Gen. Ward in the battle of Bunker Hill, and with Washington's consent collected 55 heavy guns at the forts on the Canadian frontier and transported them on sleds for use in the siege of Boston. For this feat congress appointed him brig. gen. of artillery, and during the siege he was employed as engineer and artillery officer. He was for some time in command of the artillery at New York; rendered conspicuous service in the battles of Trenton, Princeton, Brandywine, Germantown, and Monmouth; was frequently sent to New England to procure money, stores, and recruits; was a member of the court-martial that tried Maj. André (q.v.), directed the artillery in the siege and battle of Yorktown; and after Cornwallis's surrender was appointed by congress maj. gen., one of the commissioners to arrange terms of peace with Great Britain, and commissioner to receive the surrender of New York. Through the war he was Washington's constant companion and personal friend. In 1785 congress appointed him sec. of war, and during a part of his tenure of 11 years he had charge of the navy department also. In 1795 he retired to private life on his wife's estate in Me., though frequently called to service in the legislature and council; and 1798, while for a short time war with France seemed imminent, he was recalled with Washington to service in the army.

KNOX, JOHN: great Scottish reformer: 1505—1572, Nov. 24; b. in a suburb of Haddington called Gifford Gate, where a small field still goes by the name of 'Knox's Croft.' The social position of his parents is not clearly ascertained. His own statement is, that 'his great-grand father, gudesehir, and father served under the Earls of Bothwell.' He is supposed to have come of an old and respectable family, the Knoxes of Ranfurly, Renfrewshire. He received his early education at the grammar-school of Haddington, and 1521 went to the Univ. of Glasgow. He was there a pupil under Major, and soon proved himself an apt and distinguished disputant in the scholastic theology. He was considered as likely to rival his master in the subtleties of the dialectic art. From the same teacher, he no doubt derived his first impulse to that freedom of political opinion and independence of thought that characterized his public life. He is said to have been ordained before 1530, about which time, or shortly afterward, he went to St. Andrews, and began to teach there. There is, however, at this stage of his life a gap of 12 years, or nearly so, which the most careful research has not filled. His attachment to the Roman Church is supposed to have been shaken chiefly by the study of the Fathers, about 1535, but he did not openly profess himself a Protestant till about 1543. He was degraded from his orders, and being even in danger of assassination, took refuge with

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Douglas of Longniddry, and there remained till the end of 1545.

Cardinal Beaton was at this time in the height of his power: after seizing George Wishart at Ormiston, he had him brought to St. Andrews, and burned there, in front of his castle, 1546, March. K. clearly appears upon the scene of the Reformation first as companion of Wishart. While the latter prosecuted his career as a preacher in Lothian, K. waited upon him, bearing before him, he tells us, a 'two-handed sword.' He already coveted the post of danger, and full of enthusiasm, was ready to defend his zealous friend at the peril of his own life. After Wishart's seizure and death, he withdrew for a while again into retirement. He would fain have clung to the martyr, and shared his fate, but the latter would not have it so. 'Nay,' he said; 'return to your bairnes, and God bless you' ane is sufficient for a sacrifice.' Knox's 'bairnes' were his pupils, sons of the Lairds of Longniddry and Ormiston. He continued in charge of them for some years, till the great event which ere long followed the martyrdom of Wishart opened for him a more prominent career. On the morning of May 29, Cardinal Beaton was murdered in his castle, from the windows of which he had beheld the sufferings of the martyr two months before. Taken possession of by the band of nobles and others who had accomplished so audacious a design, the castle at St. Andrews became the temporary stronghold of the Reforming interest. K. took refuge in it with his two pupils. Here his great gifts as a preacher were first discovered; and having found the secret of his influence, the parish church of St. Andrews soon resounded with his indignant voice, denouncing the errors of popery. His career at this time, however, was soon cut short by the surrender of the fortress, and his imprisonment in the French galleys.

For two years he remained a prisoner, and underwent many privations. He was then liberated, and allowed to depart to England, where he resided four years, from 1549 to the beginning of 1554, a time of great and fruitful activity to him. He was appointed one of Edward VI.'s chaplains, and lived on terms of intimate intercourse with Cranmer and others of the English reformers. He is supposed to have had considerable influence on the course of the English Reformation, especially in regard to the liberal changes introduced into the service and Prayer Book of the Church of England, in the close of Edward's reign. He was much engaged in preaching, especially in the north, in Newcastle and Berwick; and at the latter place he fell in love, and married Marjory Bowes.

The accession of Mary drove him and others to the continent. He was reluctant to flee, but partly by advice and partly by tears, he was compelled to consult his safety. He settled temporarily at Dieppe, whence we hear of him writing an *Admonition to the Professors of God's Faith in England*. He then went into Switzerland, and returning, settled at Frankfurt-on-the-Main, where he is notable in connection with what are known as the 'Frank-

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furt Troubles,' certain disputes as to the use of King Edward's Service-Book in the congregation of English Protestants there. Toward the end of 1555, he made a rapid visit to Scotland, where he did much to encourage the cause of the Reformation. Convinced, however, that the 'time of deliverance' was not yet come for his country, he retired once more to Geneva, where he settled as pastor of a congregation for nearly three years, which were among the quietest, and probably the happiest years of his life.

Recalled to Scotland 1559, May, he entered on his triumphal course as a reformer. Political necessities had driven the queen regent to temporize with the 'Lords of the Congregation,' or the reforming nobles. Having somewhat re-established her power, she wished to withdraw her concessions; but the reforming impulse had gathered a strength that could no longer be resisted. The heads of the party assembling at Dundee, under Erskine of Dun, proceeded to Perth. There the pent-up enthusiasm which had been long collecting was roused into furious action by a sermon of K. on the idolatry of the mass and of image-worship. A riot ensued. The 'rascal multitude,' as K. himself called them, broke all bounds, and destroyed the churches and monasteries. Similar disturbances followed at Stirling, Lindores, St. Andrews, and elsewhere. The flame of religious revolution was kindled throughout the country, aggravating the civil war already raging. At length the assistance of Elizabeth and the death of the queen-regent brought matters to a crisis; a truce was proclaimed, and a free parliament summoned to settle differences. The result of the parliament, which met 1560, Aug., was the overthrow of the old religion, and the establishment of the Reformed Kirk in Scotland. In all this, K. was not only an active agent, but *the* agent above all others. The original *Confession of Faith* of the Reformed Kirk and the *First Book of Discipline* bear the impress of his mind. He was far from attaining all his wishes, especially as to the provision for the support of the church and of education throughout the country; he soon found that many of the nobles were far more zealous for destruction than for reformation; still, he accomplished a great and radical work, which was destined to be consolidated only after many years;

The arrival of the youthful Queen Mary, 1561, brought many forebodings to the Reformer; he apprehended great dangers to the Reformed cause from her character and her well-known devotion to the Roman Church. The Reformer's apprehensions scarcely permitted him to be a fair, certainly not a tolerant, judge of Mary's conduct. Misunderstandings very soon sprung up between them, and he relates, with a somewhat harsh bitterness, his several interviews with her. At length he came to an open rupture with the queen's party, including Murray and Maitland, and many of his former friends. He took up an attitude of unyielding opposition to the court, and in his sermons and public prayers, indulged freely in the expression of his feelings. The result was his temporary alienation from the more moderate

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Protestant party, who tried to govern the country in the queen's name. For a while, 1563-65, he retired into comparative privacy.

The rapid series of events which followed Mary's marriage with Darnley—the revolt of the dissatisfied nobles, with Murray at their head, the murder of Rizzio, and then the murder of Darnley (1567), the queen's marriage with Bothwell, her defeat and imprisonment, served once more to bring Knox into the field. He was reconciled with Murray, and strongly abetted him in all his schemes of policy during his regency. Further reforms were effected by the parliament which convened under his sway in the close of 1567. The sovereign was taken bound to be a Protestant, and some provision, though still an imperfect one, was made for the support of the Protestant clergy. K. seemed at length to see his great work accomplished, and is said to have entertained the idea of retiring to Geneva. But the bright prospect on which he gazed for a little was soon overcast—Murray's assassination, and the confusion and discord which sprang out of it, plunged the Reformer into profound grief. He once more became an object of suspicion and hostility to the dominant nobles, and misunderstandings even sprang up between him and some of his brethren in the General Assembly. He retired to St. Andrews for a while, to escape the danger of assassination with which he had been threatened. There, though suffering from extreme debility, he roused himself to preach once more, and in the parish church where he had begun his ministry, made his voice to be heard again with something of its old power. Assisted by his servant, the 'good, godly Richard Ballenden,' into the pulpit, 'he behoved to lean upon it at his first entry; but ere he was done with his sermon, he was so active and vigorous, that *he was lyke to ding the pulpit in blads and flie out of it.*'

In the end of 1572, he returned to Edinburgh to die; his strength was exhausted; he was 'weary of the world,' he said, and quietly fell asleep.

K.'s character is distinguished by firmness and decision, and a plain, somewhat harsh sense of reality. He was a man of strong, and even stern convictions, and he felt no scruples, and recognized no dangers in carrying out his convictions. He was shrewd, penetrating, inevitable in his perceptions and purposes. No outward show, or conventional pretense, deceived him; he went straight to the heart of everything; and consistently with this clear and rough shrewdness of perception, his language is always plain, homely, and many will say harsh. He had learned, he himself says, 'to call wickedness by its own terms—a fig, a fig; a spade, a spade.' Above all, he was fearless; nothing daunted him; his spirit rose high in the midst of danger. The Earl of Morton said of him truly as they laid him in the old churchyard of St. Giles: 'He never feared the face of man.' In Scotland, K., no doubt, accomplished a great work. Whether the work would not have been better if it had been less violently done, if the spirit of love and moderation, as well as the spirit of power, had presided over it,

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is a question regarding which there may be and has been some division.

KNOX, JOHN JAY: financier: b. Knoxboro, N. Y., 1828, Mar. 19; d. New York, 1892, Feb. 9. He graduated at Hamilton College 1849; was trained to the banking business in Vernon, N. Y.; conducted a private bank in St. Paul, Minn., 1857-62; advocated a national banking system with circulation guaranteed by the govt. 1862; received a treasury appointment the same year; was placed in charge of the mint and coinage correspondence of the treasury department 1866; appointed deputy comptroller of the currency 1867; promoted comptroller 1872; and resigned to become president of the Nat. Bank of the Republic in New York 1884.

KNOX, PHILANDER CHASE, LL.D.: American lawyer and politician: b. Brownsville, Pa., 1853, May 4. He was graduated from Mount Union College, Ohio, in 1872; studied law and was admitted to the bar in 1875. He was assistant United States district attorney for the western district of Pennsylvania in 1876-7; resigning this position he took up the practice of law in Pittsburg in partnership with J. H. Reed. The firm's practice grew rapidly, and Knox became known as one of the most successful corporation lawyers in the United States; in 1892 he was counsel for Carnegie during the Homestead strike. He was attorney-general of the United States 1901, Apr. 9—1904, June 30, in the latter year becoming U. S. senator from Pennsylvania. In this office he was necessarily involved in the 'anti-trust' agitation; he dealt with the question from a purely lawyer's standpoint, and in 1902 brought suit against the Northern Securities Company and the so-called 'Beef Trust' on the ground that they were violating federal statutes, seeking in this way to test and enforce the laws for controlling large combinations of capital.

KNOX, THOMAS WALLACE: American journalist and traveler: b. Pembroke, N. H., 1835, June 26; d. New York, 1896, Jan. 6. He went to Colorado in 1860 and there engaged in journalism, and during the civil war served as volunteer aide. He made a journey around the world as a newspaper correspondent in 1866 and again in 1877, and wrote many popular books for young people. Among his very numerous published works are: *Underground Life* (1873); *How to Travel* (1880); *Boy Travelers Series* (15 vols. 1880-94); *Lives of Blaine and Logan* (1884); *Decisive Battles since Waterloo* (1887); *The Lost Army* (1894); *Hunters Three* (1895); *In Wild Africa* (1895); etc.

KNOX COLLEGE: a coeducational institution, founded in 1837 at Galesburg, Ill., as Knox Manual Labor College. The school was opened in 1841, and in 1857 the name was changed to Knox College. The original plan for founding and maintaining the school was to secure subscriptions to the amount of \$40,000 and to purchase

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lands in the Mississippi valley, at government price, the lands to be resold at a profit. Every subscriber who purchased 80 acres of land was given free tuition for one student for 25 years. In 1906, the productive fund amounted to about \$272,212. There are in the library about 10,000 volumes. In 1906, there were connected with the school 32 instructors and professors, and 560 students. A music department was established in 1883. The famous Lincoln-Douglas debate, in 1858, was held on the grounds of this college.

KNOXVILLE, *nōks'vīl*: city, cap. of Knox co., Tenn.; on the Tennessee river at the head of navigation, and on the K. & Augusta, the K., C. G. & L., the Southern, and the Atlanta, K. & N. railroads; 112 m. n.e. of Chattanooga, 165 m. e. of Nashville. It occupies a picturesquely broken site in the centre of the great valley of e. Tenn., one of the most fertile regions in the United States, and beside its public institutions is noted for its commercial and industrial interests. More than 28 per cent. of the entire population of the city is engaged in manufacturing. The chief manufactures are woolen and cotton goods, furniture and cabinet mantels, marble sawed and polished, bar iron, boilers, stoves, castings, coffins and caskets, iron fencing, ready-made clothing, beer, desks, and flour. The woolen and cotton factories, the marble works and the flour mills are large establishments. The growth of small manufactories in the past ten years is a feature that is attracting attention. The marble which is found in quarries at the very gates of the city is used for ornamental purposes in almost every large public or private building being erected in any part of the United States, and the hardwood cabinet mantels being manufactured here are sold in almost every state in the Union. The great abundance and close proximity of raw material—timber, a large number of varieties: coal, iron ore, marble, and zinc—make the place desirable as a manufacturing site. There are eleven banks in the city, five of them national banks. Their combined capital is \$1,050,000, with \$472,000 surplus and undivided profits. The transactions of the clearing-house have trebled in the past ten years, and during 1906 amounted to \$71,429,924.

There are 42 churches in the city for the white population and 17 for the colored. All but one of these are Protestant. The leading denominations, reckoning on the basis of the number of communicants, are the Methodists, Baptists and Presbyterians, in the order mentioned. There are two Protestant Episcopal, three Christian, and two Lutheran churches. It is the seat of the University of Tennessee, the East Tennessee Female Institute, the Tennessee Normal College, the University (preparatory) School, and Saint Mary's Academy. The Knoxville College, for colored students, founded and maintained by the United Presbyterian Church, is lo-

KNUCKLE—KOALA.

cated here. The public schools have ten buildings for the white children, and four for the colored. About 100 teachers are employed. The school session is nine months in the year at an average annual cost of about \$55,000. The State School for Deaf Mutes is located in Knoxville, also the Lyons View branch of the State Hospital for the Insane.

Among benevolent institutions are the Industrial School for Juveniles, sustained at the expense of Knox county, capable of housing and giving instruction to 200 girls and boys; the Home for Aged Women and an orphanage. The Knoxville General Hospital was erected at a cost of more than \$50,000, and is one of the leading institutions of its kind in the South. The city is governed by a mayor and board of aldermen elected by the people for the term of two years, and a board of public works elected in the same manner. The assessed value of property for taxation is \$14,000,000, which is not exceeding 75 per cent. of its actual value. The bonded debt of the city is \$1,200,000, most of which was created for paving streets, constructing sewers, building bridges, and other public improvements. The city has electric street railroads, improved water-works, gas and electric light plants, and fire alarm telegraphs; and is locally known as 'the Queen City of the Mountains.' Pop. (1910) 36,346.

KNUCKLE, n. *nŭk'l* [Dut. *knokel*, the knotty or projecting part of the joints; *knoke*, a knot in a tree, a bone: Ger. *knöchel*, a knuckle; *knochen*, a bone: Dan. *knokkel*, a knuckle]: the outer part of the joint of a finger when bent: V. to strike with the knuckles; to bend the fingers. **KNUCK'LING**, imp. **KNUCKLED**, pp. *nŭk'ld*. **KNUCKLE-DUSTER** [slang]: an iron instrument with nobs or projecting points, contrived to cover the knuckles and protect them from injury when striking a blow, but chiefly to mutilate and disfigure the person struck. **TO KNUCKLE UNDER**, to yield or submit.

KNUR, n. *nēr* [Ger. *knorren*, a protuberance: O.Dut. *knorre*, a hard swelling, a knot in wood: Sw. *knorla*, to twist, to curl]: a contorted knot in wood; a knot. **KNURRY**, a. *nēr'rī*, full of knurs or knots—connected with *gnarl*, which see.

KOALA, *kō-â'la* (*Phascolarctos cinereus*): marsupial quadruped, commonly referred to the family *Phalangistidæ*, and nearly resembling the phalangiers in dentition, but having the molar teeth much larger. The toes of the fore-feet are in two opposable groups, of two and three, a character not found in any other quadruped, but well adapted to grasping the branches of trees, on which the koala often hangs with its back undermost, like the sloth. There is scarcely any rudiment of a tail. The general form is not unlike that of a young bear. The female carries her young on her back, for a long time after it is capable of leaving her pouch.

KOBBE—KOCH.

KOBBE, *kōb'bā*, GUSTAV, A.M.: American author and journalist: b. New York, 1857, Mar. 4. He was graduated at Columbia University in 1877, and at its law school in 1879; and has since been employed in newspaper and magazine work. He has published: *The Ring of the Nibelungen* (1889); *Wagner's Life and Works* (1890); *My Rosary and Other Poems* (1896); *New York and Its Environs* (1891); *Plays for Amateurs* (1892); *Miriam* (1898); *Opera Singers* (1901); *Signora, a Child of the Opera House*, a novel (1902); *Famous Actors and Actresses and Their Homes* (1903); *Wagner's Music Dramas Analysed* (1904); *Loves of the Great Composers* (1905); *Opera Singers* (1905); *Wagner and His Isolde* (1905); etc.

KOBBE, WILLIAM A.: an American military officer; b. in New York city, 1840, May 10; was educated in the U. S. and in Germany, where he studied mining engineering; graduated at the U. S. Artillery School 1873. He served in the volunteer army during the civil war and the war with Spain, attaining the rank of brigadier-general U.S.V.; after the close of the civil war entered the regular army as 2d lieutenant; promoted 1st lieutenant 1867, captain 1885, major 1898, and brigadier-general 1901. In 1900, March, he was appointed military governor of the Province of Albay, Luzon, and the Catanduan island; temporary governor of the islands of Samar and Leyte; opened the hemp ports to commerce; and was commander of the military department of Dakota 1902-04.

KO'BE. See HIOGO.

KOBOLD, n. *kō'böld*: German word signifying a spirit or spectre; a dwarf or mountain spirit; whence Eng. *goblin*. See GOBLIN.

KOBUS, *kō'būs* [Latinized form of African word *Kob*]: genus of Antilopidæ in e. and s. Africa. Kobus (or Kob) is also the specific name of an animal of the Kobus genus.—*Antilope Kobus* (called also *Kobus singing*) is a water-antelope about as large as a fallow deer.

KOCH, *kōch*, KARL HEINRICH EMIL: 1809—1879, May 25; b. Weimar: celebrated traveller and naturalist. He studied at the universities of Würzburg and Jena, and 1836, undertook a scientific journey to s. Russia. In 1843, he visited Turkey, Armenia, Pontus, the Caspian Sea, and the range of the Caucasus. In 1839, he was appointed prof. of botany at Jena, and 1847 at Berlin, where he died. His chief work is his *Dendrologie* (1869-72), and accounts of his travels.

KOCH, *kōch*, ROBERT: born Clausthal, Prussia, 1843, Dec. 11: physician and bacteriologist. He was educated in the Clausthal gymnasium, and 1862-66 studied medicine in the Univ. of Göttingen; on receiving his degree, he was appointed an assistant in the gen. hospital at Hamburg, but soon removed to Rackwitz, in Posen, where

KOCH.

he became a practicing physician. He was appointed *Physikus* (state physician of a district) at Wollstein, circumscription of Bomst, 1872, and held that post till 1880. In the meantime he conducted a series of experiments in bacteriology as related to septicæmia, anthrax, etc., which attracted the attention of the medical profession, and won for him 1880 a nomination to membership of the health board of the kingdom. He published 1882 the results of his famous researches on the nature and causes of tuberculosis, which established for the first time experimentally the fact that microscopic organisms of the class Bacteria—tubercle bacilli, as he calls them—are the true cause of that devastating malady. With the aid of improved microscopes and of methods, devised by himself, of artificially coloring the microscopic organisms, Koch succeeded not only in finding the tubercle bacilli, but also in cultivating them in suitable media outside of the animal body, and in producing tubercles in animals by inoculating them with the product of these artificial cultures. In the organs of animals so inoculated are always found the specific bacilli of tuberculosis. Furthermore, he has discovered a means—still held secret—of rendering the tissues in which the bacilli live inhospitable to them. In an article in the *Deutsche Medizinische Wochenschrift*, Dr. Koch says: 'What the fluid kills is not the tubercle bacillus, but the tubercular tissue.'—In recognition of his eminent services in bacteriological research, Dr. Koch was appointed 1883 chief of the German cholera expedition to Egypt and India. The fruit of the expedition was the discovery that the comma bacillus is the true bearer of the cholera poison. For this discovery he received \$25,000 from the govt. and a decoration from the Emperor. In 1885, he was appointed a medical professor in the Univ. of Berlin and director of the Hygienic Institute. In 1890, Koch made known his discovery of a substance which checked the growth of the tubercle bacillus, and which it was hoped would prove a specific for consumption in man, but the results of its use have not been as favorable as were expected. Under the auspices of the govt. he made a scientific investigation of the cholera in France, the cattle plague in South Africa, the bubonic plague in India, and of malaria in Italy, East Africa, the Dutch Indies, and New Guinea, returning in 1900, Oct. The following year, in an address to the British Congress on Tuberculosis, he apparently proved that this disease cannot be transferred from man to animals and claimed that bovine tuberculosis cannot be transmitted to man by the use of the milk or meat of infected creatures. His conclusions on the point last named were not generally accepted, but at the Internationl Tuberculosis Congress at Berlin, 1902, he reiterated his statement that there is no proof that bovine tuberculosis can be communicated to man through the use of animal products, and asserted that if such

KOCHIA—KOEHLER.

cases ever occur they are very rare. At a banquet at which he was entertained the Harben medal for 1900 was presented to Koch by the British Institute of Public Health. Among his writings are: *Zur Aetiologie des Milzbrandes* (1876); *Ueber die Milzbrandimpfung* (1882); *Beitrag zur Aetiologie der Tuberkulose* (1882); *Ueber die Cholerabakterien* (1884); *Was wissen und können unsere Aerzte?*; *Ueber Naturheilung und medicinische Kunst* (1885); *Weitere Mittheilungen ueber Ein Heilmittel gegen Tuberkulose* (1890), and several contributions to the *Mittheilungen aus dem kaiserl. Gesundheitsamt*.

KOCHIA, *kō'kī-â* [named from Karl H. E. Koch]: genus of herbs comprising 30 known species. *K. eriantha*, *K. pubescens*, and *K. villosa*, Australasian species, and the Amer. species, *K. prostrata*, are valuable fodder plants in arid regions, like the far western plains.

KOCHLANI, *kōk-lâ'nē*: name of the royal breed of Arab horses. These horses are reputed among the Arabs to be descended from the stud of King Solomon.

KOCK, *kōk*, CHARLES PAUL DE: French novelist, dramatist, and poet: 1794, May 21—1871, Aug. 29; b. Plessy, near Paris; son of a Dutch banker who perished on the scaffold during the French Revolution. Originally intended for a mercantile career, he applied himself to literature against the wishes of his relatives. His novels, though with no trace of real genius, acquired a very unenviable notoriety by the licentious freedom of their representations. Kock composed more than 50 novels, besides a great number of vaudevilles and stories in verse. His earlier works are considered superior to his later ones.

KODAK, n. *kō'dāk*: special type of portable photographic camera, with a continuous roll of sensitized film upon which successive instantaneous negatives are made. According to the statement of a manufacturing company the word is arbitrary, constructed as a trade-mark.

KOEHLER, *kē'ler*, ROBERT: American artist: b. Hamburg, Germany, 1850, Nov. 28. He came with his parents to the United States in 1854; was educated at Milwaukee, Wis., and learned lithography which he practised in Pittsburg, Pa., and New York. After studying drawing in the night classes of the National Academy of Design, he went to Munich where he learned painting under Loeftz and Defregger and chose genre as his special field of activity. His principal pictures are: *Holiday Occupation*; *Her Only Support*; *The Socialist*; *The Strike*; *The Family Bible*; and *Father and Son*. Since 1893 he has been director of the Minneapolis School of Fine Arts.

KOEHLER, SYLVESTER ROSA: b. Leipzig, Germany, 1837, Feb. 11; d. 1900: writer on fine art. He came to the United States in his 13th year. He was editor of the

KOHINÛR—KOHLEK.

Amer. Art Review while it existed, and was a frequent contributor to home and foreign magazines. His *Art Education and Art Patronage in the United States* was pub. 1882; his *Etching: an Outline of Its Technical Processes and Its History*, 1885. He wrote the text for several collections of American etchings.

KOH-I-NÛR, or KOH-I-NOOR, n. *kō'î-nôr'* [lit., *mountain of light*]: a noble diamond now in possession of the king of England. According to Hindu legend, it was found in a Golconda mine, and its possessors have, with few exceptions, been the rulers of Hindustan. After belonging successively to the Bahmani, Khilji, Lodi, and Mogul kings, it came, 1739, into the hands of Nadir Shah, who gave it its present designation. From him it went to the Abdâli monarchs of Afghanistan, the last of whom, Shah Sujah, gave it to Runjeet Singh, ruler of the Punjab. On the abdication of the Maharajah Dhuleep Singh, and the annexation of the Punjab 1849, it was surrendered to the sovereign of Great Britain. It is said to have weighed originally 794 carats; but was reduced by cutting to 186 carats. In this state, rose-cut, it was shown at the Great Exhibition of 1851, and was then valued at about £140,000. It was re-cut 1852, and now, as a regular brilliant, weighs a little over 106 carats.

KOHL, *kōl*, JOHANN GEORG: 1808, Apr. 28—1878, Oct. 28; b. Bremen; eminent German traveller and author. He studied at Göttingen, Heidelberg, and Munich; and settled in Dresden 1838, from which place he made excursions in all directions; visiting every important district of Europe and on his return from each expedition, published his experience in a series of works. In 1854, he went to America, where he travelled four years. He returned to Germany, and became city librarian at Bremen, where he died. His writings include works on various European countries (between 1842 and 1851); also on Canada (1855), the United States, and a *History of the Discovery of America* (1861; Eng. trans. 1872).

KOHLER, *ko'ler*, KAUFMANN, PH.D.: American rabbi; b. Fürth, Bavaria, 1843, May 10. After completing his studies at the universities of Munich, Berlin, and Leipzig, he was chosen as rabbi in Detroit in 1869, and two years later elected rabbi of Temple Sinai, Chicago, where he introduced Sunday lectures, a novelty in those days. In 1879 he was called to Temple Beth Eli, New York. At his initiative in 1885 a rabbinical conference was held at Pittsburg, Pa., which formulated a platform for Reformed Judaism. In later years he frankly receded from the radical standpoint and assumed a more conservative position. In 1903 he was elected president of the Hebrew Union College. He has been a frequent contributor to the Jewish press, and in addition to various volumes and critical papers has written: *Der Segen Jakōbs* (1868); *Guide to Instructions in Judaism* (1900); etc.

KÜHL-RABI—KOKRA WOOD.

KOHL-RABI, n. *kōl-râ'bi* [a supposed corruption of *caulorapa*, a cabbage-turnip: Ger. *kohl-rü-be*, kale-turnip; so French *chou rave*]: cultivated variety of the Kale or Cabbage (*Brassica oleracea*), distinguished by the swelling of the stem just above the ground, in a globular form, to the size of a man's fist or larger, leaf-stalks, springing from the swollen part and adding to the peculiarity of its appearance. This is the part which is used, and its uses are similar to those of the turnip. In quality, it more nearly resembles the Swedish than the common turnip, and the use of it for feeding cows does not give their milk a disagreeable flavor, as when they are fed on turnips. Kohl-rabi is very hardy, its leaves, as well as its stem and root, enduring the most severe winters. It is a common field-crop in Sweden. In the cultivation of kohl-rabi, it is usual to sow it on seed-beds, and to transplant by dibbling into fields; but this is perhaps not the best mode. It ought, however, to be sown earlier than even Swedish turnip; and raised drills are unsuitable for it, owing to the effect of winds. It is more solid and more nutritious than any kind of turnip of the same size. There are numerous sub-varieties. Kohl-rabi, like all the varieties of *Brassica oleracea*, delights in strong rich soil and abundant manure.

KOKOMO: city, county-seat of Howard co., Ind., on the Wildcat river, and on the Toledo, St. L. & K. C., the Pittsburg, C., C. & St. L., and the Lake Erie & W. railroads; about 55 m. north of Indianapolis. It was settled in 1844 by Daniel Foster, incorporated as a town in 1845 and chartered as a city in 1855. Kokomo is located in a region of good farms, but it is a manufacturing and commercial city. The chief manufacturing establishments are plate, opalescent and table glass works, potteries, steel-mills, a fibre-bond mill, stove works, rubber works, automobile factories, bit works, pulp and paper-mills; all employing about 7,500 men. There are seven churches, a classical school, a high school, public and parish schools, and a public library. The three banks have a combined capital of \$300,000. The government is vested in a mayor and 10 councilmen, elected biennially. Pop. (1910) 17,010.

KOKO-NOR, *kō-kō-naur'* (or *Kuku-nor*): remarkable lake on the borders of Tibet, Mongolia, and China, s. of the Nanshan Mountains, and just n. of the basin of the Upper Hoangho. The lake is the centre of a closed basin, and is 10,500 ft. above the level of the sea. Its very salt waters, exquisitely blue in color, have an area of 2,300 sq. m., the shores forming an elliptical boundary line more than 200 m. in length. On a rocky island in the lake, ten Buddhist lamas live.

KOKRA WOOD, *kōk'ra*, or **COCUS WOOD**, *kō'kūs*: wood of an Indian tree, *Lepidostachys Roxburghii*, which belongs to a very small nat. ord. *Scepaceæ*, remarkably al-

KOLA NUT—KOLLOCK.

lied at once to *Euphorbiaceæ* and to *Amentaceæ*. Kokra wood is exported to some western countries in logs six or eight inches in diameter, having the heart-wood of a rich deep brown color and very hard. It is much used in the manufacture of flutes and other musical instruments. The Kokra-tree has leathery, alternate leaves.

KO'LA NUT. See COLA NUT.

KOLARIANS, *kō-lā'rī-anz*: group of aboriginal wild races in India (q.v.), represented by Santals, Bhils, Mhairs, etc., mostly heathens.

KOLLÁR, *kōl'lar*, JOHN: conspicuous Slavic poet and scholar: 1793-1852, Jan. 29; b. Moschowze, in n.w. Hungary. He studied at Presburg and Jena, and 1819 became pastor of a Prot. congregation at Pesth. His first work was a volume of songs and poems, *Basne* (Poems, Prague 1821); followed by his *Slawy Dcera* (The Daughter of Glory, Buda 1824; 3d ed., Pesth 1832), regarded by his countrymen as his greatest work; and *Rozprawy e Imenach* (Treatises on the Name and Antiquities of the Slavic People and their Ramifications, Buda 1830). Kollár's fame, however, rests on his being one of the earliest and most zealous advocates of Panslavism (q.v.). The work in which this tendency first appears was in German, entitled *Ueber die literarische Wechselseitigkeit zwischen den Stämmen und Mundarten der Slav. Nation* (Pesth 1831.) The revolution in Hungary compelled him to abandon his country. He withdrew to Vienna, where he was made prof. of archeology 1849.

KOLLIKER, *köllē-kér*, ALBRECHT: German physiologist, prof. of anatomy and physiology in the Univ. of Würzburg, b. 1817. He is distinguished principally in the department of microscopic anatomy and the development of the embryo, though his contributions to natural history generally are important. Among his principal works are *Mikroskopische Anatomie; Handbuch der Gewebelehre des Menschen* (translated for the Sydenham Society by Busk and Huxley, under the title, *A Manual of Human Histology*, 2 vols.); *Die Siphonophora oder Schwimmpolypen von Messina*; and *Entwicklungsgeschichte des Menschen u. d. höheren Thiere*. With Von Siebold, he is editor of *Zeitschrift für wissenschaftliche Zoologie*, the most important scientific natural-history journal in Germany.

KOL'LOCK, MARY: American painter; b. Norfolk, Va., 1832, Aug. 20. She studied at the Academies of New York and Philadelphia, as well as in the Julian school at Paris. In 1877 she was elected instructor in painting to the Ladies' Art Association of New York. She has been industrious in filling many canvases with her graceful landscapes and simple genre groups, and her latest works include: *Road in Normandy*; *The Italian Brigand*; *Washing in Pont-Aven, France*; and *The Gossips*.

KOLMAR—KOMURA.

KOLMAR, *kōl'mär*: city and capital of Upper Alsace, Germany, formerly in the French department of Haut Rhin, 39 m. s. of Strasburg. Its fortifications were destroyed in 1673, and it is now surrounded by boulevards, and entered by three gates. Here is the public library with 36,000 volumes, and some pictures by Schön, Albert Dürer, etc.; and the museum, where, among other curiosities, a remarkable aërolite is preserved, which fell near Ensisheim in 1492, and originally weighed about 284 pounds. The portion here weighs about 142 pounds. Kolmar has manufactures of printed goods, calicoes, silks, etc., besides cotton-spinning mills, tanneries, and chamois-leather works. It has a considerable trade in the manufactured goods of Alsace, and in iron, grain, wine, madder, etc.; and in colonial produce, with which it supplies Switzerland. In 1552 Kolmar was surrounded by walls and towers, and made an imperial free town. In 1632 it was taken by the Swedes, who maintained possession for two years. It was united to France in 1697 by the Peace of Ryswick, and surrendered to Germany by the Treaty of Versailles, 1871, Feb. 26. Pop. (1900) 36,736.

KOLYMA, *kō-lē'mâ*: a river of Siberia, in the government of Yakutsk, which rises in the mountains of Stanovoi-Krebet. After a course of about 1,000 m. it falls into the Polar Sea. The chief tributaries are the Greater and the Lesser Aniuj and the Omolon, which enter it on the left not far from the sea. Afterward the river divides into two, and subsequently into three branches, forming a delta. The Kolyma has sufficient depth for any vessel, but navigation, especially at the entrance, is rendered dangerous by shifting sand-banks.

KOLZOW, *kolt'sof*, **ALEXEI VASSILIEVICH**: Russian poet: 1809-1842; b. Voronesh; son of a cattle-dealer. Most of his poems are among the choicest pearls of Russian poetry. After a merely rudimentary education, he was employed by his father in feeding cattle on the steppes in summer, and in winter in attending the markets. His talent for poetry was early developed, and under patronage of some Russian writers, he was about to settle in St. Petersburg, and to apply himself to literary pursuits, when he suddenly died.

KOMURA, **JUTARO JUSAMI**, *kō'mü-râ jū'tâ-rō*: Japanese statesman and diplomatist: b. 1858. Having shown marked proficiency in his early studies, he was chosen as a representative student with a government stipend and directed to proceed to the U. S. to study law with a view to eventually becoming a judge. He was graduated from the Harvard Law School in 1878, but continued his studies in the office of Mr. Davenport, ex-attorney-general of the state of New York, and subsequently under Mr. Peshine Smith, of Rochester, N. Y., who for some time was legal adviser of the Japanese government. He

KONG MOUNTAINS—KONIG.

then visited Europe, and after attending lecture courses in various universities he returned to Japan and was attached to the ministry of justice. Three months later he was advanced to a judgeship, but feeling disinclined to the duties of that office, he resigned and during the succeeding fifteen years earned a living as assistant translator in the Foreign Office, when, through the death of the chief translator, he was advanced to that position. During an emergency in 1894, he was sent to Peking as secretary of legation and assistant to Minister Otori, but, owing to the latter's illness, the entire duties of the office devolved upon him. This was during the crisis which resulted in the Chino-Japanese war, and Komura developed latent talents for diplomacy which had been previously unsuspected. Deprived of cable communication with his government, he was obliged to rely upon his own judgment, and was subsequently much gratified on being assured by his superiors that he had not made a single mistake. He was thereafter the favorite agent of the Elder Statesmen, and the following year, being dispatched to Corea, where his government had been discredited by the conduct of his predecessor, he managed affairs so ably as to greatly increase his reputation. Soon afterward he received the appointment of Minister to the U. S., but returned home on the outbreak of the Boxer troubles in 1900, and participated in the conference at Peking which adjusted the disputes among the dissatisfied nations. In 1902 he became Minister of Foreign Affairs, in which position he successfully negotiated the alliance between his country and England, and in recognition of his eminent services was raised to the peerage as Baron Komura. During the preliminary and fruitless negotiations which terminated in the war with Russia, he represented his country at Peking, where he was pitted against the shrewd and able Baron Rosen; and on the defeat of Russia he was appointed chief plenipotentiary for Japan to arrange the terms of peace at Portsmouth, N. H., 1905. In May, 1906, he was appointed ambassador to Great Britain.

KONG MOUNTAINS: a range northward from the coast district, in the w. of n. Africa; extending from w. to e. about 200 m. from the shore of the Gulf of Guinea.

KONGO. See CONGO.

KONIG, kō'nīch, FREDERICH: 1775, Apr. 17—1833, Jan. 17; b. Eisleben: inventor of the steam-press. He became a printer, and was for a short time a bookseller, but was unsuccessful in this business. He eagerly prosecuted literary and scientific studies. Having applied himself to the invention of means of printing by machinery, he sought in vain the necessary pecuniary assistance in various quarters, his schemes being rejected as impracticable; but at last Thomas Bensley, printer in London, came forward to his support, a company was

KONIGSBERG.

formed, and a patent was obtained 1810, Mar. 20, for a press which printed like the hand-press by two flat plates, and 1811 it was first used to print part of the *Annual Register*. A second patent was obtained 1811, Oct. 30, for a cylinder-press; a third 1813 for improvements in it. This improved machine was soon adopted by the proprietors of the *London Times*. In the latter part of his life, König was a partner in a company for making steam printing-presses at Oberzell, near Würzburg, Bavaria.

KONIGSBERG, *kö'nich-bérg*: small town of Prussia, province of Brandenburg, on the Rörike, 45 m. n. of Frankfurt-on-the-Oder. Tanning and distilling are the chief branches of industry. Pop. 6,000. [Numerous other places in Germany bear this name.]

KO'NIGSBERG: important town and fortress of Prussia, province of Prussia, on both banks of the Pregel, and on an island in that river, four m. from its entrance into the Frisches Haff. It was once the Prussian capital, and the residence of the electors of Brandenburg, and still is a residence of the sovereigns and the place of coronation. It is surrounded by ramparts and detached forts. The larger part of the town is on the north bank of the Pregel, on hilly ground, a feature being an ornamental sheet of water with richly wooded banks, called the Schloss-Teich (Castle Pond). The older portion is divided into three parts—Alstadt, or Old Town, on the west, Löbenicht on the east, and Kneiphof, on an island of the Pregel. The town, provided with electric street railroads, has on the whole a modern appearance. The principal public buildings are the cathedral, begun in 1333, an interesting Gothic structure, situated in the Kneiphof; a new Gothic church in the Alstadt; the Heberberg Kirche, a conspicuous church in the southern portion of the city; the Schloss, or palace, a large building, containing apartments for the royal family, once the residence of the grand-masters of the Teutonic Order; the Schlosskirche, occupying a wing of the palace, in which Frederick I. in 1701 and William I. in 1861 placed the crown on their own heads as kings of Prussia; the old citadel of Fredericksburg; the handsome exchange, of recent erection; the university, founded in 1554 by the Margrave Albert, and hence called the Albertine, attended by 800 to 900 students, accommodated in handsome new buildings in the Renaissance style, and having connected with it a library of 220,000 volumes, a zoological museum, etc.; an observatory which the labors of Bessel have rendered famous, a botanical garden, a conservatory of music, museums, an ecclesiastical seminary, and other superior schools; town-house, law-courts, post-office, provincial government buildings, a theatre, a lunatic asylum, an infirmary, and several hospitals and benevolent endowments. The town contains other valuable libraries in addition to that of the university. The man-

KONRAD I.—KONRAD II.

ufactures include machinery and iron castings, woolen cloth, yarn and thread, leather, sail-cloth, copper, steel, and ironware, chemicals, tobacco and cigars, pasteboard, vinegar, articles made of amber, earthen and stone ware, liqueurs, and artificial mineral waters. There are also breweries and distilleries, and some ship-building. Large vessels bound for Königsberg stop at Pillau, which is considered its port. The principal exports are grain, flax, hemp, oil-cake, bones, timber, etc. Königsberg is the seat of many important provincial courts and public offices. It was founded in 1255. In 1365 it became a member of the Hanse League; was the residence of the grandmaster of Teutonic knights from 1457-1528; in 1626 was surrounded with walls; in 1657 it received a strong additional defense in the citadel of Fredericksburg, though the object of the margrave who built it is said not to have been so much to defend the town as to overawe its citizens. It suffered much during the Seven Years' war and from the French in 1807. Pop. 189,483.

KONRAD I., or CONRAD I., *kön'rad*, Ger. *kön'rât*, King of the Germans (title identical with the subsequent 'Emperor of Germany') (reigned 911-18); d. 918; son of Konrad of Fritzlar, Count of Franconia; nephew of Emperor Arnulf. On the extinction of the direct line of the Carolingians, the Germans resolved to make the sovereign dignity elective, and preferring to choose one related to the late imperial family, offered the crown to Otho the Illustrious, Duke of Saxony, who refused it, but recommended Konrad, who was accordingly elected 911. The new monarch gradually re-established the imperial authority over most of the German princes, carried on unsuccessful war with France, and at last fell mortally wounded at Quedlinburg, in a battle with the Hungarians, who had repeatedly invaded his dominions. He was buried at Fulda. On his deathbed, he enjoined his brother Eberhard to carry the imperial insignia to his mortal enemy, Duke Henry of Saxony, son of Otho the Illustrious, with whom he had been continually at war since 912, and accompanied the gift with the chivalrous message, 'that he wished to render to the son what he had received from the father.' Konrad's reign was a remarkable epoch in the history of Germany; sovereignty by hereditary right was introduced into the German duchies and markgrafsdoms; the minor lords of the soil became vassals, not to the king, as formerly, but to their dukes; and finally, the crown-lands in each duchy were taken into possession by the dukes themselves, who thus totally destroyed the sovereign's local jurisdiction.

KON'RAD II., King of the Germans, and Roman Emperor (reigned 1024-1039, June 4); d. 1039, June 4; son of Henry, Duke of Franconia. He was elected after the extinction of the Saxon imperial family 1024, and is by many considered the founder of the Franconian dynasty.

KONRAD III.

Immediately after his election, he commenced a tour through Germany, to administer justice and acquaint himself with, and to ameliorate, the condition of his subjects. With a view to this last, he instituted the *God's Truce* (q.v.); 1026, he crossed the Alps, chastised the rebellious Italians, was crowned at Milan as king of Italy, and he and his wife Gisela were anointed by the pope emperor and empress of the Romans. He was soon recalled to Germany to put down four formidable revolts, in which he succeeded so well, that peace was restored 1033. In 1032, he had succeeded to the kingdom of Burgundy, which he annexed to the empire. In 1036, a rebellion in Italy again compelled him to cross the Alps; but his efforts to restore his authority were this time unsuccessful, and he was forced to grant various privileges to his Italian subjects. Shortly after his return, he died at Utrecht. Konrad was one of the most remarkable of the earlier monarchs of Germany. He repressed the more obnoxious features of the feudal system, and by conferring the great duchies of Bavaria, Swabia, and Carinthia on his son, reduced the dangerous power of the great dukes of the empire.

KONRAD III., King of the Germans, founder of the Hohenstaufen (q.v.) dynasty: son of Frederick of Swabia. 1093-1152, Feb. 15 (reigned 1138, Feb. 21-1152). While under 20 years of age, Konrad, with his elder brother Frederick, had bravely supported Henry V. against his numerous enemies, and in return, that monarch granted Konrad the investiture of the duchy of Franconia. Konrad subsequently contested the crown of Italy with Emperor Lothaire of Saxony, but was compelled to resign his pretensions. On the death of Lothaire, the princes of Germany, fearing the increasing preponderance of the Guelf party, and attracted by Konrad's brilliant courage, moderation, and goodness, offered him the crown; and he was accordingly formally elected at Aix-la-Chapelle. He was immediately involved in a quarrel with Henry the Proud, Duke of Bavaria and Saxony, and head of the Guelf party in Germany; and the struggle was continued under Henry's son and successor, Henry the Lion (q.v.). While Germany was thus convulsed, the state of Italy was not more peaceable. The several belligerents besought Konrad's assistance, but he well knew the natural inconstancy of the Italians, and stood aloof. Soon after this, St. Bernard of Clairvaux commenced to preach a new crusade, and Konrad seized with the general infatuation, set out for Palestine at the head of a large army (see CRUSADES) in company with his old enemy, Guelf of Bavaria. Guelf returned to Germany before Konrad, and with his nephew, Henry the Lion, immediately renewed the attempt to gain possession of Bavaria, but their army being defeated at Flochberg, they were compelled to sue for peace. Konrad was now called to aid the Duke of Poland against

KONRADIN—KONRAD VON WURZBURG.

his rebellious subjects, and to aid the pope and the northern Italians against Roger of Sicily; but while preparing for the latter expedition, he was poisoned, and died at Bamberg. Konrad was largely endowed with the virtues necessary for a great monarch, and though himself unlearned, was a patron of science and letters. His marriage with a Greek princess was symbolized by the two-headed eagle which figured on the arms of the Emperor of Germany, and now appears on the arms of the sovereign of Austria, as heir to the German emperors.

KONRADIN OF SWABIA, *kõn'râ-dîn õv swâ'bē-a*: last descendant of the imperial House of Hohenstaufen (q.v.): 1252-1268, Oct. 20; son of Konrad IV., born two years before his father's death. Innocent IV. immediately seized the young prince's Italian possessions, on the plea *that the son of a prince who dies excommunicated has no hereditary rights*; and the other enemies of the House of Hohenstaufen rejoiced to follow the pope's example. Konradin was not left, however, totally friendless. His uncle Manfred took up arms in his behalf, drove the pope from Naples and Sicily, and in order to consolidate his nephew's authority, declared himself king till the young prince came of age. The pope's inveterate hatred of the Hohenstaufens induced him to offer the crown of the Two Sicilies to Charles of Anjou, a consummate warrior and able politician. Charles immediately invaded Italy, met his antagonist in the plain of Grandella, where the defeat and death of Manfred, 1266, gave him undisturbed possession of the kingdom. But the Neapolitans, detesting their new master, sent deputies to Bavaria to invite Konradin, then in his 16th year, to come and assert his hereditary rights. Konradin accordingly appeared in Italy at the head of 10,000 men, and being joined by the Neapolitans in large numbers, gained several victories over the French; but was finally defeated, and with his relative, Frederick of Austria, taken prisoner near Tagliacozzo, 1268, Aug. 22. The two unfortunate princes were, with the consent of the pope, put to death in the market-place of Naples Oct. 20. Konradin, on the scaffold, a few minutes before the execution, took off his glove, and threw it into the midst of the crowd, as a gage of vengeance, requesting that it might be carried to his heir, Peter of Aragon. This duty was undertaken by the Chevalier de Waldburg, who, after many hair-breadth escapes, succeeded in fulfilling his prince's last command. See SICILIAN VESPER.

KONRAD VON WURZBURG, *kõn'rât fõn vürts'bôrçh*: one of the most celebrated poets of the middle ages: died at Basel 1287. Konrad von Würzburg is fertile in imagination, learned, and—although marking the decline of mediæval High-German poetry by his prolix and artificial style—probably the most perfect master of German versi-

KOOCHLA—KOORIA MOORIA ISLANDS.

fiction that had appeared up to his own day. He followed the line marked out by Gottfried of Strasbourgh. Konrad appears to most advantage in his smaller narrative poems, of which the best is *Engelhard* (reprinted by Haupt, Leipsic 1844, from an old and scarce impression). Next to this may be ranked his *Otto mit dem Bart* (reprinted by Hahn at Quedlinb. and Leip. 1838); *Der Welt Lohn* (by Roth, Fkr. 1843); *The Legends of Sylvester* (by W. Grimm, Gött. 1841) and of *Alexius* (by Massmann, Quedlinb. and Leip. 1843); *Die Goldene Schmiede* (by W. Grimm, Berl. 1840). His songs and proverbs are in Hagen's *Minnesinger*.

KOOCHLA, n. *kôch'lă* [native name]: the poison-nut tree of the Malabar and Coromandel coasts; the *Strychnos nux vomica*, ord. *Loganiăcĕæ*.

KOODOO, *kô'dô* (*Antilope strepsiceros*, or *Strepsiceros koo-doo*): one of the largest species of antelope. The general form is not so light and elegant as that of many of the antelopes. The height is about four ft., length fully eight ft., exclusive of the tail, which is moderately long, and terminates in a tuft like that of an ox. The male is furnished with great horns, nearly four ft. long, and beautifully twisted in a wide spiral of two turns and a half, very thick at the base, and there wrinkled and ringed. The female is smaller than the male, and hornless. The general color is grayish brown, with a narrow white stripe along the middle of the back, and eight or ten similar stripes proceeding from it down the sides. The koodoo lives in small families of four or five, inhabiting chiefly the wooded parts of s. Africa. It is easily domesticated, and is one of the animals which, probably, man has not yet done enough to reduce to his service.

KOO'FA, or KU'FA. See KUFIC WRITING.

KOOMAS'SIE. See COOMASSIE.

KOOM'RAH (*Equus hippagrus*): alleged distinct species of the family *Equidæ*, native of n. Africa, inhabiting mountain woods. It is ten or ten and a half hands high; with a broad deep head; no forelock, but long woolly hair down to the eyes; long black mane; tail more like that of a horse than of an ass; the color a uniform reddish bay, without mark or streak. Col. Hamilton Smith supposes that it may be the *Boryes* of Herodotus, and *Hippagrus* of Oppian.

KOONBEE, or KUNBI, n. *kôn'bĕ* [Mahratta]; the agricultural caste. One of the great castes in the Mahratta country of w. and central India.

KOOR, or KUR. See KURA.

KOORDISTAN'. See KURDISTAN.

KOORIA MOORIA ISLANDS, *kô'rĭ-a mô'rĭ-a*: group of six islands, on the s. coast of Arabia, about 21 m.

KOORILE ISLANDS—KORAES.

from the coast, about lat. 17° 33' n., long. 56° 6' e. The surface is sterile, and only one is inhabited, supporting only from 20 to 30 fishermen. They were ceded to England 1854. A little guano of inferior quality has been obtained from them.

KOO'RILE ISLANDS. See KURILE ISLANDS.

KOORSEE, or KURSI, n. *kôr'sē*: the Mohammedan seventh heaven, supposed to be crystalline, and to constitute the judgment-seat of God.

KOORSK. See KURSK.

KOOS'SO, or Cos'so. See CUSO.

KOP, n. *köp* [Dut.]: in *s. Africa*, a hill; a headland. KOPJIE, n. *köp'ji*, a little hill. KRANS KOP, *kränz* [Dut.]: a precipitous hill.

KOPECK, or KOPEK, or COPECK, n. *kō'pěk*: Russian copper coin, the one-hundredth of a rouble (q.v.), equivalent to 1½ farthings sterling, or nearly a cent federal money.

KOPP, *köp*, GEORG: German cardinal and statesman: b. Duderstadt, 1837, July 27. He was the son of a poor weaver and attended the gymnasium at Hildesheim. In 1856, he became a telegraph operator in the employ of the Hanoverian government. From 1858 to 1861 he studied theology and in 1862 entered the priesthood. He rose rapidly and in 1872 was made vicar-general at Hildesheim and three years later bishop of Fulda. His reasonable ultramontanism was exercised in bringing about a better understanding between the German government and the papal curia. Being elected member of the house of lords he obtained a mitigation of the harsh provisions which characterized the May laws. In 1887, with the approval of the Prussian government, the pope appointed him prince-bishop of Breslau, and in 1893 he was made cardinal.

KOPP, JOSEPH EUTYCHIUS: Swiss antiquarian: b. Beromünster, Canton of Lucerne, 1793, Apr. 25; d. Lucerne, 1866, Oct. 25. He studied theology and philology in Lucerne and Freiburg, and in 1819 was appointed professor of Greek in the Lyceum of the former town. While serving in the legislative body of the republic, he was led as a 'conservative Catholic' into such bitter controversy with the Jesuits that in 1845 he was compelled to retire into private life and undertook a tour by way of Vienna to Rome, for the purpose of examining such archives as might throw light upon the history of his native country. He was elected corresponding member of the Academies of Berlin and Vienna. Among his chief publications are *Geschichte der Eidgenössischen Bünde* (1862); *Geschichtsblätter aus des Schweiz* (1856); *Dramatische Gedichte* (1866).

KORA'ES, DIAMANTES. See CORAIS, ADAMANTIOS.

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KORAN, *ك.* *kō-rān'* or *kō-rāwān'* [Ar. *al-kurān*, the book—from *qara-a*, he read]: the Mohammedan book of faith and worship—often written *Alcoran*, i.e., *The Reading*, by eminence; a term first applied to every single portion of Mohammed's 'Revelations;' later, used for a greater number of these; finally for their whole body, gathered together into the one book, which forms the religious, social, civil, commercial, military, and legal code of Islam. The K. is known also under the name of *Forkan* (Chald. Salvation, not from Hebr. *Perek*, Division, as erroneously supposed); further, of *Al-Moshaf* (*The Volume*), or *Al-Kitab* (*The Book*, in the sense of 'Bible'), or *Al-Dhikr* ('the Reminder,' or 'the Admonition'). The K. is, according to the Moslem creed, coeval with God, uncreated, eternal. Its first transcript was written from the beginning in rays of light upon a gigantic tablet resting by the throne of the Almighty; and upon this tablet are found also the divine decrees relating to things past and future. A copy of it, in a book bound in white silk, jewels, and gold, was brought down to the lowest heaven by the angel Gabriel, in the blissful and mysterious night of *Al-Khadr*, in the month of *Ramadān*. Portions of it were, during a space of 23 years, communicated to Mohammed, both at Mecca and Medina, either by Gabriel in human shape, 'with the sound of bells,' or through inspirations from the Holy Spirit, 'in the Prophet's breast,' or by God himself, 'veiled and unveiled, in waking or in the dreams of night.' Traditions vary with respect to the length of the individual portions revealed at a time, between single letters, verses, and entire chapters or *Surahs* (from Heb. *shurah*, line). The first revelation forms, in the present arrangement of the book, verses 1-5 of *surah* xcvi., and begins with the words: 'Read (preach), in the name of thy Lord, who has created all things!'

Mohammed dictated his inspiration to a scribe, not, indeed, in broken verses, but in finished chapters, and from this copy the followers of the Prophet procured other copies—unless they preferred learning the oracles by heart from the master's own mouth. The original fragments were, without any attempt at chronological or other arrangement, promiscuously thrown into a box, and a certain number were entirely lost. A year after the death of Mohammed, the scattered portions were, at the instance of Abu Bekr, collected by Zaid Ibn Thâbit of Medina, 'from date-leaves and tablets of white stone, bones, and parchment-leaves, and the breasts of men,' and faithfully copied, without the slightest attempt at molding them into shape or sequence, together with all the variants, the repetitions, and the gaps. This volume was intrusted to the keeping of Hafsa, one of the Prophet's wives, the daughter of Omar. A second redaction was instituted in the 30th year of the Hedjah, by Caliph Othman, not for the sake of arranging and correcting the text, but to restore its unity: many different readings being current among the believers. He ordered new copies to be made from the original fragments, in which all the variants were to be expunged, without, however, any further alteration, such as the suppression of certain pas-

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sages, etc.; and all the old copies were consigned to the flames. As to the succession of the single chapters—114 in number—no attempt was made at establishing continuity, but they were placed side by side according to their respective lengths; so that, immediately after the introductory *fat-tah* or exordium, follows the longest chapter, and the others are ranged after it in decreasing size. They are not numbered in the manuscripts, but bear distinctive, often strange-sounding headings, as: the Cow, Congealed Blood, the Fig, the Star, the Towers, Saba, the Poets, etc., taking from a particular matter or person treated of in the respective chapters. Every chapter or *surah* begins with the introductory formula: 'In the name of God, the Merciful, the Compassionate.' It is further stated at the beginning whether the *surah* was revealed at Mecca or at Medina. Every chapter is subdivided into smaller portions (*Ayath*, Heb. *Oth*, sign, letter), varying in the ancient 'seven editions' or primitive copies [of Medina (two), Mecca, Kufa, Basra, Syria, and the 'Vulgar Edition']—reduced by Nöldeke to four editions—between 6,000 and 6,036 portions. The number of words in the whole book is 77,639, and an enumeration of the letters shows 323,015 of these. Other—encyclical—divisions of the book are: into thirty *ajzâ* and into sixty *ahzâb*, for the use of devotional readings in and out of the mosque. 29 *surahs* commence with certain letters of the alphabet, supposed to be of mystical purport.

For the contents of the K., as the basis of Mohammedanism, see MOHAMMEDANISM: for questions more closely connected with authorship and chronology, see MOHAMMED. Briefly, it is here stated that the chief doctrine laid down in it is the unity of God, and the existence of but one true religion, with changeable ceremonies. When mankind turned from it at different times, God sent prophets to lead them back to truth: Moses, Christ, and Mohammed being the most distinguished. Both punishments for the sinner and rewards for the pious are depicted with great diffuseness, and exemplified chiefly by stories taken from the Bible, the Apocryphal writings, and the Midrash. Special laws and directions, admonitions to moral and divine virtues, particularly to a complete and unconditional resignation to God's will (see ISLAM); legends, relating principally to the patriarchs, and, almost without exception, borrowed from the Jewish writings (known to Mohammed by oral communication only, a fact which accounts for their often odd confusion), form the bulk of the book, which throughout bears most palpable traces of Jewish influence. Thus, of ideas and notions taken bodily, with their Arabicized designations, from Judaism, are—Koran = Mikrah (Reading); Forkan (Salvation); the introductory formula, Bismillah (in the name of God); Torah (Book of Law); Gan Eden (Paradise); Gehinnom (Hell); Haber (Master); Darash (to search the Scriptures); Rabbi (Teacher); Sabbath (Day of Rest); Shechinah (Majesty of God); Mishnah (Repetition, or Oral Law), etc. The general tendency and aim of the K. is clearly indicated in the beginning of chap. ii: 'This is the book in which there is no doubt; a guidance for the pious,

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who believe in the *mysteries of faith*, who perform their *prayers*, give *alms* from what we have bestowed upon them, who believe in the *revelation* which we made unto thee, which was sent down to the *prophets before thee*, and who believe in *the future life*, etc.' To unite the three principal religious forms which Mohammed found in his time and country—viz., Judaism, Christianity, and Heathenism—into one, was Mohammed's ideal; and the K. properly read, discloses constantly the alternate flatteries and threats aimed at each of the three parties. No less are certain abrogations on the part of the Prophet himself, of special passages in the K., due to the vacillating relation in which he at first stood to the different creeds, and the concessions first made, and then revoked. Witness the 'Kiblah,' or the place where the believer was to turn in his prayer, first being Jerusalem: fasting, being at first instituted in the ancient manner; forbearance to idolaters forming one of the original precepts, etc.

The language of the K. is of surpassing elegance and purity, so much so, that it has become the ideal of Arabic classicality, and no human pen is supposed capable of producing anything similar:—a view adduced by Mohammed himself as a clear proof of his mission. The style varies considerably; sometimes concise and bold, sublime and majestic, impassionate, fluent, and harmonious; at other times verbose, sententious, obscure, tame, and prosy; and on this difference modern investigators have endeavored to form a chronological arrangement of the K., wherever other dates fail. But none of these attempts can ever be successful. Full manhood, approaching age, and declining vigor, are not easily traced in the writings of a man like Mohammed. The K. is written in prose, yet the two or more links of which generally a sentence is composed, rhyme with each other, a peculiarity of speech used by the ancient soothsayers (Kuhhân = Cohen) of Arabia:—only that Mohammed used his own discretion in remodelling its form, and freeing it from conventional fetters; and thus the rhyme of the K. became an entirely distinctive rhyme. Refrains are introduced in some surahs; and plays upon words are not disdained.

The outward reverence in which the K. is held throughout Mohammedanism, is exceedingly great. It is never held below the girdle, never touched without previous purification; and an injunction to that effect is generally found on the cover which overlaps the boards, according to Eastern binding. It is consulted on weighty matters; sentences from it are inscribed on banners, doors, etc. Great lavishness is displayed in the material and the binding of the sacred volume. The copies for the wealthy are sometimes written in gold, and the covers blaze with gold and precious stones. Nothing is more hateful in the eyes of a Moslem than to see the book in the hands of an unbeliever.

The K. has been commented upon so often that the names of the commentators alone would fill volumes. Thus, the library of Tripoli, in Syria, is reported to have

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once contained no less than 20,000 different commentaries. The most renowned are those of Samachshari (died 539 H.), Beidhavi (died 685 or 716 H.), Mahalli (died 870 H.), and Soyuti (died 911 H.). The principal editions are those of Hinkelmann (Hamburg 1694), Maracci (Padua 1698), Flügel (3d ed. 1838), besides many editions (of small critical value) printed in St. Petersburg, Kasan, Teheran, Calcutta, Cawnpore, Serampore, and the many newly-erected Indian presses. The first, but very imperfect, Latin version of the Koran was made by Robertus Retensis, an Englishman, 1143 (ed. Basle 1543). The principal translations are those into Latin of Maracci (1698); into English, Sale (1734), Rodwell (1862), Palmer (1880); into French, Savary (1783), Garcin de Tassy (1829), Kasimirski (1840); into German, Megerlin (1772), Wahl (1828), Ullmann (1840); besides the great number of Persian, Turkish, Malay, Hindustanee, and other translations for the use of various eastern Moslems. Among concordances to the Koran are that of Flügel (Leip. 1842), and the Noojoomool-Foorkan (Calcutta 1811). Of authorities whose works may be consulted on the Koran, are to be named chiefly, Maracci, Sale, Savary, Wahl, Geiger, Amari, Weil, Nöldeke; Sprenger, *Leben und Lehre des Mohammed*; Kremer, *Herrschende Ideen d. Islam*; Braun, *Gemälde d. Islam*; Deutsch, *Islam*; Dozy, *L'Histoire d'Islamisme*; Muir, *Life of Mahomet and History of Islam*; Gibbon, *Decline and Fall*, ch. L.; Irving, *Mahomet and his Successors*; Carlyle, *Heroes, The Hero as Prophet*; Lane, *Selections from the Koran*; Johnson, *Oriental Religions: Persia*, sec. Islam; Conway, *The Sacred Anthology* (for many good extracts from the Koran); Hirschfeld, *New Researches into the Composition and Exegesis of the Koran* (Eng. trans., 1902). See ISLAM; MOHAMMED; MOHAMMEDANISM.

KORDOFAN, *kawr-dō-fân'* (the White Land): lately a province of the Egyptian Sudan (q.v.); bounded e. by the White Nile, which separates it from Sennaar; and separated on the w. from Darfur by a strip of desert; lat. 10°—15° 20' n.; area of its more or less cultivated portion estimated at 12,000 sq. m.: pop. at 400,000. The province is traversed by no rivers; wells, however, abound, water being found almost everywhere, at comparatively small depth. In the s., surface is undulating, and the soil argillaceous and productive; and here dourra and maize are grown. In the n. and w., the surface is an elevated plateau, and the soil sandy, but peculiarly fitted for the cultivation of millet, the staple article of food. The employments of the people are chiefly agricultural. In the s., horned cattle and horses are extensively reared, but in the n. and w., the nomad inhabitants depend for support entirely on their large herds of camels, which are hired out for transport of produce and merchandise. The chief trees are acacias, yielding

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gum-arabic. Gum-trees, scrub, mimosas, thorny plants, and prickly grass abound, but there is no forest timber. Iron ore is obtained and wrought in the country. About half the population is settled in about 900 villages; and nearly half is nomadic. The aborigines belong mainly to the Nuba stock, intermediate between the Negro and Hamite races, but with negro speech; and are mainly pagans. But there is a large element of nomad and slave-hunting 'Arabs,' Moslems in faith.

The capital is Il-Obeid (q.v.). In the end of the 18th century, the Sultan of Darfur overran the province, and annexed it. Under the sultan, the inhabitants were but lightly taxed, and trade was opened with the Sudan and Arabia. This period of prosperity was brought to a close by the invasion of Kordofan, 1821, by an Egyptian army. For the rising of Kordofan under the Mahdi against the Egyptians 1881-84, see EGYPT (end of the article).

KOREA, *kō-rē'a*, or COREA (native name CH'AO-HSIEN, '*Morning Calm*,' hence the popular name, 'The Land of the Morning Calm'; also called 'The Hermit Kingdom' and 'Dai Han'): peninsular kingdom on the e. coast of Asia, bounded e. by the sea of Japan, s. by the strait of Korea, which divides it from the Japanese island of Kiou-siou, w. by the Hwang-hai or Yellow Sea, which separates it from China, and n. by Manchuria. It lies between 34° and 43° n. lat., and 124° and 132° e. long., has an extreme length, n. and s., of 630 m., width varying from 100—200 m.; 90,000 sq.m. Pop., native statistics (1900) 5,608,151. This represents Koreans subject to taxation. The real population is estimated at 10 to 12 millions, of whom about 100,000 are Japanese.

Surface.—In general it is mountainous. The Chang-peshan range, partly covered with snow, separates it from its extreme n. neighbor, and a second chain branching out from this extends s.s.e. as far as the strait of Korea. The country is further diversified by numerous smaller ranges, between which are inviting valleys. Korea really has a complete water boundary, the two rivers which separate it from China and Russia taking their rise in the Dragon Lake, on Mount Whitehead, which lies on the northern boundary. On the eastern shores of Korea the spurs of the mountain ranges reach down in many places to the sea, and are pierced by a few fine harbors open all the year. Off the s. and w. coast lies an archipelago of islands; and the harbors are only shallow and crooked inlets, frequently frozen in winter, and subject to tides varying from 25 to 40 feet. The largest of the islands off the coast is Quelpart, 50 m. s. of the peninsula, which is about 60 m. in circuit, and in the centre a peak rises more than 6,000 feet above the sea. Korea is drained by numerous rivers, five of them navigable,—the Yalu-kiang, in the n.; the Taidong or Pyong-yang and the Han-kiang, with its tributary the Im-jin-gang,

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which flow into the Yellow Sea; and the Nak-tong, which rises in the e. slopes of the main mountain chain, flows s., and falls into the strait at 34° 50' n. lat. On only two of these, the Han and Nak-tong, is steamboat navigation attempted.

The climate is cold in the north; elsewhere it is like that in the n. part of Japan. Ice and snow are everywhere in winter. The rainfall is excessive.

Resources.—Owing to the extreme cold in the n. provinces, barley is the only grain cultivated with profit; but the valleys of the s.w. are very fertile and abundant, crops of wheat, rice, millet, cotton, hemp, the favorite ginseng, fruits, wild grapes, and tobacco are raised. The leading manufactures are silk, cotton goods, cotton paper, rice paper, grass cloth, firearms, and horse-hair caps. In minerals Korea is quite rich, in gold, silver, copper, iron, and coal; but, excepting gold and silver, the mines are not largely worked. It is only within the last few years that the govt. has allowed any operations in the gold and silver mines, and even now washing is the main process. The principal gold mines opened thus far are in the province of Han-kiang. Permission to engage in mining has to be obtained from the govt., and miners are obliged to pay a royalty to the govt. and the governor and magistrates annually. Bullion is sent to Seoul, China, Japan, and Siberia. In 1905, the imports were valued at about \$16,500,000, and the exports at \$1,500,000. For several years a British official superintended Korean customs.

Political Divisions, Cities, etc.—Korea is divided into 13 prov. There is a separate gov. for the capital. Each of nine treaty-ports, Chinnampo, Ping Yong, Fusan, Chemulpo, Songchin, Masampo, Mokpo, Kunsan, Wonsan, and Russo-Korean trading mart, Kyenheung, is under a supt. or *kamni*. The provinces are subdivided into 339 prefectures, including islands, and there are 30 districts independent of the jurisdiction of the provinces in which they are situated.—The chief city and capital is called by the natives King-ki-tao, and by the French and English, Seoul. It lies in a valley about 54 m. by water from the mouth of the Han, with which it is connected by a narrow canal 3 or 4 m. in length. The city has now a population of 200,000, with as many more in the suburbs. There is a Japanese settlement in the city numbering about 1,000, and a Chinese settlement equally as large, and about 100 Europeans and Americans. The other important cities are Ham-heng, Kieng-wen, and Mou-san, also walled, in the province of Ham-kiang; Pieng-iang in Ping-an; Wen-tsiou in Kang-wen; Tai-kou in Kiung-sang; Hai-tsiou in Hoang-hai; and Kong-tsiou and Tien-tsiou in Tsieng-la and Tsieng-tsieng.

There are three principal ports now open to foreign trade,—Fusan or Pusan in the s.e., Gensan or Wonsan on Broughton Bay, and Chemulpo on the estuary of the southern branch of the Han, 54 m. from Mapu, the land-

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ing place for Seoul. Chemulpo was formerly spoken of in the treaties as Jinsen or Inchiun, the name of the nearest magistracy. When opened in 1883 it was only a fishing hamlet of 15 Korean huts; 10 years later it had a foreign population of 2,500 Japanese, 600 Chinese, and over 20 Europeans. Besides these three the treaty of 1888 opened the town of Kong Chong in the n. to Russia.

Government.—The monarchy, till recently, was a despotism, limited by the influence of privileged ranks and hereditary nobles. King Yi-hyeung succeeded Li Ping in 1864, at the age of 12. He was the 30th in succession since the founding of the present dynasty in 1392. On July 17, 1907, he was compelled by the Japanese government to abdicate in favor of the Crown Prince Yi-syek, who received the Imperial Seal on the following day. From 1864 to 1873, when the king assumed full sovereignty, the royal authority was invested in a council of regency, Li Hsia Ying, the former king's father, being practically the ruler. Formerly, the king was a vassal of the emperors of China and Japan, but of late years up to 1894, July 23, he recognized the former only as his superior, by whom his own election had to be ratified, and to whom he sent a pompous embassy with a costly tribute every fourth year. The last queen was a member of the Ming family. Next to the king are three premiers, known as the admirable councilor, the councilor of the right, and the councilor of the left. Internal affairs are administered under the control of the king by the Nei Wu Fu, or home office, in the six departments of civil affairs, revenue, ceremonies, war, justice, and public works. Foreign affairs are conducted by the foreign office instituted in 1882 for international questions arising under the various treaties, but recently all political and international affairs have to receive the sanction of the Japanese resident general.

Finance and Commerce.—It is said that the government of Korea (virtually the king) is always financially embarrassed. The royal revenue is derived from six sources,—a land tax, paid principally in grain; a house tax; customs revenue; the proceeds of the ginseng monopoly which is farmed out to a close corporation known as the Chung In, which is said to pay the king from \$400,000 to \$500,000 yearly; the proceeds of other monopolies; and irregular taxation. In 1905, the total value of merchandise imports was about \$16,500,000, and the exports \$1,500,000. The imports were chiefly shirtings and muslins, woolen goods, and metals; and the chief exports, beans, cow-hides, and rice. Internal transportation is still largely carried on by porters, oxen, and pack-horses. A telegraph line runs from Seoul to Shanghai, another to Fusan, and a third to Yuensan or Gensan.

Manners, Customs, etc.—The people of Korea are of Mongolian stock, tall, but with less pronounced Mongolian characteristics than either the Chinese or Japan-

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ese. Their language belongs to the Turanian group, and has an alphabet of 14 consonants and 11 vowels; but Chinese has to a large extent superseded the native language in official documents and among the educated classes. Women are kept in seclusion among the upper classes, and their condition generally is very low.

Education.—Ostensibly, education has long been regarded as the road to official preferments, and the crude native system provided three degrees for students, the possession of which was held to determine the grade of office that they were competent to occupy; but, in reality, all the best offices were apportioned among the nobility without any question as to educational fitness. Between 1883 and 1886 a very promising innovation was made by introducing western educational methods under the direction of American teachers; but the influence as yet has not been great.

Religion.—Buddhism is said to have been introduced into Korea in the 4th c., and became the state religion under the Kōrio dynasty, but under the present (Ni) dynasty, Confucianism was substituted for it and is today the established creed. Among the upper classes ancestor worship prevails. There are still a large number of Buddhist temples in Korea, particularly off the main roads in the mountain valleys. Astrologers and fortune-tellers also abound; and much respect is shown the blind from a belief that they are endowed with special prophetic aptitude. Christianity was introduced as early as 1600 by Japanese and Chinese converts. In 1864, a war of extirpation was waged against the native Christians, and by 1870, 8,000 were said to have lost their lives for their faith. In 1892, there were, all told, about 40 Protestant missionaries, representing American, English, Canadian, and Australian societies, and 20 Roman Catholic missionaries in Korea. Early in 1893, a politico-religious party calling itself the Tokaguto or Party of Oriental Learning, through its leaders presented a petition to the throne demanding the prohibition of all foreign religions and the expulsion of the merchants; but this uprising was suppressed by arrest of the ringleaders and the concentration of foreign men-of-war at Chemulpo.

History.—In certain respects, Korea has the most interesting history of all civilized nations. Known for centuries as 'the hermit nation' for its extreme exclusiveness, it has been making rapid strides since 1880 toward the prosperity that distinguishes western peoples. This means more than can be understood readily. Walled up in their cities, the people lived by and for themselves. Europeans were not permitted to remain even a few days on any part of the coast, and commerce was confined by political events to China and Japan, and then was not allowed by sea. Tradition says that Korea was civilized by the Chinese about B.C. 1120. The Koreans claim as their first king Ki Tsze, who emigrated from China and

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founded a dynasty at Pyong-yang B.C. 1122. The first European to set foot in Korea was one Gregorio de Cespedes, a Portuguese Jesuit, who was sent over by Hideyoshi in 1594 as chaplain to his second expedition against Korea. In 1654, Hendrik Hamel, a Dutchman, supercargo of the ship *Sparrow-hawk*, with 35 others, was taken to Seoul from the island of Quelpart, where their vessel was wrecked the previous year. They were imprisoned in different parts of the country, and a few of the survivors escaped to Japan in 1666. Hamel's account of his experience was published at Rotterdam in 1668. Korea became subject to Japan in 1692; but the people having requested aid from China, the emperor delivered them from Japanese rule 1698, and substituted his own dominion. Japanese traders established themselves at important points on the coast and carried on a limited commerce there, not being permitted to enter the interior, and receiving only such commodities as the people chose to bring them. The transformation of the kingdom dates from 1865, when a Russian squadron appeared off the coast, and the govt. was requested to grant permission for the Russians to establish a trading station. The regent was alarmed at the request; and, pending an answer, the Russian fleet withdrew, and orders were received from Peking almost simultaneously, that all foreigners should be put to death. The murder of French Cath. priests and their converts was avenged in 1866 by a French expedition which destroyed the forts at the mouth of Han-kiang river. In 1871, the United States sent a squadron under Admiral Rodgers to punish the people for the destruction of an American trading schooner (*Gen. Sherman*) and the murder of her crew, and to exact protection for American seamen on their coast. The fleet advanced up the Han-kiang and captured and destroyed several of the chief river fortifications. The 10 years' regency of the king's father expired 1873, when Li Hsi attained his majority. Hopes were then entertained of a milder treatment of the Christians in the country, but there were few who expected that the country would be opened to foreigners, except by force. In 1876, the Japanese, in consequence of an attack on some of their men on the island of Kang-hoa, sent an armed expedition to negotiate a treaty of peace with Korea, and through the assistance of China, the mission was successful without the use of force. Under this treaty, Korea was to permit the residence of Japanese at three ports on her coast, and to allow the establishment of a legation at the capital, beside granting the right of trade between subjects of the two countries, subject to certain restrictions. Thus, for the first time in 3,000 years, Korea admitted the right of free intercourse with foreigners on her own soil. The innovation led to a short revolution 1882, in which the Japanese legation was sacked and several of its members killed,

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and which was suppressed by a Chinese force sent to the relief of the king. In the trade regulations of 1882, China's right as suzerain was recapitulated and accepted by Korea. At this time the king manifested his desire to establish friendly relations with the great nations of the world, by sending to their capitals an imposing embassy, the members of which were received by Pres. Arthur in the summer of 1883. A treaty with the U. S. was signed 1882, and in 1883 treaties were made with Germany and Great Britain; in 1884, with Russia and Italy; in 1886, with France; in 1888, a new treaty with Russia relating to overland trade; and in 1893, with Austria. In June, 1894, alarmed at a formidable peasant uprising in northern Korea, the government appealed to China; and early in the month an armed Chinese force, numbering about 2,000, was dispatched from Che-Foo to Asan, a port s.w. of Seoul. Looking to the protection of her commercial interests and the safety of Japanese residents and traders in Korea, the authorities of Tokio quickly followed by landing a force of 6,000 troops at Ninson on the western coast. On July 23, the Ming, or pro-Chinese faction in the Korean government, was overthrown and a treaty of alliance between Japan and Korea was signed at Seoul Aug. 26, the first article of which declared the object of the treaty to be to strengthen and perpetuate the independence of Korea, as an autonomous state, by compelling the Chinese forces to withdraw from Korea. At the conclusion of the war between Japan and China (1895), the latter relinquished her claims over Korea, which was then declared independent, and, 1897, Oct. 15, the king assumed the title of emperor. Owing to intrigues with Russian agents, by which that country was given certain valuable concessions in northern Korea and the virtual control of its affairs, Japan insisted on a preponderance of interest in the empire, and this was one of the causes of the war between Russia and Japan. Hence, as soon as war was declared, Korea was speedily occupied by Japanese troops, and it was made the naval and military base for the prosecution of hostilities in Manchuria. At the close of the war Russia recognized the preponderating interests of Japan, and stipulated in the treaty of Portsmouth not to oppose any measures for the government, protection or control of Korea. It appears that the emperor himself was not opposed to this arrangement, for when the treaty between his country and Japan—which had been drawn in conformity with the arrangements with Russia—was presented for confirmation, he directed his cabinet to sign it, and when some of the members objected he ordered their assassination. Under the existing arrangement Japan exercises a suzerainty over the country which amounts virtually to its government, and it is expected that the peninsula will eventually become a province of the island empire.

On July 17, 1907, the Japanese required the king

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Yi-hyeung to abdicate in favor of the crown prince Yi-syek. This request was on account of the king's sending a delegation to the Hague Peace Conference, contrary to existing agreement with Japan. The abdication was effected on the next day and the imperial seal and office were transferred to Yi-syek, who is now the nominal ruler of Korea. As a matter of fact, the present Japanese resident, Marquis Ito, completely holds the reins of government, so that no political or international affairs can be entered upon without his full consent.

Bibliography.—The student must not neglect that rich quarry, the *Korean Repository* (1893), and its successor, the *Korean Review* (1901), published at Seoul. Consult also Griffis, *Corea the Hermit Nation* (3d ed. 1889); *Corea Without and Within*; Ross, *History of Corca* (1891); Lowell, *Chosön, the Land of the Morning Calm* (1886); Oppert, *A Forbidden Land* (1880); Carles, *Life in Corea* (1888); Gilmore, *Korea from its Capital* (1893); Curzon, *Problems of the Far East* (1894); Cavendish and Goold-Adams, *Korea* (1894); Norman, *Peoples and Politics of the Far East* (1896); Bishop, *Korea and Her Neighbors* (1898); Gale, *Korean-English Dictionary* (1897); *Han-Yöng Cha T'yön: a Korean-English Dictionary* (1897); Scott, *Corean Manual*; Underwood, *Introduction to the Korean Spoken Language*; Kennan, *What Japan has done in Korea* (1905).

KORIGAN, or KORRIGAN, n. *kawr'ï-gan* [Armoric]: in *Celt. myth.*, nine fays with long flowing hair and deadly breath, haunting fountains in Brittany.

KÖRNER, *kör'nër*, KARL THEODOR: 1791, Sep. 23—1813, Aug. 26; b. Dresden: patriotic German poet. After publication of some immature verses 1810, he entered the Univ. of Leipsic, but having no aptitude for serious and solid studies, was led into irregularities, which necessitated his leaving the university. After a short residence in Berlin, he went to Vienna, and began to write for the stage. His *Der Grüne Domino* (The Green Domino), *Die Braut* (The Bride), and *Der Naechtwächter* (The Night-watchman), are among the best German comedies. His two most important dramas, *Zriny* and *Rosamunde*, though destitute of that sagacity of thought and knowledge of mankind which are essential to the permanent success of such works, are full of noble enthusiasm. The uprising of the German nation against the despotism of Napoleon, inspired Körner with patriotic ardor. He joined the army of liberation, and showed heroic courage in many encounters. The songs which he then wrote—several of them in the camp—published under the title of *Leier und Schwert* (Lyre and Sword), stirred his countrymen mightily. Their chief power lies probably in their impassioned nationality; foreigners at least fail to recognize in them much more, yet the Germans, remembering his bright youth and heroic death, regard them

KORVEI—KOSCIUSKO.

with a sacred admiration that forbids criticism. The most famous of these pieces is *Schwert-Lied* (Sword-Song), written in his pocket-book at early morning of the day when he was killed in battle near Rosenberg. A collected ed. of his works (*Sämmtliche Werke*, 1 vol. Berl. 1834; 4 vols. 1842, 4th ed. 1853) was published by Streckfuss. A biography, written by his father, has been translated into English, 'with selections from his poems, tales, and dramas,' by G. F. Richardson (Lond. 2 vols. 1845).

KOR'VEI. See CORVEI.

KOSCIUS'KO, MOUNT: highest peak of the Australian Alps, 7,176 ft. high, on the boundary between New South Wales and Victoria, midway between the cities of Sydney and Melbourne, about lat. 36° 30' s., long. 134° 30' w. The Murray and Murrumbidgee rivers rise near its base, and the entire mount affords beautiful scenery.

KOSCIUSKO, *kõs-sĩ-ũs'kõ* (or KOSZIUSKO, *kõsh-chõsh'ko*), TADEUSZ (THADDEUS): great Polish general and patriot: 1746—1817, Oct. 17; b. in the province of Minsk, w. Russia; descended from an ancient and noble, though not wealthy Lithuanian family. He became a captain in the Polish army, and went with the French fleet to America, and served in the War of Independence, in which he showed great valor, and was made brigadier-general. He returned to Poland 1786. In the campaign of 1792, he held a position at Dubjenka for five days with 4,000 men against 16,000 Russians, though he had had only 24 hours to fortify it, and finally withdrew his troops with little loss. This brilliant feat laid the foundation of his military reputation. When King Stanislaus submitted to the will of the Empress Catharine, Kosciusko resigned his command, and retired to Leipsic; but returned 1794, and put himself at the head of the national movement in Cracow, and afterward in Warsaw. With 20,000 regular troops, and 40,000 ill-armed peasants, he resisted for months the united Russian and Prussian army of 150,000 men. He was proof also against the most tempting proposals on the part of the Prussian king. He was at last overpowered by superior numbers in the battle of Maciejowice, 1794, Oct. 10, and fell from his horse, covered with wounds, and uttering the words, '*Finis Polonia.*' He was kept a prisoner till after the accession of Emperor Paul, who restored him to liberty, gave him an estate with 1,500 peasants, and handed to him his sword, which Kosciusko declined to receive, saying: 'I have no more need of a sword, as I have no longer a country.' He afterward resigned the estate, and sent back from London the money which he had received from the emperor. He spent the remainder of his life chiefly in France, and his chief enjoyment was in agricultural pursuits. When Napoleon, 1806, formed a plan for the restoration of Poland, Kosciusko felt himself

KOSMOS—KOSSUTH.

restrained from taking an active part in it by his promise to Emperor Paul; the address to the Poles, published in his name in the *Moniteur*, was a fabrication. In 1814, he wrote to Emperor Alexander, entreating him to grant an amnesty to the Poles in foreign countries, and to make himself constitutional king of Poland. He released from servitude, 1817, the peasants on his own estate in Poland. His death was in consequence of his horse falling over a precipice. His remains were removed to Cracow by Emperor Alexander, and were laid side by side with those of John Sobieski. See the biographies by Falkenstein (1834), Chodzko (1837), and Paszkowski (Cracow 1872).

KOSMOS. See COSMOS.

KOSSUTH, *kōsh'ôt*, LAJOS (LOUIS): leader of the Hungarian revolution: 1802, Apr. 27—1894, Mar. 20; b. Monok, Hungary. His family is of noble rank, though his parents were poor. He studied law at the Prot. college of Sarospatak, and practiced first in his native county, afterward at Pesth. He began his political career at the diet of Presburg 1832, as editor of a liberal paper, which, owing to the state of the law, was not printed, but transcribed and circulated. The subsequent publication of a lithographed paper led, 1837, May, to Kossuth's imprisonment. He was liberated 1840, and became again the editor of a paper, in which he advocated views too extreme for many of the liberal party among the nobles, but which took strong hold of the people in general, especially of the youth of the country. 1847, Nov., he was sent by the county of Pesth as deputy to the diet, and soon distinguished himself as a speaker, and became the leader of the opposition. He advocated the emancipation of the peasants, the elevation of the citizen class, the freedom of the press, etc., and after the French revolution of 1848, openly demanded an independent government for Hungary, and constitutional government in the Austrian hereditary territories. To his speeches must in great part be ascribed not only the Hungarian revolution, but the insurrection in Vienna, 1848, March. On the dissolution of the ministry 1848, Sep., he found himself at the head of the Committee of National Defense, and now prosecuted with extraordinary energy the measures necessary for carrying on war. To put an end to all the hopes and schemes of the moderate party, he induced the national assembly at Debreczin, 1849, Apr., to declare the independence of Hungary, and that the Hapsburg dynasty had forfeited the throne. He was now appointed provisional governor of Hungary; but being disappointed in his hopes for the intervention of the Western Powers, and finding the national cause jeopardized by the entrance of Russia on the scene of action, he endeavored to arouse the people to a more desperate effort. The attempt was vain. Finding that the dissensions between himself and Görgei (q.v.) were damaging the national cause, he

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resigned his dictatorship in favor of the latter. After the defeat at Temesvar 1849, Aug. 9, he found himself compelled to abandon his position, and to flee into Turkey, where, however, he was made prisoner; but though his extradition was demanded both by Austria and Russia, the Porte, true to the principle of hospitality, resisted their demands. In 1851, Sep., he was liberated, and the government of France refusing him a passage through their territory, he sailed in an American frigate to England, where he was received with every demonstration of public respect and sympathy. In Dec. he landed in the United States, where he met a most enthusiastic reception. He returned 1852, June, to England, and there chiefly he resided, until Sardinia and France prepared for war with Austria; when, on condition of something definite being done for Hungarian independence, he proposed to Napoleon to arrange a Hungarian rising against Austria. The peace of Villafranca bitterly disappointed Kossuth. He lived in Turin 1863-1894. See *Memories of My Exile*, by Kossuth (Lond. 1880).

KOSTROMA, *kōs-trō'ma*: government of Great Russia, bounded w. by the govt. of Jaroslav, and e. by the dist. of Kazan; 32,490 sq.m. The surface is flat, marshy, interspersed with lakes, and, especially in the n. and e., with extensive and dense forests. The greater part of the soil is uncultivated. The chief rivers are the Volga, with its tributaries the Kostroma, the Unja, and the Vetluga. The climate is severe. Agriculture is the principal occupation of the inhabitants, and sufficient grain is produced for local consumption. Flax and hemp are extensively cultivated; mats, pitch, tar, and potash are largely manufactured and exported; and there is flourishing trade in timber. Pop. 1,429,200.

KOSTRO'MA: capital of the govt. of Kostroma, Russia, near the junction of the Kostroma with the Volga, 564 m. from St. Petersburg. Kostroma has considerable manufactures, chiefly of linen, and trades in corn, tallow, timber, linseed oil, and leather. Pop. 41,250.

KOTAH, *kō'tâ*: chief town of the protected state of Kotah, in Rajpootana, on the right bank of the Chambal; fortified with a rampart and ditch. The situation is not healthful; but the town has some wealth and some architectural pretensions. In 1857, notwithstanding the fidelity of the rajah to the British govt., Kotah fell under the power of the mutineers, remaining in their possession until 1858, Mar. 30, when it was stormed by Gen. Roberts. Pop. about 33,700.

KOTH, n. *kōth*: a name given by the Spaniards to an earthy, slimy substance of a blackish-brown color, ejected from the volcanoes of S. America.

KOTZEBUE, *kot'sēh-bô*, AUGUST FRIEDRICH FERDINAND VON: prolific German dramatist: 1761, May 3—1819, Mar. 23; b. Weimar. After a checkered life, first

KOUBAN—KRAFT.

in Russia, afterward in Austria and Germany, he was assassinated at Mannheim, on account of his hostility to the liberal movement. He received honors and offices from the Russian emperor, and was for a time under Russian pay in some secret service. Lively characterization and sprightly dialogue gave popularity to his dramas (the chief merit of which consists in their superior knowledge of stage-effect). Among them are *Die Indianer in England* (The Indians in England), *Menschenhass und Reue* (Misanthropy and Repentance)—the latter, under the title *The Stranger*, being well known on the English boards—*Die beiden Klingsberg* (The Two Klingsbergs), *Die Spanier in Peru*, etc. Kotzebue wrote 98 dramas, which have been collected in editions of 28 vols. (Leip. 1797-1823) and of 44 vols. (1827-29). Several have been translated into English.

KOUBAN, *kô-bân'*: river in s. Russia, rising on the declivity of Mt. Elburz and flowing first n., then w., separating the govts. of Stavropol and the Cossacks of the Black Sea from Circassia. It is about 400 m. in length, exclusive of its windings, and empties partly into the Black Sea, partly into the Sea of Azov.

KOU'LI KHAN. See NADIR SHAH.

KOU'MISS. See KUMISS.

KOVNO, *kôv'nô*: government in w. Russia, immediately s. of the province of Courland; bounded s.w. by Prussia and Poland; 15,650 sq.m., not more than one-third of which is cultivated, and about one-third under wood. Flax and honey are important products. The surface is flat and marshy, and there are numerous lakes. The chief rivers are the Niemen, with its tributaries the Vila, Neveja, and Doubissa. *Plica Polonica* is common among the peasantry. Previous to 1843, this govt. formed a part of that of Wilna. Pop. 1,550,000.

KOV'NO: capital of the govt. of Kovno, European Russia, near the confluence of the Vila and the Niemen; founded in the 10th c., the scene of many bloody conflicts between the Teutonic Knights and the Poles, in the 14th and 15th c. Its commerce is insignificant, notwithstanding its advantages of situation near the confluence of two navigable rivers, and on the great railway from St. Petersburg to Berlin. Pop. 73,550.

KOWTOW, *kow-tow*, or KOTOU', n. *'kô*:- the mode of saluting the emperor of China, by prostration before him on all fours, touching the ground with the forehead nine times.

KRAAL, n. *krawl* [Dut. *kraal*, a village, an inclosure]: a village or collection of huts among the Hottentots or Kafirs of s. Africa; an inclosure for cattle in Cape Colony.

KRAFT, *kräft*, ADAM: German sculptor: b. Nuremberg, 1440; d. Schwabach, Bavaria, 1507. Nothing is

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known of his teachers, his student travels or his fortunes. His known productions begin with the seven reliefs (Stations of the Cross) set up in Nuremberg 1490 near the entrance of Saint John's Church; these are now in the German Museum. He executed many sepulchral monuments, and in the Church of Saint Sebaldus is the statue he made for Sebald Schreyer 1492. In the choir of the same church is his bas-relief of three scenes from the Passion, the figures being life-size. He also carved the monument for the Pergerstorff family in the Frauenkirche (Church of St. Mary the Virgin); that for the Landauer family in a chapel of the Church of St. Ægidius. His last work was the Entombment, a group of 15 life-size figures in the mortuary chapel of the Holzsehuherschen family, a part of the Church of St. John (1507). His masterpiece is the tabernacle in the Church of Saint Lawrence, which he took seven years (1493-1500) in completing. It is more than 50 feet high, and is an example of gorgeous Gothic carving enriched with numerous figures. At the foot he has placed his own portrait, life-size. His style is bold and vigorous, his conceptions are profoundly religious, and his power of life-like characterization is wonderful. He is the finest exponent of the Nuremberg school of Gothic sculpture.

KRAIT: one of the most dreaded of Oriental poisonous snakes (*Bungarus cœruleus*), nearly related to the cobras. It inhabits nearly all India and Ceylon, is very common in Bengal and southern India, and causes more deaths than any other snake, since in its pursuit of rats, lizards and snakes, it frequently enters camps and village houses; furthermore, its venom is astonishingly rapid in its effects. It reaches a length of four feet, has smooth scales, a ridge along the spine, no hood, and is bluish or brownish black with highly variable bars and markings of yellow and white. Other deadly species of the same genus of bungars or rock-snakes are the larger *raj-samp* or 'king-snake' (*B. fasciatus*), noted for its active killing of cobras and other snakes; and other species in Ceylon and the Indo-Chinese region. Consult the works of Fayrer and of Ewart on the poisonous snakes of India, and the *Proceedings* of the Zoological Society of London for 1899.

KRAKATOA: a volcanic island in Sunda Strait, between Sumatra and Java; area, 6 sq.m., formerly about 12 sq.m. The island, now uninhabited, is known as having been the scene of a terrific volcanic eruption on the night of Aug. 26-27, 1883. The volcano had been practically inactive for over 200 years until May of 1883, when there were indications of an eruption, which culminated at the date mentioned. A number of explosions occurred, the noise of which was heard for many miles. A mass of rock, in the form of dust, ashes, and small stones, and of the volume of about a cubic mile, was thrown up for a considerable distance. The dust was

KRAKEN—KRAUSE.

projected, vertically, nearly 20 miles, and distributed to all parts of the globe by the upper air currents. The effect, especially as shown in brilliant sunrises and sunsets, was visible for many months. The disturbance created a series of extensive sea-waves which swept over the shores of Java and Sumatra, destroying many villages and causing the loss of more than 30,000 people. The wave-motion was observed in South America. About one-half of the island was destroyed, including the highest mountain. One immediate effect was the darkness which alarmed many people, and which made Aug. 27, 1883, known as one of the dark days.

KRAKEN, n. *krä'kn* [Norwegian]: fabulous water-animal of enormous bulk, described first by Bp. Pontoppidan in his *Natural History of Norway*, and from time to time said to have been seen in the Norwegian seas. Immense magnitude is ascribed to it; it is said to rise from the sea like an island, to stretch out mast-like arms, by which ships are readily drawn down, and, when it sinks again into the deep, to cause a whirlpool, in which large vessels are involved to their destruction. The fable of the Kraken is not to be summarily rejected as unmingled fable. There may, perhaps, be some foundation for it in the occasional appearance of huge cephalopods, to the general characters of which the description given of its form and monstrous arms sufficiently agrees, exaggeration as to size being of course allowed for. Large as are some of the cephalopods known to exist in some seas, there are reasons for supposing that creatures of this kind do exist much larger than any that have been accurately described; and stories, similar to the Norwegian ones recorded by Pontoppidan and others, are current in different parts of the world. Such is the story told by Pliny concerning a vast animal with prodigious arms which impeded the navigation of the Strait of Gibraltar. [See Octopus under POULPE.]

KRAME'RIA. See RATTANY ROOT.

KRAN'ACH, LUCAS. See CRANACH.

KRAPI'NA: town of the Austrian Empire, province of Croatia, on the river Krapina, a branch of the Save, at the s. base of the Ivanica Mountains, 140 m. s.s.e. of Vienna. The surrounding country is very fertile, abounding in corn and wine; and the town has of late rapidly increased in size.

KRAUSE, *krowsē*, LYDA FARRINGTON ('BARBARA YECHTON'): American novelist and writer for young people: b. Saint Croix, W. I., 1864. She was for many years on the staff of *The Churchman* in New York, and among her published books are: *Christine's Inspiration* (1892); *Toinette* (1897); *A Young Savage* (1899); *Fortune's Boats* (1900); *Gentle-Heart Series* (1894); *Ingleside* (1893); *Little Saint Hilary* (1893); *Two Knights Errant* (1894); *A Matter of Honor* (1894); *We Ten* (1896);

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Derick (1897); *A Lovable Crank* (1898); *Young Mrs. Teddy* (1901); *Molly* (1902); *Honor D'Everel* (1903); *Some Adventures of Jack and Gill* (1905); etc.

KRAUSSE, *krows*, ALEXIS SIDNEY: English author and publicist: b. Islington, London, 1859; d. 1904, Sep. 27. He was educated at University College, London; devoted much time to foreign, especially Asiatic history and policy, and contributed largely to newspapers and magazines. Among the books he published are: *Starving London* (1886); *China in Decay* (1900); *Russia in Asia* (1899); *The Story of the China Crisis*; *The Far East, its History and its Question* (1900).

KRAUTH, *krawth*, CHARLES PORTERFIELD, S.T.D., LL.D.: 1823, Mar. 17—1883, Jan. 2; b. Martinsburg, Va.: Lutheran clergyman. He graduated at Pennsylvania College, Gettysburg, 1839, and at the Lutheran Theol. Seminary there 1841; was ordained 1842; held various pastorates till 1875; was editor of the *Lutheran and Missionary* 1861-67, Norton prof. of systematic theology and ecclesiastical polity in the Lutheran Seminary, Philadelphia, 1864-83; prof. of mental and moral science in the Univ. of Pennsylvania 1868-83; and vice-provost there 1873-83. He was a member of the committee on the revision of the Old Test., of the American Bible Society's committee on versions, the American Philosophical and Oriental Societies, and the Penn. Historical Soc.; was an organizer of the general council of the Lutheran Church in America 1869, its pres. 1870, and chairman of its committee on constitution; and was author of more than 100 important publications. He received the degrees S.T.D. 1856, and LL.D. 1874, from Pennsylvania College.

KRAYO'VA. See KRAJOVA.

KRAZINSKI, *krâ-zhîn'skē*, VALERIAN, Count: abt. 1780—1855, Dec. 22; scion of an illustrious Polish family that had early adopted the Prot. religion. He was appointed one of the chief officials in the bureau of public instruction for Poland, and strenuously exerted himself to promote education among the various classes of dissenters. When the Poles rebelled 1830, and set up an independent government, Krazinski was sent as their representative to London, where, from 1831, he remained an exile for 20 years, and then removed to Edinburgh, where he died. His works are of considerable authority on Slavonic history and literature. The chief are: *The Rise, Progress, and Decline of the Reformation in Poland* (Lond. 2 vols. 1839-40); *Lectures on the Religious History of the Slavonic Nations* (Lond. 1849); *Montenegro and the Slavonians in Turkey* (Edin. 1853); with some translations, religious works, and political pamphlets on Poland.

KREASOTE, or KREOSOTE. See CREASOTE.

KREATIN, or KREATINE, n. *krē'ă-tîn*, and KREAT'ININ,

KREEL—KRIMSHAKS.

or KREATININE, n. -*ĩnĩn*, peculiar nitrogenous, crystallizable substances. See CREATIN; CREATININ.

KREEL. See CREEL.

KREFELD, *krā'fělt*: important manufacturing town of Rhenish Prussia, 12 m. n.w. of Düsseldorf. It owes its importance to the settlement here in the 17th and 18th c., of numerous refugees, from religious persecution in neighboring countries, who established here the silk and velvet manufactures for which Krefeld is now the most noted town in Prussia. There are about 120 factories producing silk goods, besides nearly 50 silk dyeing works. The silk and velvet industries employ the greater part of the working population with an annual output valued at about \$17,000,000. There are also railroad shops, machine shops, boiler works, iron foundries, chemical works, distilleries, sugar refineries, tanneries, paper mills, etc. Pop. 106,900.

KREHBIEL, *krā'běl*, HENRY EDWARD: American musical critic: b. Ann Arbor, Mich., 1854, Mar. 10. He was musical critic successively on the *Cincinnati Gazette* and the *New York Tribune*. His published works include: *The Technics of Violin Playing* (1880); *How to Listen to Music* (1896); *Studies in the Wagnerian Drama* (1891); *The Philharmonic Society of New York: a Memorial* (1892); *Music and Manners in the Classical Period* (1898); *Music of the Modern World* (1897). He also edited an *Annotated Bibliography of Fine Art* (1897).

KREMENCHUG, *krěm-ěn-chôg'*: district town of Little Russia, government of Poltava, on the left bank of the Dnieper, 90 m. above Ekaterinoslav. It was founded in the 16th c. by Sigismundus-Augustus, King of Poland, as a barrier against the Tartars. During the reign of Catharine II., it was the chief town of New Russia, and it is now the seat of great industrial and commercial enterprise, containing many factories, chiefly for melting tallow and for rope-making. Pop. 58,650.

KREMLIN, n. *krěm'lin* [Russ. *kreml*, a fortress]: extensive fortress in Moscow, the former capital of Russia; including a palace, and several churches and convents. See Moscow.

KREUTZER, or KREUZER, n. *kroyt'sěr* [from the cross (*kreuz*) formerly conspicuous upon it]: a small copper coin current till 1876 in s. Germany, the 60th part of the gulden or florin (q.v.). It has had a variable value, but always less than two cents of Federal money.

KRIMSHAKS: Jews of the Crimea, supposedly of Turkish origin, who became Russian subjects on the annexation of that province. While resembling their Tartar neighbors in their general manner of life, they are adherents of Talmudic Judaism. The men are tall and have reddish-golden hair; the women have retained

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more closely the Jewish type. Their original date of settlement in the Crimea is unknown—a tradition among them ascribes it to the 6th c. A probably more historical migration has been assigned as having taken place from Constantinople in the 14th c. They are engaged chiefly in industrial lines and are a peaceful people.

KRIS, n. *krīs*: a Malay dagger, or poniard, the universal weapon of the inhabitants of the Malayan Archipelago. It is of many different forms, short or long, straight or crooked. The hilt and scabbard are often much ornamented. Men of all ranks wear this weapon; and those of high rank, when in full-dress, sometimes carry three or four. In Java, women sometimes wear it.

KRISHNA, n. *krīsh'nā*: in *Hindu myth.*, the eighth Avatāra or incarnation of the Hindu god Vishnu. See VISHNU.

KRISH'NA RIVER. See KISTNAH.

KRISS KRIN'GLE: Dutch name for St. Nicholas. See NICHOLAS, SAINT.

KRONE, n. *krō'nā* [Dan. a crown]: a coin of Denmark, Norway, and Sweden, value about 26 $\frac{2}{3}$ cents.

KRONSTADT. See CRONSTADT.

KROPOTKIN, *krō-pōt'kīn*, PETER ALEXEIEVITCH: Russian geographer and revolutionist: b. Moscow, 1842, Dec. 9. He was educated in the Corps of Pages at St. Petersburg, and joining a regiment of Cossacks of the Amur went to Eastern Siberia as aide-de-camp to the military governor of Transbaikalia, becoming later attaché for Cossacks' affairs to the governor-general of Eastern Siberia. He was connected with a prison commission and strove to get some reforms introduced into Siberian convict prisons, but his efforts proved of no avail. From 1863 he devoted his energies to a scientific investigation of Manchuria and the neighboring parts of Siberia, and his work in this department gained him the gold medal of the Russian Geographical Society in 1864. In 1871, he was sent by the Geographical Society to Finland to study glacial phenomena. Arrested in 1874 for promulgating radical ideas of social reform, he was confined in the prison of the military hospital, from which he contrived to escape to England in 1876. In the following year he went to Switzerland, where he founded at Geneva an anarchist journal called *Le Révolté*, but in 1881 was expelled by the Swiss authorities on the demand of Russia. Returning to England in 1882, he wrote and lectured against the government of Alexander III. Having gone to France, he was arrested by the authorities and condemned (1883, Jan.) to five years' imprisonment for participation in the International, but he was released in January 1886, in consequence of a strong appeal made by leading French and English savants. Since then he has lived chiefly in London, engaged in literary work.

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He has written much on scientific subjects and has contributed to various encyclopædias. His separate publications include: *Paroles d'un Révolté* (1885); *In Russian and French Prisons* (1887); *La Conquête du Pain* (1888); *L'Anarchie, sa Philosophie, son Idéal* (1896; Eng. trans. 1897); *The State: its Part in History* (1898); *Fields, Factories, and Workshops* (1899); *Memoirs of a Revolutionist*, first issued serially in *The Atlantic Monthly* (1899); *Mutual Aid, a Factor of Evolution* (1902); *Modern Science and Anarchism* (1903); *The Orography of Asia* (1904); *The Desiccation of Asia* (1904); *Ideals and Realities in Russian Literature* (1905); etc. Prince Kropotkin is one of the ablest representatives and most eloquent exponents of that theory of society known as anarchist-communism. He is opposed to all societies based on force or restraint, and looks forward to the advent of a purely voluntary society on a communistic basis. He desires to see the division of labor, which is the dominant factor in modern industry, replaced by what he calls the 'integration of labor,' and is a staunch believer in the immense possibilities of intensive agriculture. In 1901, he delivered a course of lectures at the Lowell Institute in Boston.

KRUDENER, *krü'déh-nér*, BARBARA JULIANA VON WIETINGHOFF: religious visionary and enthusiast: 1766, Nov. 21—1824, Dec. 25; b. Riga; dau. of Baron von Wietinghoff. When she was but 14 years old she married the Baron von Krudener, Livonian nobleman, Russian ambassador at Venice. Her married life was unhappy, and after the birth of a son and daughter, she was divorced from her husband. The succeeding incidents of her stormy career are supposed to form the groundwork of the novel *Valerie*, which she published 1803. After many adventures, she came to Berlin, where she was admitted to the close intimacy of the queen, Louisa, of all whose projects the baroness was the confidante and sharer. The shock occasioned by the death of this princess is said to have disturbed the balance of Mme. von Krudener's mind; and from that date she became a zealous disciple of the celebrated pietist, Jung Stilling, and ultimately gave herself up to religious mysticism in its most exaggerated form. From Berlin she moved to Paris, where she appeared as a prophetess, and the herald of a new religious era; and she attracted such notice by the fulfilment of certain of her predictions of public events, as of the fall of Napoleon, his return from Elba, and the final crisis of Waterloo, as to obtain access to Emperor Alexander, and eventually to acquire much influence over him. Her gigantic schemes for the elevation of the social and moral condition of the world, caused her to appear a dangerous character in the eyes of persons in authority, and she was compelled to withdraw from France and other countries in succession. In consequence, she retired to one of her paternal estates

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near Riga, where she entered into relations with the Herrnhüter or Moravian Brethren; but her restless disposition soon carried her into fresh enterprises, the latest of which was the formation of a great correctional establishment in the Crimea for the reformation of criminals and persons of evil life. In the midst of her efforts for this object, she died at Kara-su-bazar. Besides the novel already named, her only other work was a pamphlet entitled *Le Camp des Vertus* (Paris 1815); but many curious details of her conversation and opinions are preserved in Krug's *Conversations with Madame von Krudener* (Leipzig 1818).

KRUGER, *kró'gér*, STEPHANUS JOHANNES PAULUS: President of the Transvaal Boer Republic; b. near Colesberg, Cape Colony, Africa, 1825, Oct. 10; d. at Clarens, Switzerland, 1904, July 14. He was the son of a farmer of German ancestry, and distinguished himself early in life by his antagonism to British aggression, in combat with hostile negro tribes, and in heroic hunting adventures, in which he slew several lions. In 1835, when he was ten years of age, the family migrated to the district which afterward became the Orange Free State, and during the two following years he took an active part in several expeditions against Kaffir bands. At sixteen he chose, according to custom, two acres of land for his farm, and soon became noted for his prowess in ridding the district of wild animals. In 1842 he was appointed a deputy field cornet, and the same year was married to Maria du Plessis, a descendant of the historic family to which Cardinal Richelieu belonged; but she dying soon afterward, he married her niece, Gezina du Plessis, in 1847, who bore him nine sons and seven daughters. In 1852 he was elected field cornet, and accompanied Commander-General A. W. J. Pretorius to Sand River, where a convention was concluded by which Great Britain conceded independence to the Boers living north of the Vaal. He was afterward twice wounded in conflicts with the natives, and became commandant-general in the civil war of 1861-64. The following year he went to the aid of the Orange Free State in the war which it was waging with the Basutos, and with only three hundred men fought his way through a large body of Kaffirs which had been sent to intercept his march. Shortly after his return from this expedition he was lamed for life by a carriage accident. In 1872 he was elected a member of the Transvaal Executive Council, and in 1887 headed a delegation to England to protest against a British protectorate. When Gladstone, in 1881, granted the Transvaal substantial independence, outside of foreign relations, Kruger was elected president of the republic, and reelected in 1887-92-97. The large influx of foreigners, due to the discovery of gold in the Witwatersrand, brought the 'Uitlanders,' as the immigrants were called, into conflict with the unprogressive policy of the Boers,

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and Kruger adopted strenuous methods in his efforts to maintain the latter. The 'Jameson Raid' which followed as a protest from the Uitlanders led to diplomatic exchanges with the English government, lasting for three years, when finally, in October, 1899, an ultimatum of the Transvaal government having been ignored, the latter's troops invaded British territory. In the war which ensued the Orange Free State united its fortunes with its sister republic, and the struggle was maintained with remarkable fortitude and astonishing heroism on the part of the Afrikanders for a period of nearly two years. But after a series of splendid successes in the field they were overpowered, and the territory of the two republics was occupied by British troops. Three of Kruger's sons were killed and two made prisoners during the war, and seeing that the conflict was hopeless he fled to Europe, where he was received with numerous manifestations of esteem. His wife died in Pretoria, 1901, July 20, and three years later the old patriot breathed his last while on a visit to Switzerland. His body was conveyed on a British warship to South Africa and buried beside that of his wife, a noble tribute of a generous nation to a fallen foe. Consult: Statham, *Paul Kruger and his Times* (1898); Van Dordt, *Paul Kruger* (1900); and see SOUTH AFRICAN REPUBLIC; BOER; and AFRIKANDER BOND.

KRUPP, *kroop*, ALFRED: German inventor and metallurgist; b. Essen, Prussia, 1812, April 26; d. there 1887, July 14. He was a son of Friedrich Krupp (q.v.). In 1848 he assumed charge of the Krupp Steel Works at Essen and presently discovered the method of casting steel in very large masses. In 1851 he sent to the London Exhibition a block of steel weighing 4,500 pounds, and was able to cast steel in one mass weighing more than 100,000 pounds. Although he manufactured a great variety of articles for use in various peaceful industries, his world-wide fame arose from his production of the enormous siege guns used by the Germans when they invested Paris. Several of Krupp's processes in the manufacture of steel and in the making of cannon were very carefully kept from the knowledge of the outside world and only employees were admitted to his foundries.

KRUPP, FRIEDRICH: German manufacturer; b. 1787; d. 1826. He established a small forge at Essen, Rhenish Prussia, in 1810, experimented in the making of cast-steel, the secret of which was then carefully kept in Great Britain, and was able in 1812 to manufacture some of the material. In 1818, on the site of the present large Krupp establishment, he built a small plant of eight melting furnaces, each with one crucible. He turned out a steel of excellent quality, though not perfectly successful; but demand for the product was then slight, despite its use for mint-dies and some other purposes, and the activity of the manufactory was correspondingly small.

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KRUPP, FRIEDRICH ALFRED: German gunmaker; b. Essen, Germany, 1854, Feb. 17; d. there 1902, Nov. 22. He was known as the 'Cannon King' in Germany and was the son of Alfred Krupp, who invented a new Bessemer steel, out of which he made rifles and cannons, a seamless tire for car-wheels; and discovered a new method of hardening armor plate. His grandfather, Friedrich Krupp (q.v.), founded the steel industry of Essen, beginning in 1817 with two laborers. The present Krupp works cover 150 acres, and the daily output is about 1,877 tons. The Krupps have been head of the iron and steel industry of Prussia for many years; their establishment is one of the greatest in the world. Friedrich Alfred Krupp was the richest man in the empire. He was generous to his operatives, built for them 5,469 dwellings, each with its garden, besides providing convalescent hospitals and orphanages. He also maintained a pension fund of \$4,125,000 for their benefit. He vastly improved the capacity of the business by taking in other steel works at Rheinhausen and in the neighborhood of Magdeburg; acquiring coal mines in Germany, and iron mines in Spain, as well as in Germany. The shipyards and engine shops of Kiel and Berlin which he amalgamated with the mining and founding business, were sources of great wealth, and he owned a fleet of steamers for the exportation of his goods. Thus although he took no active part in his business on its technical side (in which he differed from his father and grandfather) his skill in finance was so great that in 15 years he almost doubled his inherited fortune. Compare: ARMOR-PLATE; ORDNANCE; GUN; GUN MANUFACTURE; etc.

KRUPP'S STEEL. See STEEL.

KRUSENSTERN, *krô'zen-stěrn*, ADAM JOHN, Chevalier von: 1770, Nov. 8—1846, Aug. 24; b. at Haggud in Esthonia: distinguished Russian voyager. He served for some time in the British navy. Emperor Alexander, when he ascended the Russian throne, took up a plan proposed by Krusenstern for the promotion of the American fur-trade, and consequently intrusted him with the command of an expedition both for scientific and for mercantile objects. Krusenstern sailed from Cronstadt with two ships, 1803, Aug. 7, and returned 1806, Aug. 19; and was the first to conduct a Russian expedition around the world. He failed in one of the objects for which he was sent out—the reopening of Russian trade with Japan, but made interesting geographical discoveries; and his careful explorations of coasts made his voyage very important for geographical science. He published an account of this voyage (3 vols.; Petersb. 1810-12, with a vol. of maps and plates), which was soon translated into all the principal languages of Europe. The contributions to natural history resulting from the expedition were the subject of a separate work by Tilesius (Petersb.

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and Leip. 1813); and Krusenstern himself subsequently published *Contributions to the Hydrography of the Pacific Ocean* (1819) and several other works on the same subject.

KRYLOV, *kre-lov'* (or KRILOFF, *kre-lof*, or KRUILOFF, *krwe-lof'*), IVAN ANDREJEVITCH: celebrated Russian fabulist: 1768, Feb. 14—1844, Nov. 21; b. Moscow; son of a poor officer in the army. He received the elements of education at Tver from his mother, and learned French from a French tutor resident in the house of the governor of Tver. Krylov read indiscriminately all books which fell into his hands. Dramatical works made the greatest impression on him, and in his 15th year he wrote an opera *Kafeinitza* (The Coffee Fortune-teller), which was never represented, but attracted notice in Tver, and procured patrons for him, who got him an appointment, 1785, in a public office in St. Petersburg. A bookseller gave him 60 roubles for the manuscript of his opera, which he spent in buying the works of Racine, Molière, and Boileau. In 1786, he wrote another tragedy, *Philomela*, which, though never represented, was printed in the collection *The Russian Theatre*. After the death of his mother, 1788, Krylov received a post in the imperial cabinet, which he resigned two years afterward for literary work. For two or three years, beginning 1789, he occupied himself partly with journalism, but soon gave it up, and produced a succession of prose comedies, among which were *The Crazy Family* (1793), *The Mocking-bird*, and *The Poet in the Anteroom* (1794), which brought him under Empress Catharine's notice. In 1801, he was appointed secretary to Galitzin, governor of Riga, who invited him to his country-house at Saratov, where he spent a few years in entire leisure. He returned to St. Petersburg 1806, where he brought several very successful plays on the stage, *The Milliner's Shop*, *The Lesson to Ladies*, etc. It was at this time, when about 40 years of age, that he turned his attention to that kind of writing which was to immortalize him. Krylov, having translated some of La Fontaine's fables, the poet Dmitriev was so struck with their felicity, that he encouraged him to persevere in that line. In 1808, the first collection of his Fables (23 in number) appeared, which met great success. Others followed 1811 and 16. In 1811, he was made member of the Petersburg Acad.; in 1812, an official in the Imperial Library; in 1830, councilor of state; and in course of time he was so overwhelmed with honors and pensions, that 1841, when he resigned his public office, he drew from the state and the imperial treasury 11,700 roubles. On the occasion of his 70th birthday, homage flowed in on him from all quarters. Soon after his death a national subscription, to which children eagerly contributed their share, was started to raise a monument to his memory; and toward the end of the reign of Emperor Nicholas, his statute in bronze, by

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Kloth, was placed in the Summer Garden at St. Petersburg. The genuine national spirit, the joyousness, simplicity, wit, and good humor that pervade his Fables make them the most popular of Russian books, and many single sentences of them have become proverbs. He produced in all nearly 200 fables, of which more than three-fourths are original, and the rest are imitations. Translations have been made by Ralston (English 1871), Einerling (French 1845), Torney and Löwe (German 1842 and 74), etc. There are numerous Italian and French imitations.

KRYP'TON: a gaseous element discovered in the atmosphere by Ramsay and Travers, in 1898. Krypton was discovered in the last fraction remaining after the evaporation of a considerable quantity of liquid air. The residue consisted chiefly of argon, oxygen, and nitrogen; but when the oxygen and nitrogen had been removed, a spectroscopic examination of what remained showed lines that indicated the existence of at least one new element, in addition to argon and helium. To this new element the name 'krypton' was assigned, from a Greek word signifying 'hidden,' in allusion to the circumstances under which the discovery was made. Little is known, as yet, concerning the properties of krypton. When it was isolated by means of a tedious diffusion process, it was found by Ramsay and Travers to have a density about 40.75 times as great as that of hydrogen, and an atomic weight of about 81.5. The ratio of its specific heat at constant pressure to its specific heat at constant volume was found to be 1.66, as in the cases of argon and helium. Subsequent experiments by Ladenburg and Krügel have indicated a density of about 29.5, and therefore an atomic weight of about 59. Travers, in his book issued subsequently to these later experiments, makes no reference to them. Considerations based upon the periodic law appear to indicate that the results of Ramsay and Travers are the more probable; but this point is as yet undecided. Krypton exists in the air in the proportion of about one part in a million. It has the chemical symbol Kr, and appears to be as inert, chemically, as argon.

KUBAN, kó'bân': district and govt. in Russia, at the n.w. extremity of the Caucasus, at the foot of the Caucasus range of mountains; 36,441 sq. m. The governor, residing at Ekaterinodar (chief town, pop. 65,697), is chief of the Kuban Cossacks, and has both military and civil power. The climate is various but healthful, and the soil very fertile. The river Kuban is navigable for flat boats. Pop. 1,923,000.

KUBELIK, kó'bě-lěk, JAN: Bohemian violinist; b. Miehle, near Prague, 1880. He studied at the Prague Conservatory and subsequently performed at semi-private musicales. In 1898 he appeared at a public orchestral

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concert, and in 1900 with the Berlin Philharmonic Society, and made his *début* in London in June of that year. Subsequently he made a brief but successful tour on the Continent and in England, and in December, 1901, came to the United States, where he was most enthusiastically received.

KÜBLAI KHAN, *kó'blī kân* (called by the Chinese CHI-TSOU), properly KHÛBILAI KHAN, the Khagan, or Grand Khan of the Mongols, and Emperor of China: 1216-94' (reigned 1259-94): grandson of Genghis Khan through his fourth son, Tuly Khan. Being ordered by his brother Mangû, then Khagan of the Mongols, to subjugate the Corea and China, Kúblai entered on the work; and after his accession to the throne at his brother's death, he availed himself of an application, made by Si-Tsung of the Sung dynasty to aid him in expelling the Mantchûs, and entered China (1260) with an immense army, drove out these Tartars (or *Kin* dynasty), and completely confirmed his sway over n. China. Kúblai, who was an able and energetic prince, adopted the Chinese mode of civilization, and endeared himself to his subjects by his attention to men of letters, and the honors which he bestowed on the memory of their former renowned monarchs. In 1276 the great capital of the Sung dynasty surrendered, and into that city—probably then the grandest in the world—Kúblai's army entered as conquerors. In 1279 he completed the ruin of the Sung dynasty by subduing its last remaining force in southern China, and founding a new dynasty—that of the Yuen (the first foreign race of kings that ever ruled in China). From 1259, Kúblai had been the Khagan of the Mongols, so that his dominions now extended from the Frozen Ocean to the Strait of Malacca, and from the Corea to Asia Minor—an extent of territory the like of which had never before, and has never since been governed by any one monarch. Marco Polo visited his court. Irritated by the failure of an expedition against Japan, he indemnified himself by the conquest of Manchuria and other districts; but soon afterward died at Pekin. The grand-dukes of Russia were among his tributaries.

KUEN LUN, *kwên lôn'* (or KUN LUN, or KURKUN, or KOOLKOON) MOUNTAINS: great mountain-chain of central Asia, running generally e. and w. to the n. of Tibet, which it separates from Yarkand and Khoten. The Kuen Lun Mountains have been little explored; but some of the passes crossed are 18,000 ft. high, and several of the peaks are not less than 28,000. The main chain begins at about 76° e. long., and is supposed to cease at about 95° e. At about 92° e. long. it divides into two ranges. Toward the Indus it sends forth many branches down whose valleys the glaciers descend 10,000 ft. Some of these glaciers are among the most stupendous in the world.

KUFIC COINS—KUFIC WRITING.

KUFIC COINS, *kū'fik* (or **CUFIC**): the earliest Mohammedan coins, inscribed with the Kufic or ancient Arabic character (see **KUFIC WRITING**). According to Makrizi, the first were struck in the 18th year of the Hedjrah (A. D. 638), under Caliph Omar, who, wishing to make Islam entirely independent of foreign, chiefly Byzantine and Persian, influence, even in the province of money, caused 'Mohammedan' coins to be struck, in the shape of those Persian and Byzantine ones which had been circulating among his subjects till then, and he caused them to be inscribed with Koranic passages. According to other Arabic writers, however (Al-Makin, Soyuti, Ibn Koteiba, etc.), the earliest Kufic money dates from the time of Caliph Abd Al-Malck (76 H. = A. D. 695), a period much more probable, considering that no K. C. have been discovered anterior to 77 H. They were first of gold and silver, the former being *dinars* (corrupted from denarius—a name, moreover, wrongly applied), of the value of about \$2.56; the latter, *dirhems* (drachma), worth almost 11 cents. Not before 116 H. were copper coins, *fels* (follis? obolus?), introduced, and the material for them was taken by the order of Caliph Walid from a colossal bronze statue of an idol. Figures, human or otherwise, are rarely found on these coins. The legend generally runs either around the margin, or is inclosed by a ring. The oldest dinar—of 77 H.—is preserved in the Milan Museum (formerly Cav. Millingen's collection). Next comes the Stockholm Acad. with a dinar of 79 H. The oldest dirhem found as yet, dated 82 H., is likewise in Milan, in the Museo di Stefano di Mainoni. One of the richest collections of Kufic coins is in the Stockholm Acad.: owing chiefly to the great numbers found on the shores of the Baltic, brought thither probably by Mohammedan traders in the middle ages. Not before the 7th c. H. were the Kufic characters superseded by the modern Neshki upon coins; while for books, etc., they had long fallen into disuse. The best authorities on this subject are Makrizi, Adler, the Tychsens, Reiske, De Sacy, Castilioni, Cataneo, Frähn, Lindberg, Pietraszewski.

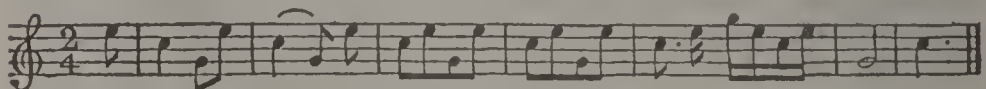
KU'FIC WRITING: ancient form of Arabic characters, which came into use shortly before Mohammed, and was chiefly current among the inhabitants of n. Arabia, while those of the s.w. parts employed the Himjaritic or Mosnad (clipped) character. The Kufic is taken from the old Syriac character (Estrangelo), and is said to have been introduced by Moramer or Morar ben Morra of Anbar. The first copies of the Koran were written in it, and Kufa, a city in Irak-Arabi (Pashalic of Bagdad), being the one which contained the most expert and numerous copyists, the writing itself was called after it. The alphabet was arranged like the Hebrew and Syriac (whence its designation, *ABGaD HeVeS*), and this order, though now superseded by another, is still used for numerical purposes. The Kufic character, of a somewhat clumsy and ungainly shape, began to fall into disuse after about A. D. 1000; Ebn Morla of Bagdad (d. 938) having invented the current or

KUGLER—KÜHNÖL.

so-called Neshki [*nashak*, to copy] character, which was still further improved by Ebn Bawwab (d. 1031), and which now—deservedly, as one of the prettiest and easiest—is fully in vogue in east and west. It is only in mss. of the Koran, and in title-pages, that the Kufic is still employed. A peculiar kind of the Kufic is the so-called Karmatian—of somewhat more slender shape—in which several inscriptions have been found in Arabia, and in Dauphiny, Sicily, etc., and which is seen also on a coronation-mantle preserved in Nuremberg. The Kufic is written with a style, while for the Neshki, slit reeds are employed. Different kinds of the latter character (in which the alphabet is arranged according to the outward similarity of the letters) are the Moresque or Maghreb (Western), the Diváni (Royal—only employed for decrees, etc.), the Tâlik (used chiefly in Persian), the Thsoletki (threefold or very large character), Jakuthi, Riháni, etc.

KUGLER, *kó'glér*, FRANZ THEODOR: 1808, Jan. 19—1858, Mar. 16; b. Stettin: German historian of art. He studied at the Univ. of Berlin, and then pursued the study of the fine arts. In 1833 he became a prof. in Berlin, where he died. His most valuable works are a *Handbuch der Geschichte der Malerei*, etc. (Manual of the History of Painting from the Time of Constantine the Great to the Present Day, 1837), which has been translated into English—the part relating to Italian art by Sir Charles and Lady Eastlake, and that relating to the German, Spanish, French, Dutch, and Flemish schools, under the editorship of Sir Edmund Head; and a *Handbuch der Kunstgeschichte* (Manual of the History of Art, etc., 1842). He is also favorably known as a poet, and author of several dramas.

KUH-HORN, *kó'harorn*, called sometimes ALPHORN: wind-instrument much used by the herdsmen in the mountainous countries of Germany. It consists of a tube about three ft. long, and a little bent, and gradually widening out into a kind of bell, like a bassoon. It is of wood, or of the bark of the willow wrought together and bound by a pitched cord. The sound is produced by a mouth-piece like that of a trombone. It has generally only five notes, but extending over nearly two octaves—viz., C, G, C, E, G. With these five notes, the herdsmen often play interesting melodies, which, among the mountains, have an indescribable charm. The following is a specimen:



KÜHNÖL, *kü'nöl* (or KUINOEL), CHRISTIAN GOTTLIEB: 1768, Jan. 2—1841, Oct. 23; b. Leipzig: learned commentator of rationalistic type though supernaturalistic in tendency; prof. of philosophy at Giessen 1790-99, and from 1799 prof. of theology. His Old Test. commentaries, dry in style but full of learned criticism, formerly had high repute even in the United States; and *Commentarius i-*

KUILENBURG—KU-KLUX KLAN.

libros Nova Testamenti historicus (Leipzig 1807-18, 4 vols., reprinted London 1835, 3 vols.) is still of value.

KUILENBURG: see CULENBORG.

KUKAWA, or KUKA, *kó'ká*: important town of central Africa, cap. of Bornu, in a level district on the w. shore of Lake Tsad, lat. 12° 55' n., long. 13° 26' w. A great fair or market is held here weekly. 12,000 to 15,000 people are often crowded together in the market-place. Pop. abt. 60,000.

KU'KLUX KLAN, *kū'klüks klän*, or KUKLUX: secret political organization formed in the s. states during the reconstruction period after the war of secession, for the purpose of preventing freedmen from voting or holding office, and of obstructing the operation of the reconstruction acts of congress. The order was known by different names in different sections, as 'The Invisible Empire,' 'The White League,' 'The Knights of the White Camellia,' etc., and the first election for officers under what might be called its constitution was held 1867, May. Local or subordinate bodies were called 'dens,' their chief officers 'cyclops,' and members 'ghouls.' A 'province' comprised the 'dens' in a county, and was under the orders of a 'grand giant' and four 'goblins'; a 'dominion' was a congressional district under a 'grand titan' and six 'furies'; a 'realm' was a state, with a 'grand dragon' and eight 'hydras'; and the 'empire' was the whole field of operation and was under the authority of a 'grand wizard' and ten 'genii.' Whether the members had a special regalia for their secret meetings is not known; but abundant evidence established the fact that when on 'duty' the head and shoulders were covered with a hood with holes for the eyes and mouth and bearing fantastic or horrifying figures. As first organized the assoc. sought to achieve its purpose by intimidating the former slaves, and as these after a time began to show fight in the daytime, the 'ghouls' gradually changed the time of their persecution to night, with the result that few negroes would dare venture from their cabins after dark. From mere intimidation the members advanced to brutality and murder; and from persecuting the freedmen they proceeded to punish the 'carpet-baggers' or people from the n. states, and the 'scalawags' or people of the s. who favored the scheme of reconstruction. The 'ghouls' were bound together by the following initiatory oath or obligation, the provisions of which were shown to have been rigidly enforced by evidence taken before the congressional investigating committee: 'I (name), before the great immaculate Judge of heaven and earth, and upon the holy evangelists of Almighty God, do, of my own free will and accord, subscribe to the following sacred, binding obligation: I. I am on the side of justice and humanity and constitutional liberty, as bequeathed to us by our forefathers. II. I reject and oppose the principles of the radical party. III. I pledge aid to a brother of the Ku-Klux-Klan in sickness, distress, or pecuniary embarrassment. Females, friends, widows, and their house-

KULA—KUMAON.

holds shall be the special object of my care and protection. IV. Should I ever divulge, or cause to be divulged, any of the secrets of this order, or any of the foregoing obligations, I must meet with the fearful punishment of death and traitors' doom, which is death, death, death, at the hands of the brethren.' In 1871, Mar., a joint committee of the two houses of congress was appointed to investigate the outrages attributed to the organization, and the first result was the 'force bill' of 1871, Apr. 20, which made K. K. K. offenders punishable in the federal courts, and authorized the pres. to suspend the habeas corpus act in the disturbed regions when necessary, and to employ troops to preserve order. These measures soon caused the overthrow of the order.

KULA, *kó'loh*: town of Austria, in the Servian Woiwodschafft, on the Franzens or Bacs canal, 26 m. n.w. of Neusatz. Pop. 8,100.

KULDJA, *kól'ja*, also called ILI: an important town, capital of a large territory in Dzungaria, central Asia, near the frontiers of Russia and China. It stands on the right bank of the Ili, a considerable river, which, rising in the Tian-Shan Mountains, flows westward into Lake Balkash, after a course of about 300 miles. The town, which till lately had a very brisk and growing trade (the annual imports being valued at upwards of \$150,000) has still a population of near 50,000, composed of Dzungarians, Bokharans, Tajiks, and Chinese. The region in which K. stands revolted against China in 1865, and was occupied and taken possession of by Russia in 1871. Pursuant to a promise then made by the Czar, a treaty was agreed on 1879, by which Russia (1881) restored four-fifths of the province of K., including the town of Kuldja, to the Chinese, who agreed to pay an indemnity. The remainder, retained by Russia, gives that power a foothold, and an influence in the country.

KULM, *kúlm*, or CULM: small village of Bohemia, 10 m. n.n.w. of Leitmeritz; scene of two bloody conflicts between the French and allies, 1813, Aug. 29, 30. The French, numbering 30,000 men, were commanded by Gen. Vandamme; the Russians, during the first day's conflict, were 17,000, and were commanded by Gen. Ostermann-Tolstoi. During the night, the latter were heavily reinforced, and on the second day Barclay de Tolly assumed the command with 60,000 troops. The result was the complete wreck of the French army, which lost in these two days almost 20,000 men, while the allies did not lose half of that number.

KUMAON, *kùm-á-ōn'*: district of British India, in the Kumaon division of the N.W. Provinces; lat. 29°—31° n., long. 78°—81° e. It lies chiefly on the s. slope of the Himalaya, comprising more than 30 summits in that range, which vary in altitude from about 18,000 ft. to nearly 26,000. With the exception of a belt on its s. frontier, 2 to 15 m. broad, the whole country is one mass of mountains and forests. It contains mines of gold, copper, and

KUMARASAMBHAVA--KUMQUAT.

lead, which have never yet been profitably worked. Throughout the s. belt above mentioned, it produces, generally in two crops a year, wheat, barley, oats, millet, peas, beans, etc., with rice, cotton, indigo, sugar, ginger, turmeric, etc. Lately Kumaon has become the rival in India of Assam for the cultivation of the tea-plant. The climate is unhealthful. Area of Kumaon (*Kumáun*) district, 6,000 sq. m.; pop. 563,180. It is sometimes named Almora, after its chief town. The division of Kumaon (in the Oudh section of N.W. Prov.) has 12,438 sq. m.; pop. 1,184,310.

KUMARASAMBHAVA: very famous Hindu poem said to be by Kâlidâsa (q.v.), on the birth of Kumâra or Kârttikeya (q.v.), the Hindu god of war.

KUMBECEPHALIC, a. *kũm-bě-sě-fãl'ík* [Gr. *kumbē*, a boat; *kephalē*, the head]: in *anthropology*, boat-shaped; term proposed by Dr. D. Wilson to denote the peculiar conformation of skulls found in chambered barrows.

KUMBUK, *kũm-bũk'* (*Pentaptera tomentosa*): tree of nat. ord. *Combretaceæ*, native of the E. Indies. It is a noble tree, and produces durable timber. Sir James E. Tennant describes a kumbuk tree in Ceylon, 45 ft. in circumference close to the ground, and 21 ft. at 12 ft. above the ground, which serves as a landmark for boatmen towering high above forests of cocoa-palm, and discernible at a distance of 20 m. The bark of the kumbuk yields a black dye, and contains so much lime, that its ashes are used as lime for chewing with betel.

KUMISS, or **KOUMISS**, n. *kô'mĩs* [Russ. *kumys* or *koomuis*]: intoxicating beverage much esteemed by the Kalmucks; made from the soured and fermented milk of mares. It has an acidulous taste. A spirit is obtained from it by distillation. The tribes which use kumiss are free from pulmonary phthisis, and the observation of this fact has led in w. Europe and America, to the beneficial use of an artificial kumiss made of ass's and cow's milk in cases of consumption. The manufacture of kumiss is carried on in Switzerland, Russia, and elsewhere. An analysis of a Swiss variety showed that it was composed of fully 90 per cent of water, nearly $3\frac{1}{4}$ of alcohol, rather more than 2 of sugar, about $1\frac{3}{4}$ each of butter and albuminates, besides lactic acid, free carbonic acid, and inorganic salts.

KUMQUAT, *kũm-kwât* (*Citrus Japonica*): small species of orange, native of China and Japan, and much cultivated in these countries. It has been introduced into Australia. It endures more frost than any other of the genus, and will probably prove a valuable acquisition to many parts of Europe and America. The plant is a shrub sometimes 6 ft. high, but in cultivation it is not allowed to exceed the height of a gooseberry-bush. The fruit is oval, and about the size of a large gooseberry; the rind is sweet, and the juice acid. It is very de-

KÜNEN—KUNIGUNDE.

licious and refreshing. The Chinese make an excellent sweetmeat by preserving it in sugar.

KÜNEN, *kü'nén* (or KUENEN), ABRAHAM, D.D., LL.D.: theologian: 1828, Sep. 9—1891, Dec. 10; b. Haarlem. He was educated in the local gymnasium; graduated in theology at the Univ. of Leyden 1821; became prof. extraordinary of theology there 1822 and prof. ordinary 1855; was elected a fellow of the Amsterdam Royal Acad. of Sciences 1865; and was pres. of the 6th congress of Orientalists at Leyden 1883. Since 1862 he has been distinguished as an Orientalist, and a critic of the Biblical books, especially of the Pentateuch, advancing the theory of a later origin than has usually been believed. (See GENESIS; HIGHER CRITICISM.) Among his numerous works, nearly all of which have been translated into several languages, the most noteworthy are: *Historico-Critical Investigation into the Origin and Collection of the Old Testament Books*, 3 vols. (1861-65); *The Religion of Israel to the Fall of the Jewish State* (1874-5); and *The Prophets and Prophecy in Israel* (1877). In 1882 he lectured at Oxford and London on *National Religions and Universal Religions*. He received the degree LL.D. from the Univ. of Leyden 1853.

KUNERSDORF, *kó'nérs-dawrf*: village of Brandenburg, in Prussia, nearly 4½ m. n.e. of Frankfurt-on-the-Oder; scene of one of the most remarkable battles of the Seven Years' War, 1759, Aug. 12, in which Frederick the Great was completely defeated by a combined attack of Russians under Soltikof, and Austrians under Laudon. The loss on the Prussian side was 26,000 men, with almost all their artillery and baggage, while their opponents lost 24,000 men.

KUNG, *kông*, or KUNG-CHIEN-WANG (Prince of Yih-Sin): statesman; b. China, 1833, Jan. 1; d. 1891; brother of the emperor Hien-Fung (d. 1861), uncle of the emperor Tung-Che (d. 1875). On the accession of his uncle, he was appointed one of three regents of the empire, and became the actual head of the govt., the emperor confirming all his official acts. As the acknowledged leader of the progressive party in China, he has promoted intercourse with foreign nations, repressed native violence against Christians through the empire, sent several special embassies abroad to study the civil, political, and educational features of other countries, and negotiated the treaty with Japan after the Formosa troubles. He retained his great influence under the emperor Kwang-Seu, and was the founder of the foreign office and chief sec. of state.

KUNIGUNDE, *kô-nē-gûn'déh*, SAINT: d. 1040, Mar. 3, wife of Emperor Henry II., and daughter of Count Siegfried of Luxemburg. Her husband, Duke Henry of Bavaria, was crowned king of the Germans 1002, and emperor 1014. Her reputation having been unjustly as-

KUNKUR—KUNZE.

sailed, she vindicated herself by walking barefooted over hot ploughshares. After the death of her husband 1024, she retired into the convent of Kaufungen, near Cassel, which she had founded, and spent the remainder of her days in pious works. Pope Innocent III. gave her a place among the saints in 1200.

KUNKUR, n. *kôn'kér*: a Hindoostanee term for a superficial accumulation, spread over a very large proportion of India and the adjoining countries, and which seems in point of time to correspond with the drift or boulder clay of Europe; also called KUNKUR-CLAY.

KUNNOJ, *kün-nōj'*, or KUNNOUJ: decayed town of British India, cap. of the pergunnah of Kunnoj, in the dist. of Furruckabad, 65 m. n.w. of Lucknow, on the Kali Nuddi river, about three m. from its junction with the Ganges. At present, the place is little more than an expanse of ruins, mountains of which meet the eye in every direction, on a space of ground much larger, it is said, than the site of London. The greatest part of the standing buildings are uninhabited, and tottering to decay. The few poor people now in the place live in mud huts built up against the old walls. The present town is about a mile long, and half a mile broad, with a ruinous fort of no great antiquity. The most remarkable buildings are two handsome Mohammedan mausoleums. Kunnoj was formerly one of the greatest of Indian cities; and according to some, ranks second in antiquity. One authority considers the town to have existed before the first introduction of Brahmanism from the West. Until about the 12th c. it continued the chief city of India; but 1194, it was attacked by Shaha-buddin Mohammed, sovereign of Ghoor, who defeated the king of Kunnoj, and overthrew that monarchy. After this, the history of the place consists only of a succession of disasters. Pop. about 17,500.

KUNZ, *kônz*, GEORGE FREDERICK, A.M., PH.D.: American gem expert; b. New York, 1856, Sept. 29. He was educated at Cooper Union, and became a special agent of the United States Geological Survey in 1883. He was placed in charge of the department of mines at the Omaha, Atlanta, World's Columbian and Paris Expositions. He has been president of the New York Mineralogical Club and vice-president of the American Institute of Mining Engineers, and is a member of many societies at home and abroad. Besides contributing innumerable papers on gems, minerals, etc., to magazines and reviews, he has published: *Gems and Precious Stones of North America*; and annual reports on the *Production of Precious Stones, in Mineral Resources of the United States*, etc.

KUNZE, *künt'séh*, JOHN CHRISTOPHER, D.D.: 1744, Aug. 4—1807, July 24; b. Artern, Prussian Saxony; eminent among Lutheran theologians in the United States.

KUPFER-NICKEL—KURDISTAN.

After studying theology at Leipzig, he was a teacher in Germany; and was collegiate pastor of the Lutheran St. Michael's and Zion's churches, Philadelphia, 1770-79, and rector (succeeding H. M. Mühlberg, D.D., whose daughter he married) 1779-84. He influenced the College, now Univ., of Pennsylvania in the direction of an interest in the German language and German students. He was pastor of the Lutheran church in New York from 1784 till his death, aided in founding the New York Univ., and was one of its regents and the prof. of Oriental languages and literature. In doctrine he was of the Pietistic school, and was eminently faithful and useful in all Christian work.

KUPFER-NICKEL, n. *kûp'fêr-nîk'l* [Ger. *copper nickel*]: a term applied by the German miners to a native alloy of nickel and arsenic; the arsenide of nickel. KUPFER-SCHIEFER, n. *-shê'fêr* [Ger. *copper slate*]: a dark, bituminous-looking, slaty marlstone, richly impregnated with copper pyrites.

KUPFERSCHIEFER, *kûp'fêr-shêf-êr*: one of the series of strata which make up the Permian rocks. It consists of beds of dark shale with copper ore (hence the name), and containing beautifully preserved fish, of species nearly allied to those of the Coal Measures.

KURA, *kô'râ*, or KUR, *kôr* (anc. Cyrus): principal river of the Caucasus. It rises in the Sahlanlu chain, and after a s.e. course of 535 m., falls into the Caspian Sea by several shallow channels, about 60 m. n. of the Persian boundary. Its chief tributaries are the Aras (anc. *Araxes*), the Alazan, and the Yora. The Kura has so rapid a course, and changes its channel so frequently, that to bridge it is in much of its course almost impossible.

KURDISTAN, *kôr-dîs-tân'* (*Country of the Kurds*): extensive region of w. Asia, lying n.w. and s.e., lat. 34°—40° n. and long. 40°—48° e.; bounded n.e. by Armenia, Azerbaijan, and Irak-Ajemi; and s.w. by the Tigris and Aljezira. Kurdistan belongs to the Turkish and Persian monarchies, chiefly to the former, and contains about 50,000 sq. m. Pop. according to Chesney's estimate 3,000,000—probably a great exaggeration, though we have no means of disproving it. The country, with the exception of the tract bordering on the Tigris, is very mountainous, some of the peaks being nearly 13,000 ft. above sea-level; these mountain-ranges divide the surface of the country into fertile valleys and extensive table-lands. The s. part is mostly low and flat, parched in summer and verdant during the wet season. The country is traversed by the Euphrates, Tigris, Zab-Ala, Zab-Asfal, and Diyala or Shirvan, and contains several lakes, the chief of which are Van and Urumiah. Four-fifths of the inhabitants are Kurds (anc. *Carduchi* and *Gordyaei*), a race partly nomad and partly agricultural,

KURILE ISLANDS—KURODA.

who occupy themselves chiefly with the breeding of cattle, sheep, goats, and horses. The settled portion of the pop. consists of Kurds, Turks, and Persians, who are engaged in agricultural employments. The Kurds, who belong to the Indo-Germanic stock and speak a language allied to the modern Persian, have from time immemorial stood on the same low level of civilization. They live under chiefs of their own, but are nominally subject to the Porte and the Shah of Persia respectively, though neither government really controls them. The Armenians, who have long suffered much at the hands of plundering nomad Kurds, were by the Berlin Treaty guaranteed to receive from the Porte immunity from Kurdish incursions. In 1880, an extensive Kurdish rising against Persia took place, apparently in the hope of securing independence. The inhabitants, with the exception of the Nestorians (q.v.), who inhabit the valley of the Tigris, profess a debased form of Mohammedanism. The chief towns in Turkish Kurdistan are Bitlis (q.v.), Van, Urumia, and Diarbekir; in Persian Kurdistan, Kermanshah (q.v.) and Irak-Ajemi.

KURILE ISLANDS, *kô'rîl* (Jap. name *Chi-Shima*—Thousand Islands): line of islands in the n. Pacific Ocean, belonging to Japan, extending between the s. extremity of Kamtchatka and the Japanese island of Yesso. The islands are 22 in number, 19 of which were possessed by Russia, until 1875, when they were ceded to Japan, in exchange for the half of Saghalien. Area about 3,850 sq. m.; pop. between 200 and 300. Since 1781, no tribute has been collected here. The Kurile Islands all are volcanic. The vegetation is poor; the principal productions being the furs of foxes, wolves, seals, and beavers. Navigation near the islands is difficult.

KURILIAN, a. *kû-rîl'î-ăn*: applied to a chain of islands in the Pacific extending from the southern extremity of Kamtchatka to Yesso; N. a native or inhabitant of the Kurile Islands.

KURISCHES HAFF, *kô'rîsh-és hâf*: extensive lagoon, separated from the Baltic Sea by a ridge of sand one to two m. in width. It extends nearly 60 m. along the coast of e. Prussia from Labiau to Memel, where it enters the Baltic by the 'Memel Deeps,' a channel about 1,000 ft. wide and 12 ft. deep. Its greatest breadth at the s. extremity is about 28 m.; average breadth not above 14 m. The waters of the Kurisches Haff are fresh. Its depth is very variable, hence its navigation, accomplished by large flat boats, is both difficult and dangerous. The belt of land is called the 'Kurische Neerung,' and has a few villages upon it.

KURODA, KIYOTAKU: Japanese statesman; b. province of Satsuma, about 1847. He received a thorough native education; was active through the revolution 1868;

KUROKI—KUROPATKIN.

served as aide to one of the principal generals, and was intrusted with the subjugation of the rebels in the province of Yeso; and under the new govt. became chief of the dept. created for the colonization and industrial improvement of Yeso. In 1871 he was sent on a diplomatic mission to England and the United States, and while in this country organized a staff of geologists, scientists, and educators for service in Japan. In 1874 he was appointed a state councilor and lieut.-gen. of the imperial army, and 1876 was in charge of the expedition to Corea. He was the first Japanese to advocate and promote female education, and was author of the plan to secure the education of a certain number of women of Japan in foreign institutions.

KUROKI, *kü'rō-kī*, GEN. BARON TAMESADA: Japanese military commander; b. 1844, at Kagoshima on the southern island of Kiushiu, the birthplace also of Saigo Nanshu, the great military leader in the overthrow of the Shogun in 1868; of Field-marshal Marquis Oyama, and of Admiral Togo. Kuroki came of an old Japanese family of pure samurai stock, and his father was not a Pole, as popularly reported. His parents gave him the name of Shichizaemon, which he changed later to Tamesada. He received a military education and was early noted for his calm, serious, and self-contained characteristics. He fought with great bravery under Saigo against the Shogun's forces, and was promoted chief of a company of Satsuma samurai, which took part in the battles of Fushima, Yodo, Aizu and Yakamatsu. He advanced rapidly to the grades of captain of a sub-company of the Mikado's bodyguard, to major, and lieutenant-colonel, in the last capacity fighting the victory of the Mikado forces over those of his former commander Saigo, who quarrelling with his old friends, had raised the standard of the Satsuma rebellion 'against the Emperor's evil advisors,' in 1887. In 1894, Kuroki was inspector-in-chief of the southern fortifications, was responsible for the mobilization of the Japanese forces at the outbreak of the Chino-Japanese war, and on January 29-30, 1895, commanded the successful attack on the 12 forts at Weihaiwei, and the Chinese war-ships in the harbor. In the Russo-Japanese war, 1904-05, he came prominently to the fore, when, on May 1, after a six-days' fight, he successfully accomplished the crossing of the first Japanese army over the Yalu river and coöperating with the other Japanese commanders, continued the victorious campaign in Manchuria.

KUROPATKIN, *kô-rô-pât'kin*, ALEXEI NICOLAIEVITCH: Russian military officer; b. 1848, March 17. He was educated in the military schools, and entered the army as second lieut. 1866; served two years in Turkestan, and was made capt. 1870. He saw service, 1874, in Algeria as a volunteer in the French army, and won the decoration of the legion of honor for dis-

KUROPATKIN.

tinguished gallantry. In the war with Turkey, 1877, he showed eminent valor and enterprise at Plevna, and at Shipka pass, where he was wounded and left on the field for dead. Again, 1880, he was with the army in Turkestan, proving himself everywhere a brave soldier and a resourceful commander. He became maj.-gen. 1882, and lieut.-gen. 1890; 1890-98 he was gov. of Transcaucasia, and then till after the outbreak of the war with Japan was minister of war; in that office he was opposed to the policy of making war on Japan, the Russian military resources in Manchuria being gravely insufficient and incapable of being strengthened immediately. Nevertheless, in the second month of the war Kuropatkin was sent to take command of the army in Manchuria, including the north of Korea and the Liao-tung peninsula with Port Arthur. The viceroy, Admiral Alexieff, had been till then commander-in-chief of the army and navy in Manchuria, and Kuropatkin's relation to him seemed to be ambiguous; at times it appeared as if he was in a sense subordinate to the viceroy. Kuropatkin's task was to withstand and beat back the Japanese on the Korean frontier and the Yalu river on the e.; and on the w. in the Liao-tung peninsula, to prevent the investment of Port Arthur; the distance between these two fields of action made it impossible for Kuropatkin personally to conduct operations in the latter field. Confronted on the Yalu and the Korean frontier by Japanese armies superior in numbers, artillery, mobility, and enterprise, to his own, Kuropatkin was driven back steadily and with fearful loss from one defensive position to another—from the Yalu to Feng-wang-chang, to Hai-cheng and other places, to the very strongly fortified city of Liao-yang, and thence to Mukden, making at each a most stubborn resistance, and everywhere inflicting on the enemy losses scarcely less than his own; in the last six days of incessant fighting, day and night, at Liao-yang the enemy's loss was much greater than the Russians. Meanwhile the army sent by Kuropatkin for the relief of Port Arthur was forced back out of the peninsula, and Port Arthur itself was closely invested by the Japanese army and fleet. A reorganization of the Russian army in Manchuria was decided on at St. Petersburg; another great army of 250,000 or more was ordered to the Far East; and these two armies were to have for commander-in-chief the Grand Duke Nicholas Nicolaievitch. Kuropatkin, however, remained in command, and Oyama, after his brilliant victory at Liao-yang, 1904, Aug. 30—Sept. 9, went into winter quarters, while Kuropatkin strongly intrenched his troops and reinforcements along the Hun river, south of Mukden, with the latter city as a base. General Stoessel surrendered Port Arthur, 1905, Jan. 2, and early in March, Oyama again assumed the offensive against Kuropatkin. The terrific battle of Mukden, Mar. 6 to 12, ended in the total

KURO-SHIWO—KURSK.

defeat and rout of the Russians, and the retreat to Tie Pass. Kuropatkin tendered his resignation, which was accepted without comment by the Czar, and he was succeeded Mar. 16, by an antagonistic rival, Gen. Linevitch, who declared that 'the retreat was an error,' and the position 'a sad inheritance.' Nevertheless it is conceded that Kuropatkin evinced splendid loyalty, courage, and firmness, and perhaps, with the exception of the useless offensive movement from Liao-yang, ordered from St. Petersburg, did all that could have been expected from him in the face of a superior foe. Rather than return to retirement, Kuropatkin asked for and received a brigade appointment, serving in the field under his former subordinate officer. As a military writer he is favorably known by several volumes, including *Kashgarie* (1879), for which he received the gold medal of the Imperial Russian Geographical Society; *The Operations of the Troops of General Skobelev during the War of Russia with the Turks* (1885); etc.

KURO-SHIWO (*Black Current*), or JAPANESE CURRENT: n.e. deflection of the n. equatorial current of the Pacific Ocean, which strikes the coast of Asia between the Philippine Islands and Japan. It is a warm oceanic stream during the s.e. monsoon, similar to the Gulf Stream of the Atlantic; and while sending many branches to the inland seas and channels of the n.e. coast of Asia, continues as the main body n. to lat. 40°, where it divides into two forks, one flowing along the Kurile Islands, the Kamtchatka peninsula to Behring Sea, thence through Behring Strait into the Arctic Ocean, the other and larger fork crossing the n. Pacific Ocean, curving s. by Alaska and British Columbia, a small part then returning as the n. equatorial current, and the larger part forming the Mexican current that extends along the coasts of Cal. and Mexico. The water of the Kuro-Shiwo is deep blue in color, and has an average velocity of 3 m. an hour. It is said that flotsam started in this current off Japan will make its way to the Hawaii Islands if left alone; and Japanese junks have been found wrecked on the Pacific coast of America and on the shores of Hawaii.

KURSK, *kôrsk*: one of the govts. in the s. of Great Russia; s. of Orel; 17,873 sq. m., the most of which is arable. The province is watered by feeders of the Dnieper and of the Don. The soil being very fertile, large crops of corn are raised, and even in scanty years, Kursk can supply the neighboring provinces. The people mostly are employed in farm-tillage, though a large number devote themselves to cattle-breeding and orchard-gardening. The principal manufactures are spirits, leather, soap, and saltpetre, and the products are largely exported. Hemp and horses also are important items in the export trade of the province. Pop. 2,396,577.

KURSK: chief town of the govt. of Kursk, on the

KURTZ—KÜSTENLAND.

right bank of the Seim, a branch of the Dezna. It dates from the 9th c. It suffered considerably from the ravages of the Tartars and Poles, but is still flourishing, carrying on considerable trade in tallow-melting, rope-making, and tanning. Kursk is noted for its orchards, the fruit of which is in great request. Near the town, a fair is held in July, when more than \$5,000,000 worth of commodities are disposed of, the chief being manufactured silk and woolen fabrics, sugar, tea, horses, etc. Pop. 52,896.

KURTZ, *kôrts*, CHARLES M., A.B., A.M., PH.D.: art expert; b. New Castle, Pa., 1855, Mar. 20. He was graduated from Washington and Jefferson College in 1876, studied at the National Academy of Design (New York), was for some time on the staff of the New York *Tribune*, was nine years editor of *National Academy Notes*, and edited the *Art Union Magazine* in 1884. In 1891 he withdrew from journalism and was appointed assistant chief of the department of fine arts in the World's Columbian Exposition (Chicago 1893). In 1894-9 he was art director of the St. Louis annual exposition, in 1899 was appointed assistant director of fine arts for the United States at the Paris exposition of 1900, and in 1901 assistant chief of the department of art at the Louisiana Purchase exposition.

KURU: name of great celebrity in the ancient or legendary history of India. See MAHÂBHÂRATA.

KURUM, *kâr'ûm* (*Kurram*): river rising in Afghanistan near the n. end of the w. Suliman range, and flowing through British territory into the Indus near Isakhel. Through the beautiful, and in many places fertile valley, is the famous pass of Kurum into Afghanistan, of which so much was heard during the Afghan war 1879-81.

KURUMAN: town and river in the country of the Bechuanas or Betjuans (q.v.), not far n. of the border of Griqualand West. It is an important missionary centre, and was for many years the scene of the labors of Dr. Robert Moffat (q.v.).

KUSH, THE HINDU. See HINDU KUSH.

KUSKOQUIM, *kûs'ko-kwîm*, RIVER: second largest stream in Alaska, and the largest whose sources are wholly within the territory; rises in the Chigmit Mountains, and after s.w. course of about 500 m. empties into Kuskoquim Bay, in Behring Sea, lat. 64° n., long. 162° w. It has valuable mineral deposits along its banks, and the vegetation in its region is more promising, and the timber larger and more accessible than in any other part of w. Alaska. The region was partially explored by special U. S. census officers 1880, and by officers of the U. S. revenue service 1886.

KÜSTENLAND, *kûs'tên-lânt* (i.e., *Coast Districts*, Ital. *Litorale*): division of Austria, consisting of the

KUTAIS—KWANDO.

county of Görz and Gradiska, markgrafdom of Istria (q.v.), and the town of Trieste with its territory. It lies between Carniola and the Gulf of Venice; 3,048 sq. m. Together with Carinthia and Carniola, it constituted in former times the kingdom of Illyria. (See ILLYRICUM). The surface is mountainous. The soil in general is fruitful; in the lowlands figs ripen with scarcely any cultivation, and wine is extensively made. There is extensive commerce at the various seaports. Pop. (1903) 756,546.

KUTAIS. See TRANSCAUCASIA.

KUTCH, n. *küch* [etym. doubtful]: the packet of vellum leaves in which gold is placed to be beaten. The package for the second beating is called the shoder, for the third the mold.

KUTUSOV, *kô-tô'zof*, MICHAEL LAURIONOVITSCH GOLENITSCHEV, Prince of Smolenskoi: 1745-1813, Apr. 28: Russian field-marshal. He early entered the Russian army, and 1787 was appointed gov.-gen. of the Crimea. He distinguished himself in the Turkish war, and was appointed 1805 to command the first *corps d'armée* against the French. He was second in command of the allied army, under Emperor Alexander at Austerlitz. In 1811-1812, he commanded the Russian army in the war against the Turks; in 1812, notwithstanding his advanced age, as commander-in-chief of the army against the French, he obtained a great victory over Davout and Ney at Smolensk. He died at Bunzlau.

KUVERA, *kû-vā'ra*: the Hindu Plutus, or god of wealth. He owes his name—which literally means 'having a wretched (*ku*) body (*vera*)'—to the deformities with which he is invested by Hindu mythology. He is represented as having three heads, three legs, and but eight teeth; his eyes are green, and in the place of one he has a yellow mark; he wears an earring, but only in one ear; and though he is properly of a black color, his belly is whitened by a leprous taint. He is seated in a car (*pushpaka*), which is drawn by hobgoblins. His residence, *Alakâ*, is situated in the mines of Mount Kailâsa, and he is attended by the Yakshas, Mâyus, Kinnaras, and other imps, anxiously guarding the entrance to his garden, Chaitraratha, the abode of all riches. Nine treasures—apparently precious gems—are especially intrusted to his care.—His wife is a hobgoblin, *Yakshî* or *Yakshinî*; their children are two sons and a daughter. As one of the divinities that preside over the regions, he is considered also to be the protector of the north.

KUYP. See CUYP.

K. W.: abbreviation for kilowatt (q.v.).

KWANDO (or *Cuando*), usually, but less properly, called Chobe: one of the head streams of the Zambesi (q.v.).

KWANGO—KYRIE.

KWANGO (or *Coango*): a large west African river, rising about $11\frac{1}{2}^{\circ}$ s., and a little east of 19° e., and flowing n. and n.w. for 400 miles till it joins the Congo, in long. $15^{\circ} 10'$ e. On it are the great falls of Caparanja, 163 feet high.

KWANG-SI': province. See CHINESE EMPIRE.

KWANG-TUNG': province. See CHINESE EMPIRE.

KWANZA, *kō-ân'za* (also *Cuanza* or *Quanza*): river of w. Africa. It rises in the Kimbandi country, lat. $14^{\circ} 20'$ s., long. $18^{\circ} 10'$ e., and flows n.w., 500 m. to the Atlantic, lat. $9^{\circ} 30'$ s., near St. Paul de Loanda. In its course it separates the province of Angola from Benguella, and is navigable to the town of Dindo, 120 m. up from the Atlantic, when the cataracts of Cambambe interrupt further progress. See Capello and Ivens, *From Benguella to Yacca* (1882).

KWEI-CHU', or **KWEI-CHOW'**: province. See CHINESE EMPIRE.

KWICKPAK, *kwik-pâk'*, RIVER: one of the delta arms of the great Yukon river in Alaska; wide, shallow, with numerous expansions like the lakes of the main river, and about 52 m. long. Because of the similarity of features, it is often confounded with the Yukon itself.

KYANITE. See CYANITE.

KYANIZE, v. *kī'ân-îz* [after *Kyan*, the discoverer]: to preserve wood from dry-rot by steeping it in a solution of corrosive sublimate, or other suitable substance. **KY'ANI-ZING**, imp. **KY'ANIZED**, pp. *-îzd.*—*Kyanizing* is the most efficacious method of preserving vessels from dry-rot (q.v.), by injecting into the pores of the wood a solution of corrosive sublimate; invented by John H. Kyan (1774-1850, b. Dublin).

KYE, n. plu. *kī* [Fris. *kij* (see **KINE**)]: in *Scot.*, cows. **KYLOE**, a. or n. *kī'lō*, designating Highland cattle of a small size, particularly those from Skye.

KYLE, *kīl*: central district of Ayrshire (q.v.).

KYMATINE, n. *kī'mât-în* [Gr. *kumatos*, a wave]: an indurated form of asbestos, its composition indicating a passage from tremolite (q.v.) to actinolite (q.v.).

KYRIE, n. *kīr'î-ē* [Gr. *Kuriē*, O Lord—from *Kuriōs*, Lord]: a word standing for *Kyrie Eleison*, used to denote those parts of divine service beginning 'O Lord, have mercy.' **KYRIE ELEISON**, *ē-lī'son* [L. *Kuriē*, O Lord; *elēison*, have mercy—from Gr. *Kuriē elēison*]: form of prayer which occurs in all the ancient Greek liturgies, and is retained in the Rom. Cath. mass. It follows immediately after the Introit, and forms the introduction to the hymn of praise, 'Gloria in excelsis Deo' (Glory to God on high). The retention of the Greek language in this prayer, is one of many evidences of the predominance of the Greek element in the early Roman Church.

KYSON SANDS—KYTHE.

The same peculiarity occurs in a few others of the Roman services, especially those of Holy Week.

KYSON SANDS, n. *kī'sōn sǎndz*: a bed of Eocene sand occurring at Kyson or Kingston, Suffolk, celebrated for its yielding the remains of the monkey tribe.

KYTHE, v. *kīth* [AS. *cythan*, to make known—from *cuth*, known]: in OE., to make known; in *Scot.*, to show; to come in sight; to appear in proper character. KYTH'ING, imp. KYTHED, pp. *kīht*.

L

L, l, ěl: twelfth letter, and ninth consonant of the English alphabet, called *Lamed*, i.e., 'ox-goad,' by the Hebrews, doubtless from its resemblance to that implement—a resemblance still traceable in the Phœnician. L belongs to the order of consonants called Liquids, and has the closest affinity to R. In some languages, as in Pehlwi, there is only one sign for both; and in others, the one or the other sound is altogether wanting. Hence the numerous substitutions of the one sound for the other in the Aryan languages. Thus, Eng. *plum*, Ger. *pflaume*, from Lat. *prunus*; Eng. *pilgrim*, Lat. *peregrinus*; Gr. or Lat. *epistola*, Fr. *épître*; the Swiss peasants pronounce *Kirche*, *Kilche*; and the Lat. termination *-alis* becomes, after *l*, *-aris*—as, *materi-alis*, *famili-aris*. L is also interchangeable with *n*—as, Gr. *pneumon*, Lat. *pulmo*; and, rather strangely, with *D* (q.v.). In certain combinations, the *l* of Latin words has become *i* in Italian—as, *planus*, *piano*; *Florentia*, *Firenze*. In Eng. *l* is often mute, as in *calm*, *yolk*, *should*. In the Scottish dialect, it is mostly mute in the end of words—as, *fa'*, *fu'*, *a'*, for *fall*, *full*, *all*. Similar to this is the frequent melting of *l* into *u* in modern French—thus, *à le* has become *au*; *chevals*, *chevaux*. L final in monosyllables preceded by a single vowel is usually found doubled, as in *call*, *tell*, *mill*, *doll*, *bull*.

LA, *lâ* [It. and F.]: in *music*, the sixth note of the scale = A—thus, *ut*, *re*, *mi*, *fa*, *sol*, *la*. See SOLFEGGIO.

LA! int. *law* [AS.]: an exclamation of surprise or admiration; look!

LAAGER, n. *lā-ăg'ér*, or *lâg'ér* [Dut. *laag*, a row, a tier]: in s. *Africa*, any camp fortified by means of wagons or otherwise as a protection against attacks by bodies of natives.

LAALAND, *law'lân*, or LOLLAND, *lol'lân* (*low land*): Danish island in the Baltic, at the s. entrance to the Great Belt; area, 452 sq.m. The surface is remarkably flat, and the soil exceedingly fruitful. Forests of beech and oak cover more than 50 sq.m. The chief town is Naskov—pop. (1880) 5,278—with a good harbor, and considerable trade. At Aatholm, near the Nysted Fiord, there is the largest, and in exotic plants the richest, private garden in Denmark. Pop. 70,600.

LA BADIE, *lâ bâ-dē'*, JEAN DE: Pietist leader: 1610, Feb. 13—1674, Feb. 13; b. Bourg, near Bordeaux, France.

LABADISTS—LABARRAQUE'S SOLUTION.

He was educated at the Jesuit school in Bordeaux, where his talents led the Jesuits to secure him for their order. Studying the Bible, Augustine, and the Mystics, he adopted much of the doctrine of Augustine with the experimental and practical views of the Pietists. This led to his separation from the Jesuits and to his becoming a preacher to the people in Bordeaux, Paris, and Amiens, where his passionate reformatory preaching made much impression, and finally aroused such persecution that he retired to Gravelle. There he read Calvin's *Institutes*, and embraced the Prot. faith, and was soon appointed preacher and prof. of theology at Montauban—being deemed the most important convert from Rome since Calvin. For a little time he was pastor at Orange on the Rhone, then at the French church in London, and at Geneva, and 1666 at the French church in Middelburg. Though his spiritual fervor had contributed to the moral elevation of the newly-gathered congregations, his reformatory zeal had an increasing tendency to separatism and fanaticism, which at Middelburg brought him into collision with the ecclesiastical authorities, and he was suspended 1668. The result was the formation of a separate congregation or sect of Labadists who held that the church is a company of saints, that only believers are to be baptized, that the Holy Spirit guides the regenerate into all truth, and gives the church through all time the miraculous gifts of apostolic days; that the church should live together in community of goods, eating together; that the children of the church are born without original sin; that marriage with the unregenerate is not binding. The separatist ways of the sect brought them into conflict with the authorities, and they removed from place to place. Invited by Princess Elizabeth, La Badie and his followers settled at Herford, Westphalia, 1670; but a burst of wild enthusiasm in the congregation alarmed the magistrate, and they were expelled from the city 1672. They migrated to Altona, where La Badie died, and the sect after a few years disappeared.

LABADISTS, n. plu. *lăb'ă-dîsts* [after *Jean de La Badie*, their founder, originally a Jesuit]: Protestant religious sect of the 17th c., ascetics who chiefly sought reform of morals. See LA BADIE.

LABARRAQUE'S SOLUTION, *lă-bă-râks'*: the liquor *Sodæ Chlorinatæ* of the U. S. and British pharmacopœias. To make it, eighty parts of chlorinated lime (bleaching powder) are mixed with four hundred parts of water. One hundred parts of carbonate of sodium are dissolved in four hundred parts of boiling water, and immediately the latter solution is poured into the first, and the vessel is tightly covered. When cold, enough water is added to make the whole weigh 1,000 parts. It is strained and decanted or siphoned off from any residue. This solution was introduced as a disinfectant first by Labarraque,

LABARUM—LABEDOYERE.

apothecary of Paris. It has a faint odor of chlorine, alkaline reaction, specific gravity 1.044. It is essentially hypochlorite of sodium (NaOCl) with some chloride of sodium (NaCl). It is administered internally in medicine as a stimulant, antiseptic, and resolvent. It is used in typhus and scarlet fevers, etc. It is used as an injection and lotion after suitable dilution. It is also employed as a disinfectant.

LABARUM, n. *lăb'ăr-ŭm* [L. *lăbărum*; Gr. *labărŏn*]: the famous military standard of the Roman emperor Constantine, designed to commemorate the miraculous vision of the cross in the sky said to have appeared to him on his way to attack Maxentius, and to have led to his conversion to Christianity. It was a long pike or lance, with a short transverse bar of wood attached near its extremity, so as to form something like a cross. On the point of the lance was a golden crown sparkling with gems, and in its centre the mysterious monogram of the cross and the initial letters of the name of Christ, with the occasional addition of the Greek letters A and Ω (*Alpha* and *Omega*). From the cross-beam depended a square purple banner, decorated with precious stones, and surrounded by a rich border of gold embroidery. The cross was substituted for the eagle, formerly depicted on the Roman standards, and there were sometimes other emblems of the Savior. Between the crown and the cross were heads of the emperor and his family, and sometimes a figure of Christ woven in gold.

LABDANUM. See LADANUM.

LABEDOYERE, *lă-băh-dwâ-yăr'*, CHARLES ANGELIQUE HUCHET, Count DE: victim of the reaction of 1815 in France: 1786, Apr. 17—1815, Aug. 19; b. Paris; descended from an ancient family in Bretagne. He early entered the army; was adjutant to Marshal Lannes in Spain 1808, and received a severe wound at Tudela; joined the army in Germany after his recovery; distinguished himself at the capture of Ratisbon, and was Murat's adjutant at the battle of Esslingen. On the evening before the battle of Lützen, Napoleon promoted him to the command of a regt. of infantry. Returning to France severely wounded, in the autumn of 1813, he married a lady of a family very much attached to the Bourbons; and receiving the command of a regt., was posted near Vizelle when Napoleon returned from Elba. He immediately joined him, and was made a lieut.gen. and peer of France. He fought with great gallantry at Waterloo; and after the battle hastened to Paris, when he spoke with great violence against the Bourbons in the stormy sitting of the chamber of peers, 1815, June 22. After the capitulation, he thought to have escaped to America, but was taken prisoner, condemned to death, and shot, notwithstanding every effort that could be made on his behalf.

LABEL—LABIATE.

LABEL, n. *lā'bĕl* [OF. *label* and *lambel*, a rag attached but slightly to the whole garment or main body: Ger. *lappen*, a rag, a lap]: a small slip of paper or parchment attached to anything, on which a writing is inscribed to tell its nature or contents, or on which an address is written—in *law*, such a slip may be significant of proprietary rights (see **TRADE-MARK**); in *her.*, a horizontal strip with three pendants or tassels; a thin brass rule, having a sight at one end, used for taking altitudes; a paper annexed to a will, as a codicil; ribbon pendant at the sides of a mitre or coronet: V. to attach a label to. **LA'BELLING**, or **LABELING**, imp. **LA'BELLED**, or **LABELED**, pp. *-bĕld*.

LABEL, n. *lā'bĕl*, or **LABELLUM**, n. *lā-bĕllŭm* [L. *labellum*, a little lip—from *labrum*, a lip: also comp. L. *labiŭm*, a lip]: in *bot.*, a lip, or lower lip only; the third of the inner petals of an orchid.

LA'BEL, or **LAM'BEL**, or **FILE**, in Heraldry: mark of cadency which distinguishes the eldest son in his father's lifetime; familiar in Britain from its entering into the composition of the arms of the Prince of Wales and other members of the royal family. It consists of a horizontal stripe or fillet, with three points depending from it. When the mark of cadency itself is designated a *file*, its points are called *labels*. It is said that the eldest son's eldest son should wear a label of five points in his grandfather's lifetime, and, similarly, the great-grandson a label of seven points, two points being added for each generation. The label extended originally quite across the shield, and sometimes occupied the upper, though now it is always placed in the lower part of the chief: the points, at first rectangular, assumed in later times the form called *pattée*, dovetailed, or wedge-shaped; and more recently, the label ceased to be connected with the edges of the shield. From the time of the Black Prince, the eldest son of the sovereign of England has invariably differenced his arms with a label of three points argent, and the practice has been for the younger sons also to bear labels, which are sometimes of other colors and more points, and differenced by being charged with fleurs-de-lis, castles, torteaux, hearts, crosses, etc., as directed by the sovereign by sign-manual registered in the College of Arms. Like other marks of cadency, labels are sometimes borne as permanent distinctions by a particular branch of a family.

LABIAL, n. *lā'bĭ-āl* [mid. L. *labiālis*, pertaining to the lips—from L. *labiŭm*, a lip]: a letter whose sound is uttered by means of the lips—the **LABIALS** are *b*, *p*, *m*, *v*, *f*: **ADJ.** formed or uttered by the lips. **LA'BIALLY**, ad. *-lĭ*. **LA'BIALISM**, n. *-izm*, the art of uttering certain sounds by means of the lips.

LABIATE, a. *lā'bĭ-āt*, or **LA'BIATED**, a. *-ā-tĕd* [L. *labiātus*, having a labium or lip—from *labiŭm*, a lip]: formed

LABIODENTAL—LABLACHE.

with lips; in *bot.*, applied to irregular gamopetalous flowers with an upper and under portion separated more or less by a hiatus or gap. LABIATÆ, n. plu. *lā'bī-ā'tē* (*Lamiacæ* of Lindley), nat. ord. of exogenous plants, containing almost 2,500 known species, mostly natives of temperate climates. They are herbaceous, or more rarely half-shrubby, and have 4-cornered stems and opposite branches; and opposite leaves, without stipules, abounding in receptacles of volatile oil. The flowers are often in cymes or heads, or in whorls; sometimes solitary. The calyx is inferior, with five or ten teeth, or 2-lipped. The corolla is hypogynous, 2-lipped, the lower lip 3-lobed. The stamens are four, two long and two short, or by abortion only two, inserted into the corolla. The ovary is deeply 4-lobed, seated in a fleshy disk, each lobe containing a single ovule; there is a single style with a bifid stigma. The fruit consists of 1—4 *achenia*, inclosed within the persistent calyx.—A general characteristic of this order is an aromatic fragrance, which in many species is very agreeable, and makes them favorites in gardens. Some are weeds with unpleasant odor. Some are used in medicine, and others in cookery for flavoring. Mint, marjoram, rosemary, lavender, sage, basil, savory, thyme, horehound, balm, patchouli, germander, and dead nettle are examples of this order.

LABIODENTAL, a. *lā'bī-ō-dēn'tāl* [L. *labium*, a lip; *dentem*, a tooth]: pronounced by means of the lips and teeth, as the letters *f* and *v*.

LABIS, n. *lā'bīs* [Gr. spoon]: in the administration of the Lord's Supper in the Greek Church, the implement in which the bread and wine mingled are served to the communicant.

LABIUM, n. *lā'bī-ūm* [L. *labium*, a lip]: the lower lip of articulate animals; the under lip of an insect; the inner lip of a shell. LA'BIA, n. plu. *-bī-ā*, in *bot.*, the two divisions of an irregular gamopetalous flower separated by a hiatus or gap.

LABLACHE, *lā-blāsh'*, LUIGI: celebrated operatic singer: 1795—1858; b. Naples, whither his father and mother, who were French, had fled from Paris during the horrors of the Revolution. His first engagement as a singer was at the San Carlino Theatre at Naples, 1812; he afterward sang, with much success, in La Scala, Milan, and in Vienna; singing also at the San Carlo, at Naples, during the intervals of the Vienna season. His first appearance in London 1830, created a great public sensation; and for a number of years, he resided alternately in the French and English capitals, singing in the Paris and London season. He died at Naples. His voice, a deep bass, has hardly ever been equalled either in volume or quality; and his acting, particularly in the characters of 'Figaro' and 'Leporello,' was almost as remarkable as his singing. He was author of a treatise on

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singing, published 1843; and he long gave instructions in singing to Queen Victoria.

LABOR, n. *lā'bér* [OF. *labour*, labor—from L. *labōrem*: labor: It. *labore*; F. *labeur*]: exertion, bodily or mental, producing fatigue; the work done or to be done; toil; effort; undertaking; the pangs and efforts of child-birth: V. to work at; to exert one's powers of body or mind; to toil; to strive; to pitch and roll, as a ship; to struggle, to endure the pangs of child-birth. LA'BORING, imp.: ADJ. exerting bodily strength or intellectual power; engaged at work not requiring skill; toiling. N. the act of laboring; the pitching and rolling of a vessel in a heavy sea. LA'BORED, pp. *-bérđ*: ADJ. bearing marks of labor or effort in execution; opposed to easy or free. LA'BORER, n. *-ér*, one who is engaged at coarse and toilsome work, requiring little skill. LABORIOUS, a. *lā-bō'rī-ūs* [F. *laborieux*—from L. *labōriōsus*]: using labor requiring fatiguing exertions; toilsome; difficult; diligent. LABO'RIOUSLY, ad. *-lī*. LABO'RIOUSNESS, n. *-nēs*, the quality of being attended with toil; diligence. LABOR-SAVING, adapted to supersede or lessen human labor or toil, said of implements or machinery. LA'BORSOME, a. *-sūm*, in OE., laborious.—SYN. of 'labor, n.': work; exertion; painstaking; drudgery; task.

LABOR, in Political Economy: the term for one of the two primary or natural factors of wealth production, the other being land. In this sense labor includes all human energy devoted to production, whether directly or indirectly, whether as overseer or workman, and whether in making things or in carrying or selling them. Colloquially, labor is used as a term to designate the workers and the work of workers hired for wages, as distinguished from those who are hired for salaries or fees, or who work for themselves. In the colloquial sense, the term distinguishes a particular class of work or workers; in the politico-economic sense, it refers comprehensively to the human factor in industrial operations. On the general subject of labor as related to political economy, see SLAVERY; MACHINERY; GUILDS; TRADES-UNION; LABOR, KNIGHTS OF; SOCIALISM; INTERNATIONAL WORKING MEN'S ASSOCIATION; COMMUNISM; BLANC; ATELIERS NATIONAUX; MASTER AND SERVANT; HIRING; FACTORY; FACTORY ACTS; LABOR LEGISLATION; CAPITAL; COMPETITION; POLITICAL ECONOMY.

LABOR, AMERICAN FEDERATION OF: leading American labor organization; founded 1880. It is a confederacy of the leading trades-unions. The election of John McBride, of the miners' organization, as president, 1894, over Samuel Gompers was by some regarded as a victory for the socialistic element; but in 1896 Mr. Gompers was re-elected president. Unlike the Knights of Labor, who enroll in the same society or union men of various occupations, the federation is based on homogeneous unions.

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In convention at Denver, Colo., 1894, the following platform was adopted: (1) compulsory education; (2) direct legislation, through the initiative and the referendum; (3) a legal eight-hour workday; (4) sanitary inspection of workshop, mine, and home; (5) liability of employers for injury to health, body, or life; (6) abolition of the contract system in all public work; (7) abolition of the sweating system; (8) municipal ownership of street-cars and gas and electric plants for public distribution of light, heat, and power; (9) nationalization of telegraphs, telephones, railroads, and mines; (10) abolition of the monopoly system of land-holding, and substituting therefor a title of occupancy and use only; (11) repeal of all conspiracy and penal laws affecting seamen and other workmen, incorporated in the federal and state laws of the United States; (12) abolition of the monopoly privilege of issuing money, and substituting therefor a system of direct issuance to and by the people.

LABOR—COURT OF ARBITRATION: a body constituted for the settlement of labor disputes. On 1901, Dec. 17, a conference of representatives of capital and labor was held in N. Y. city under the auspices of the National Civic Federation, out of which grew the establishment of the court of labor for the settlement of differences between employers and labor unions. The board consists of representatives of the general public, of organized labor, and of employers, and was made the industrial department of the National Civic Federation. The scope and province of this department is to do whatever may seem best to promote industrial peace; to be helpful in establishing rightful relations between employers and workers; to endeavor by its good offices to obviate and prevent strikes and lockouts; and to aid in removing industrial relations where a rupture has occurred.

LABOR-DAY: legal holiday for workingmen, now observed in most of the United States. It falls on the first Monday in September, and its celebration in this country began in 1887. May 1 is commonly observed in a similar way in Europe.

LABOR, DEPARTMENT OF: established by the U. S. congress 1888, June 13; an enlargement of the Bureau of Labor created and attached to the department of the interior 1884, June 27. It was in charge of a commis. who was directed to acquire and diffuse information on subjects connected with labor in the most general and comprehensive sense of that word, and especially on its relation to capital, hours of labor, earnings of laboring men and women, and the means of promoting their material, social, intellectual, and moral prosperity. In 1903, this department was merged into the newly-created department of commerce and labor.

LABOR, KNIGHTS OF: American organization of working men and women, founded by Uriah H. Stevens in

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Philadelphia, 1869. Local or subordinate 'assemblies' are formed with men and women, or men or women respectively, of any one or more trades, or no trade whatever, excepting lawyers, bankers, brokers and liquor dealers. District 'assemblies' are composed of three delegates from each local body in its jurisdiction. A 'trade district' assembly is composed of representatives of any one trade or affiliated trades; a 'mixed district' is formed of assemblies of every trade having less than five locals, which number is necessary before a trade can be organized as a distinct district. The 'general assembly' is composed of delegates elected by the several districts, according to the members in good standing, one delegate for every 1,000 members in the district. The supreme executive authority is designated the 'general master workman' (see POWDERLY, TERRENCE VINCENT), who is directly aided by a general executive board of three members. The declared aims of the order are: 'I. To make industrial and moral worth, not wealth, the true standard of individual and national greatness. II. To secure to the workers the full enjoyment of the wealth they create; sufficient leisure in which to develop their intellectual, moral, and social faculties; all of the benefits, recreation, and pleasures of association; in a word, to enable them to share in the gains and honors of advancing civilization.' To secure these results, the members agree to endeavor to secure for both sexes equal pay for equal work; to shorten the hours of labor by a general refusal to work for more than eight hours per day; and to persuade employers to agree to arbitrate all differences which may arise between them and their employés, in order that strikes may be rendered unnecessary. The order reached its greatest strength in the year of the greatest number of and largest losses from trade strikes, 1886, reporting July 1 a total membership of 729,677. The growth of the order, particularly from 1876, was rapid; but its decline from 1886 was significantly sharp, and at the present time the membership is only about 40,000. General Master Workman Powderly constantly urged the brotherhood to seek arbitration, avoid boycotting, and engage in strikes only when all other means of obtaining relief had failed, and the strikes were properly ordered by competent authority. But the violence and excesses committed during the memorable 'railroad strikes,' and the subsequent ones in specific trades and against individual employers, created a revulsion in popular sentiment, and led employers themselves to combine for mutual protection. In many instances, unsuccessful strikers were taken back by their employers only on condition of their renouncing the labor order and their particular labor-union; and this treatment was the most potent element in disintegrating the order.

LABORATORY, *n.* *lăb'ō-ră-tēr-ī* [F. *laboratoire*, a laboratory—from OF. *elaboratoire*, an elaboratory or

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workshop—from L. *elabōrātus*, worked out, elaborated—from L. *labor*, labor]: place where chemical preparations or medicines are manufactured or sold; a druggist's shop; the workroom of a chemist, a pyrotechnist, etc.

LABOR BUREAU: more properly the bureau of labor, a sub-department of the Department of Labor and Commerce. Originally the Bureau of Labor was a part of the Interior Department, but at the creation of the new department by the congress 1903, Feb. 11, the bureau was transferred. It was organized in 1885, and Carroll D. Wright, who had been very successful as chief of the Bureau of Statistics in Massachusetts, was appointed commissioner of labor. At the end of three years Commissioner Wright had made such signal success in the new department that the bureau was changed to the Department of Labor, with independent functions. It has issued annual reports, special reports and bi-monthly bulletins of great educational value.

Nearly every state in the union also has a labor bureau, or department of labor, the oldest being that of Massachusetts, organized in 1869. Several of the state bureaus, particularly those of New York and Connecticut, maintain free employment agencies. The federal and state bureaus have published more than 500 volumes on labor topics. These state bureaus have been kept remarkably free from partisan politics, and those have been decidedly successful in the settling of labor disputes and in preventing strikes and lockouts. These organizations proved so successful that European nations soon followed the American example. In 1891, France organized a bureau of labor and in 1892 Germany followed with a labor commission. In 1893, a labor department under the direction of a commission for labor was instituted in England. Austria, Italy, Sweden, New Zealand, New South Wales and Canada have since established similar bureaus. Consult: Wright, *The Workings of the Department of Labor*, and *The Value and Influence of Labor Statistics*, in *Monographs on Social Economics* (Washington 1901).

LABOR COLONIES: agricultural communities common in Europe but almost unknown in the United States. They are maintained for the purpose of giving employment and training to individuals who, on account of misfortune or inefficiency, find it difficult to earn a living. In Holland there are four of these labor colonies, at Wilhelmsoord, Frederiksoord, Wilhelminasoord and Colony No. 7, which have been established for over half a century. They occupy 5,000 acres of land and have a membership of over 2,000. At La Chalmelle, France, is a colony established in 1892. It occupies 318 acres of land and has 300 colonists. In Germany there are 26 colonies all established since 1882. New Zealand has a government farm of 1,000 acres. In Belgium are two colonies which are practically penal institutions for vagrants and

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beggars. There are several colonies in England, and in the United States three small colonies have been established by the Salvation Army, one each in Colorado, California, and Ohio. The most successful is the Colorado colony, which has 150 members. The colony system in all the European countries is practically communism under government control, all the colonies being conducted on the co-operative plan.

LABORI, *lä-bō-rē*, FERNAND GUSTAVE GASTON: French lawyer and editor: b. Rheims, 1860, Apr. 18. He studied at the Rheims Lycée and for two years in Germany and England; took his degrees in the law faculty of Paris in 1881 and 1883, and was enrolled at the bar of the court of appeals in 1884; was secretary of the conference of advocates in 1887-8; took a high professional rank; and was especially prominent as counsel for the defense in notable cases, as the libel action by Compayré against Numa Gilly, and the trials of the anarchists Duval and Vaillant. In 1898, he defended Emile Zola (q.v.), accused of libeling the army and the president of the republic in the letter concerning the Dreyfus case. He was junior counsel to Demange in the defense of Dreyfus at the trial at Rennes in 1899, and thoroughly confuted his opponents by his logic and his brilliant cross-questioning. He did not make the final plea, but his 'Notes de Plaiderie' were published in the 'Compte-rendu Sténographique In-extenso du Procès Dreyfus à Rennes.' On Aug. 14, while on his way to the court, he was dangerously wounded by a revolver bullet fired by a fanatic or mercenary. He was shortly enabled, however, to continue the case. In 1903, he defended the Humbert swindlers. He was editor-in-chief of the judicial daily, *La Gazette du Palais*, in 1888-94; established the *Revue du Palais* and *Grande Revue* in 1897; and published a *Repertoire encyclopédique de Droit Français*, in twelve volumes (1898.) See DREYFUS, ALFRED.

LABOR LEGISLATION IN THE UNITED STATES: The problem of protecting the laboring classes against the employing class is of relatively late development in the United States. Direct United States laws on the subject cannot exist, all such legislation being reserved to the states; the government can only set an example of short hours, high wages, and sanitary conditions in its own workshops or other employments, and make enactments for the District of Columbia. State legislation is too scattered and discordant to present in full; only a classification of the subjects of legislation will be attempted.

The Contract in General.—One of the fundamental principles of the common law, though not expressed in statutes, is that long contracts for personal service, which might end in a form of serfdom, will not be enforced beyond two years; in one state nothing beyond one year is enforceable; which implies that under these limits it

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could be, but no case has yet arisen. The notice to be given on quitting employment has been regulated in several states by an enactment that an employer shall give an employee the same notice which he exacts by withholding wages, requiring bonds, etc.

Rate, Form, Period, etc., of Wages.—There is no statute in any state fixing the rate of wages. The nearest approach is an Indiana statute of 1899 providing a minimum of 15 cents an hour for manual labor. It is often provided in municipal orders, however, that work on contracts shall not be paid at less than current local rates. The wage-paying period has in some cases been legally fixed as weekly. More common are the laws forbidding the payment of wages in orders for goods, or anything but cash, and prohibiting companies from operating or being interested in stores or supply establishments; Maryland and Illinois have this in action; the Pennsylvania statute was held unconstitutional. Laws regulating fines and deductions, weighing, etc., have been enacted, and 'screen laws' for the coal mines.

Hours of Labor.—The only statute establishing a general 8-hour law with enforced payment for overtime—that of Nebraska—was declared unconstitutional. Wyoming by constitution, however, and Missouri and Utah by statute, have established an 8-hour day for the mines; and it is usual to fix 8 hours as a day's work where the contract does not specify the length of time. This is also becoming customary in public work for states and cities. The state also claims the right to regulate hours in unsanitary or dangerous occupations. On the subject of children's labor, the northern states east of the Rockies have generally a full and systematic body of legislation; efforts are making by the best citizens of the South to have its states adopt similar laws. These statutes restrict the labor of children under certain years (10 at lowest, more commonly 12 or 14) to a usual 10 hours a day, and 55 to 58 hours a week; 12 hours in Pennsylvania, but even there only 60 hours a week. It is also usual to order the hours arranged so as not to interfere with school hours, unless the children have reached a certain standard. Some states make these laws apply to adult women as well; some prohibit women's labor in the mines altogether.

Personal Liberty.—A number of enactments have been made to prevent intimidation of workmen by threats of loss of employment, etc.; and by pay envelopes or placards in work-rooms drawing menacing pictures of shutting down, discharging men, etc., if certain political results ensue. Forbidding men to join unions, forcing them to contribute to benefit societies, or to employ a company physician, etc., are legislated against.

'Government by Injunction.'—The use of injunctions and proceedings for contempt to suppress labor riots. The Pullman strike of 1894 and the teamsters' strike in

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1906—both at Chicago—were instances in which the injunction was used against the strikers, in the first case on the ground that the transaction of government business was impossible. In Kansas a statute has been passed which practically makes it impossible to enforce any contract that does not sound in damages.

Health, Safety, Moral Conditions, etc.—The evils of the sweat-shop—tenement manufactures, mainly confined to clothing—have drawn out legislation, either extending the factory acts to them, or restricting the manufacture to members of the resident family and requiring a license. In factories, there are laws providing a given air space for each hand, and machine appliances for removing dust, guards for belts, shafts, dangerous machinery, elevators, etc., prohibition of cleaning machinery while in motion, sometimes of women or children cleaning it at all, fire escapes, etc.

Employers' Liability.—This branch of law in America is almost entirely the creation of the past 20 years; and accident insurance companies now take in many millions of dollars in premiums annually. The employer has always been liable in damages to an employee for accident resulting from his own negligence, or defects in his plant, as from breaking machinery, bad floors, etc.; but not from the negligence of fellow employees. The law concerning the latter has of late years been changed, so that the employer is now liable for all accidents in his service except where the employee's own negligence is the cause; and the large liability superinduced makes it needful to insure the hazard.

LABOR UNION. See INDUSTRIAL UNIONISM; TRADE UNION; SOCIALISM.

LABOUCHERE, *lâ-bô-shür'*, HENRY DU PRE: statesman: b. London, 1831; nephew of the late Lord Taunton. He was educated at Eton College; entered the diplomatic service 1854; was attaché at Washington, Munich, Stockholm, Frankfort, St. Petersburg, and Dresden; became third sec. 1862, and second sec. at Constantinople 1863; retired from the service 1864; was elected member of parliament for Windsor 1865, Middlesex 1867, and since 1880 has sat for Northampton. He became a Gladstone liberal 1886. He is editor and proprietor of the London journal *Truth*, and part proprietor of the *Daily News*. His parliamentary career has been marked by his persistent advocacy of his bill to abolish the hereditary principle of the house of lords, and by his pungent, humorous speeches. He knows everybody, and makes *Truth* the brightest and most gossippy of all English publications.

LABOULAYE, *lâ-bô-lâ'*, ÉDOUARD RENÉ LEFÉBVRE DE: 1811, Jan. 18—1883, May 25; b. Paris: jurist, statesman, and versatile man of letters. While in the type-founders' trade he studied law and engaged in literary work. In 1839, he published a remarkable *Histoire du droit de pro-*

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priété foncière en Europe depuis Constantin jusqu'à nos jours, which was crowned by the Acad. of Inscriptions and Belles-Lettres; and 1842 an *Essai sur la vie et les doctrines de Frédéric-Charles de Savigny*. He was admitted to practice at the royal court in Paris 1842; in the following year published the *Recherches sur la condition civile et politique des femmes, depuis les Romains jusqu'à nos jours*, which was crowned by the Acad. of Moral and Political Sciences; and 1845 published an *Essai sur les lois criminelles des Romains concernant la responsabilité des magistrats*, also crowned. In 1845, he was elected a member of the Acad. of Inscriptions and Belles-Lettres, 1849 became prof. of comparative legislation at the College of France, and while distinguishing himself as an expounder of the principles of legal science became an ardent republican. He published a *Histoire politique des États-Unis, 1620-1789*, 3 vols. (1855-66); *Les États-Unis et la France* (1862), *L'État et ses limites* (1863), *Paris en Amérique* (1863), *Les mémoires et la correspondance de Franklin* (1866), and *Lettres politiques* (1872). He became a member of the national assembly, and chairman of the committee on higher education 1871, sec. of the committee of 30 on the republican constitution 1874, was elected a life senator 1875, was administrator of the College of France 1873, 76, 79, and resumed his law lectures 1877. Laboulaye was a writer of wonderful versatility, with great erudition and originality, and a clear, elegant, and quaintly modulated style.

LABRADOR, *lāb-ra-dawr'*, or *lab-ra-dōr*: northeastern peninsula of the North American continent, lying east of Hudson Bay and north of the Gulf of St. Lawrence. It extends from about 49° to 63° n. lat., and from 55° to 79° w. long., and is roughly set off by a straight line drawn from the southern extremity of Hudson Bay to the mouth of the Saguenay river. Its area is more than 500,000 sq.m., or larger than that of France and Germany combined. The southwestern portion lies in the Province of Quebec, north of which is the unorganized Canadian territory known since 1895 as the District of Ungava. The eastern seaboard—to which the name Labrador is sometimes confined—is under the jurisdiction of Newfoundland, and comprises a coastal strip extending north from Blanc Sablon, in the Strait of Belle Isle, to Cape Chidley at the eastern entrance to Hudson Strait, with a hinterland whose possession is disputed by the Dominion of Canada. The disputed area—about 160,000 sq.m.—comprises the entire Atlantic watershed.

Topography.—The interior of the peninsula is a rolling plateau about 2,000 ft. in average elevation above sea-level, traversed by ridges of low hills, the geological remnants of former lofty mountain ranges, denuded through the erosion of countless centuries. The only extensive mountain range to-day is found along the

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Atlantic seaboard, culminating at the north in peaks 4,000 to 6,000 ft. in height.

The plateau is dotted with innumerable lakes, which discharge through a network of streams flowing to every point of the compass. It comprises four distinct watersheds, of which the southern, draining into the Gulf of St. Lawrence, is the smallest. Few of the rivers on this slope are over 300 miles long. Skirting the Gulf shore is a lowland plain of varying width. The largest watershed is the western, drained into Hudson Bay by the Nottaway, Rupert, East Main, Big, Great Whale, Little Whale, Kogaluk, and Pooungnituk rivers. The northern watershed is drained into Ungava Bay—by the Koksoak (or South) river—the largest in Labrador, and the Payne, Leaf, George, and Whale rivers.

On the eastern slope the principal river is the Hamilton (or Grand), which, with the Northwest and Kenamou, finds an outlet to the Atlantic through Hamilton Inlet, an arm of the sea expanding inland into Lake Melville and navigable to its head, over 150 miles from the coast. Up the Hamilton river, 250 miles from its mouth, are the famous Grand Falls, 302 feet high. The Atlantic shore line is indented with innumerable deep and narrow fiords and smaller streams. Off shore lies a thick fringe of rocky islands separated by navigable channels or 'tickles.' Icebergs—fragments of the Greenland ice-cap, cast away from the northwestern rim of that island continent, and carved by the elements into all sorts of fantastic shapes—float by in unending procession, carried southward by the Labrador current. Many of the bergs run aground on the islands; a few are carried by currents into the Strait of Belle Isle; while others are borne onward until finally melted by the warm waters of the Gulf Stream. The icebergs have been largely instrumental in moulding the coastline to its present contour, and to their tempering influence are chiefly due the rigors of the Labrador climate. Also, they have laid the foundation for the fishing industry by depositing glacial drift which has slowly filled up the sea-bed, creating those submerged plateaus known as 'banks,' which form the breeding-grounds of numberless shoals of cod, herring, and other valuable food fishes.

Climate.—Except along the coast, the climate of Labrador resembles that of the northerly portions of western Canada, being healthful and bracing even in the coldest weather. There are practically only two seasons—summer and winter. The temperature sometimes ranges from 80° F. in the sun to near freezing at night; and the precipitation of moisture, though not great, is fairly constant. In the latitude of Hamilton Inlet (53° 30' n.), winter sets in by mid-October. At Northwest river a temperature of 53° below zero has been recorded; but at Rigolet, 40 miles up the same inlet, the thermometer rarely falls below 40° below zero. There is much drift

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snow in winter, the only means of travel at this season being the 'kometik' or dog-sled, and snowshoes. In summer, all travel is by canoe or on foot. The only beast of burden is the Eskimo dog, which is of such voracious propensities that the keeping of horses or domestic cattle is impracticable. The introduction of reindeer to supplant the dogs as beasts of burden, and to serve also as a food supply, is being attempted, the success attending similar experiments in Alaska being the precedent for this movement. Abundant means of subsistence for the reindeer is found in the native mosses.

Population.—The permanent population of Labrador is about 14,500, comprising 9,500 whites, of whom about 5,500 live in the Quebec portion of the peninsula; 1,500 Eskimo; and 3,500 Indians. The Indians comprise two tribes, the Montagnais and the Nascopees, both offshoots of the Algonquin family. The white residents along the Atlantic coast number about 4,000, the principal settlements being at Battle Harbor, Rigolet, Indian Harbor, and the Moravian mission stations of Hopedale, Zoar, Nain, Okkak, Hebron, and Ramah. Along the Gulf coast, the chief settlements are Seven Islands, Mingan, and Eskimo Point.

Resources and Industries.—The natural wealth of Labrador lies chiefly in its fisheries, fur-bearing animals, forests, and minerals. Agriculturally, the peninsula is largely irredeemable, the soil being in general a mixed sand and clay of little depth, or else barren rock mantled with mosses and lichens. Wild berries, including the blueberry, strawberry, currant, gooseberry, and raspberry grow thickly in the south, but toward the north the principal natural food growth is a species of cranberry. Up to the latitude of Hamilton Inlet, forest growth is continuous, except on the summits of the rocky hills and on the islands. About 90 per cent. of the tree growth consists of black spruce, which, with the larch, is found up to the northern tree-limit near Ungava Bay. The southern slope is densely wooded, especially along the water-courses. Here, besides the black spruce and larch, are found the white spruce, balsam fir, white birch, aspen, and balsam poplar.

Minerals.—Fully nine-tenths of the peninsula is underlain by archæan rocks of Laurentian formation. The remaining one-tenth comprises scattered Huronian and Cambrian strata, with every indication of rich workings in silver and gold, copper, and other mineral wealth. The principal Huronian areas occur in the southwest, in the valley of the East Main river and the large lake basins southwest of Lake Mistassini. The Cambrian strata are found in greatest development along the Koksoak and upper Hamilton rivers and around Richmond Gulf on the east shore of Hudson Bay. Large deposits of high-grade iron ore are widely distributed, and other minerals of economic value include limestones, horn-

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blende granite, sandstones, brick clays, Labradorite, and jasper. Labradorite (q.v.) crops out along the sea-front from Nain southward to Davis Inlet, especially on Paul Island; and immense deposits are found also on the shores of Lakes Michikamau and Ossokmanuan and in the upper valley of the Romaine river.

Fisheries.—For over four centuries fishing has been the main industry of Labrador. It gives employment annually to about 30,000 men, the yearly output being valued at over \$1,000,000. The fishing season lasts from May to October, the fleet following the northward movement of the shoals of cod, and returning southward at the approach of winter. The export product is chiefly dried cod, the curing being effected by spreading the salted fish on 'flakes' (raised wooden frames) to dry in the open air. Salmon are plentiful along the coast up to the west side of Ungava Bay; and in the fall brook trout swarm at the mouths of all streams entering the sea. The inland waters teem with fish-life, but this source of wealth remains undeveloped. The whale fishery is now confined chiefly to the Gulf of St. Lawrence, where it is carried on under governmental restrictions that render its financial outlook uncertain.

The Sealing Industry.—Labrador is the special home of the 'hair' seal fishery. This industry is subject to great fluctuations. In 1902, 528,150 skins, valued at \$420,869, were exported—a value nearly four times that of 1897 and double that of 1904. The hunting season opens March 10 and closes April 30. The animals congregate in two main herds—the 'harps' to landward, and the 'hoods' a few miles farther seaward—gathering each year 50 to 100 miles off the Strait of Belle Isle. Leaving the open water in early February, they mount the ice, where the young are born. The 'pups' grow very rapidly, being in prime condition when about a month old, and then yield the best quality of oil. The animals are clubbed to death or shot. Sometimes as many as 100,000 seals are within range of a field glass, and 13,000 have been killed in one day by the crew of a single sealer. The 'hair' seal (this name being loosely applied to several species) is valued chiefly for its skin and oil. The fur, though creamy white and silken in the young seal, is rather coarse and stiff in the adult, and of a mottled brownish-gray color. The skins are used for clothing and boots by the natives, parts of the meat and fat being preserved as food, especially for the dogs. They yield fine grades of leather when tanned, and for this purpose find a ready market in the United States and Europe. The oil is the best known illuminant for lighthouses, and is also used in making soaps and as a substitute for cod-liver and olive oils.

The Fur Trade.—Up to within recent years, the fur trade was monopolized by the Hudson's Bay Company. A post, however, is now also maintained at Northwest

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river by the French house of Revillon Frères. The most important fur-bearing animal is the sable or marten. Foxes of various species are found everywhere, the red, black, and silver varieties being abundant in the south. The woodland caribou and 'barren ground' caribou or reindeer, roam the barrens or semi-barrens of the north in immense herds. The black bear ranges to the northern tree-limit. Other fur-bearing animals are the ermine, otter, beaver, mink, wolf, lynx, and rabbit.

History.—The first Europeans to sight the coast of Labrador were the Norsemen Biarne (990 A.D.) and Leif Ericson (1000 A.D.). Basque whalers visited the coast toward the end of the 15th c.; and from one of them who accompanied Sebastian Cabot on his voyage of 1498, the name Labrador is derived. Other alleged derivations are: (1) from the Portuguese word for 'laborer,' this name being given because Cortereal, who sailed along the coast in 1500, brought back to Lisbon a cargo of natives as slaves; and (2) from the epithet *Terra laborador* (cultivable land), applied to the region by Portuguese explorers under a delusion similar to that which gave Greenland its name.

Basques and Bretons successively formed fishing settlements along the St. Lawrence, where their descendants still carry on the industry.

The status of the peninsula underwent several changes during the long struggle between the French and English and the subsequent fighting for supremacy between the Hudson's Bay and rival companies. In 1809, the southern and eastern coasts were placed under the jurisdiction of Newfoundland, with limitations which were more accurately defined by Letters Patent in 1876, the boundary running north from Anse (Blanc) Sablon to the 52d parallel and thence including an undefined coastal strip extending to Cape Chidley.

In 1770, Moravian missionaries settled among the Eskimo on the Atlantic coast, whom they have largely civilized. Roman Catholic missionaries, in the south, have converted the majority of the Indians to their faith. In 1892, Dr. Wilfred T. Grenfell inaugurated a branch of the work of the Royal National Mission to Deep-Sea Fishermen, which, in addition to religious and charitable ministrations, has included the establishment of permanent hospitals at Battle Harbor and Indian Harbor on the Atlantic coast, St. Anthony on the Newfoundland coast, and Harrington on the north shore of the Gulf. At various points, also, co-operative stores on a cash basis have been started, to supplant the 'truck' or barter system. Lumber mills and various industries have been established; and an 'institute' at St. John's has been projected as a rendezvous for the men and boys of the fishing fleet at the close of the season.

In 1903, in an attempt by Leonidas Hubbard and Dillon Wallace to traverse the interior of Labrador from

LABRADOR DUCK—LABROSE.

Northwest river, the former lost his life from exposure and starvation. A similar journey was successfully accomplished in 1905 by both Mrs. Hubbard and Mr. Wallace.

LABRADOR DUCK: a rather small, handsome sea-duck (*Camptolaimus labradorius*), allied to the eiders, of the northeastern American coast; it bred in Labrador, and migrated in winter as far south as Chesapeake Bay, but was never very numerous, and became extinct about 1875, leaving only about 35 specimen-skins in the museums of the world. No very satisfactory theory exists to account for the closure of the species, since the fault does not seem chargeable to excessive shooting or disturbance of breeding-places. The race seemed to be waning, and an epidemic of disease or some weather-disaster destroying many eggs and young, may have been a final blow. The last one seems to have been killed in 1875. Consult: Stejneger, Vol. IV (*Birds*) of *Standard Natural History* (1885); Lucas, *Ann. Rept. Smithsonian Inst.*, 1888; Dutcher, article in *The Auk*, 1894, January.

LABRADORITE, n. *lăb'ră-dōr'īt*, also **LABRADOR FELSPAR** [from locality where first found]: variety of disseminated felspar having a peculiar pearly and iridescent play of colors when the light falls on it in certain directions. Labradorite is common as a constituent of dolerite, greenstone, and other rocks. It takes a fine polish, and is cut into snuff-boxes and other articles. It was discovered by the Moravian missionaries on the coast of Labrador.

LABRADOR' TEA: shrub of the heath family; evergreen, of low growth, found in moist places northward from the middle states; also in n. Europe. Of the leaves, which when crushed have some fragrance, tea is made in some countries, e.g., Labrador; and they are reported as used in Russia in tanning and in brewing. A narcotic property is ascribed to the plant.

LABRIDÆ, *lăb'rĭ-dē*: family of osseous fishes, ranked by Cuvier in the order *Acanthopterygii* (q.v.), by Müller in *Pharyngognathi* (q.v.). They are divided into *Gtenolabridæ* and *Cyclo-labridæ*, the former having ctenoid, the latter, cycloid scales; the former comparatively a small, the latter, a very numerous family. They are generally oval or oblong, and more or less compressed, with a single dorsal fin, spinous in front, and the jaws covered by fleshy lips. Their colors are generally brilliant. They abound chiefly in tropical seas. The most valuable of the family is the Tautog (q.v.) of N. America. To this family belong the Wrasses and the Parrot-fishes, one of which is the celebrated *Scarus* of the ancients.

LABROSE, a. *lă-brōs'* [L. *labrum*, a lip]: having thick lips.

LABRUM—LABURNUM.

LABRUM, n. *lā'brŭm* [L. *labrum*, a lip]: the mouth-cover or lip-like shield of an insect's mouth; the outer lip of a shell; the upper lip of articulate animals. LABRA, n. plu. *lā'bră*.

LABRUYÉRE, *lâ-brü-e-yär'*, JEAN DE: French essayist, noted for delicate delineations of character: 1645, Aug.—1696; b. Dourdan, Normandy. He was brought to the French court at the recommendation of Bossuet, and became one of the tutors of the Dauphin, whose education Fénelon superintended. He spent the whole remainder of his life at court, in intimate intercourse with the most accomplished men of his time. The work on which his high reputation rests, *Les Caractères de Théophraste, traduits du Grec, avec les Caractères ou les Mœurs de ce Siècle* (Par. 1687), has gone through many editions, some of them annotated, and has been translated into several languages.

LABUAN, *lâ-bô-ân'*: island of the Malayan archipelago, abt. 30 m. off the n.w. coast of Borneo. It measures 10 m. by five; lat. and long. of its centre, 5° 22' n., and 115° 10' e. Small as it is, it is peculiarly valuable. Besides possessing a good harbor, it contains an extensive bed of excellent coal, worked by a company of British capitalists formed 1862; and having become, 1846, a British possession, it is a prospective nucleus of civilization for the surrounding islands. It is a see of the Church of England. Pop. 6,000.

LABURNUM, n. *lă-bér'nŭm* [L. *laburnum*]: small tree (*Cytisus Laburnum*, ord. *Leguminosæ*), native of the Alps and other mountains of s. Europe, much planted in shrubberies and pleasure-grounds in Britain, for its glossy foliage and its large pendulous racemes of yellow flowers, abundant in May and June. It is often mixed with lilac, and when the latter preponderates, the combination has a fine effect. In favorable circumstances, laburnum sometimes attains a height of 20, or even 40 feet. It is very hardy, and nowhere flourishes better than in n. Scotland. It is of rapid growth, yet its wood is hard, fine-grained, and very heavy, of a dark-brown or dark-green color, and much valued for cabinet-work, inlaying, and turnery, and for making knife-handles, musical instruments, etc. The leaves, bark, etc., and particularly the seeds, are nauseous and poisonous, containing *Cytisine*, an emetic, purgative, and narcotic principle, found in many allied plants. Accidents from laburnum seeds are not unfrequent to children; but to hares and rabbits, laburnum is wholesome food, and they are so fond of it, that the safety of other trees in a young plantation may be insured by introducing laburnum plants in great number, which spring again from the roots when eaten down.—A fine variety of laburnum, called SCOTCH LABURNUM, by some botanists regarded as a distinct species (*C. Alpinus*), is distinguished by

LABYRINTH.

broader leaves, and by darker yellow flowers, produced later in the season than those of the common or *English* laburnum.

LABYRINTH, n. *lăb'î-rînth* [F. *labyrinthe*—from L. *labyrinth'us*; Gr. *laburinth'os*]: place full of lanes or alleys; place full of intricacies or inextricable windings; a maze; an inexplicable difficulty; the internal ear, from its complex structure. LAB'YRINTH'IAN, a. *-rînth'î-ăn*, pertaining to or resembling a labyrinth; intricate; winding; also LAB'YRINTH'INE, a. *-în*. LAB'YRINTH'IC, a. *-îk*, having the character of a labyrinth. LAB'YRINTH'IFORM, a. *-î-fawrm* [L. *forma*, shape]: formed like a labyrinth. *Note.*—LABYRINTH was the strange accumulation of chambers and tortuous passages anciently existing on the shores of Lake Mæris, Egypt, by some asserted to derive its name from King *Labarys*, its founder.—SYN. of 'labyrinth': intricacy; windings; confusion.

LAB'YRINTH: name of some celebrated buildings of antiquity, consisting of many chambers or passages difficult to pass through without a guide, and the name hence applied to a confused mass of constructions. In the hieroglyphics, the word *mera* signifies a 'labyrinth.' The principal labyrinths of antiquity were the Egyptian, the Cretan, and the Samian. The Egyptian, of which the others seem to have been imitations, was at Crocodilopolis, close to the lake *Mæris*, near the present pyramid of Biakhmu. According to the classical authors, it was built by an Egyptian monarch named Petesuchis, Tithoes, Imandes, Ismandes, Maindes, or Mendes. The recent discovery of the remains of this building by Lepsius has, however, shown that the city was founded by Amenemha I., of the 12th Egyptian dynasty, about B.C. 1800, and that this monarch was probably buried in it, while the pyramid and south temple were erected by Amenemha III. and IV., whose prænomens resemble the name of Mæris, and their sister, Sebeknefru or Scenio-phris, appears to have been the last sovereign of the 12th dynasty. Great confusion prevails in the ancient authorities as to the object of the building, which contained 12 palaces under one roof, supposed to have been inhabited by the Dodecarchy, or 12 kings who jointly reigned over Egypt before Psammetichus I.; while, according to other authorities, it was the place of assembly of the governors of the nomes or districts, 12 in number according to Herodotus, 16 according to Pliny, 27 according to Strabo. The labyrinth was of polished stone, with many chambers and passages, said to be vaulted, having a peristyle court with 3,000 chambers, half of which were under the earth, and the others above ground, which formed another story. The upper chambers were decorated with reliefs; the lower were plain, and contained, according to tradition, the bodies of the 12 founders of the building, and the mummies of the sacred crocodiles, conferring on the building the character of a

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mausoleum, probably conjoined with a temple, that of Sebak, the crocodile-god, and so resembling the Serapeum. Herodotus and Strabo both visited this edifice, which was difficult to pass through without the aid of a guide. It stood in the midst of a great square. Part was constructed of Parian marble—probably rather arragonite—and of Syenitic granite pillars; had a staircase of 90 steps, and columns of porphyry; and the opening of the doors echoed like the reverberation of thunder. For a long time, there was great doubt whether any remains of the building existed, and it was supposed to have been overwhelmed by the waters of the lake Mœris; and although P. Lucas and Letronne thought they had discovered the site, its rediscovery is due to Lepsius, who found part of the foundations or lower chambers close to the site of the old Mœris Lake, or modern Birket-el-Keroun. According to Pliny, it was 3,600 years old in his days.

The second, or next in renown to the Egyptian, was the labyrinth of Crete, supposed to have been built by Dædalus for the Cretan monarch Minos, in which the Minotaur was imprisoned by his orders. Although represented on the Cretan coins of Cnossus sometimes of a square, and at other times of a circular form, no remains of it were recorded as found even in times of antiquity, and its existence was supposed to be fabulous. The only mode of finding the way out of it was by means of a skein of linen thread, which gave the clue to the dwelling of the Minotaur. The tradition is supposed to have been based on the existence of certain natural caves or grottoes, perhaps the remains of quarries, and it has been supposed to have existed n.w. of the island, near Cnossus, while a kind of natural labyrinth still remains close to Gortyna. The idea is supposed to have been derived from the Egyptian.

The third labyrinth of antiquity was the Samian, constructed by Theodorus and artists of his school, in the age of Polycrates (B.C. 540), supposed to be a work of nature embellished by art, having 150 columns erected by a clever mechanical contrivance.—Inferior labyrinths were at Nauplia, at Sipontum in Italy, at Val d'Ispica in Sicily, and elsewhere; and the name of labyrinth was applied to the subterraneous chambers of the tomb of Porsena, supposed to be that now existing as the Poggio Gazella, near Chiusi. Labyrinths called mazes have been fashionable in gardening, being an intricate network of pathways inclosed by thick hedges, so bewildering to one who entered that he could scarcely find either centre or exit. The best known in modern times is the Maze at Hampton Court.

Herodotus, ii. 148; Diodorus, i. 61, 97, iv. 60, 77; Pausanias, i. 27; Strabo, x. 477, xviii. 111; Plutarch, *Theseus*, 15; Pliny, *N. H.*, xxvi. 19, 3, 83; Isidorus, *Orig.*, xv. 2, 6; Höck, *Creta*, i. 447; Prokesch, *Denkw.*,

LABYRINTHODON.

i. 606; Duc de Luynes, *Annali*, 1829, 364; Lepsius, *Einleit.*, p. 268.

LABYRINTHODON, n. *lăb'ĩ-rĩnth'õ-dõn* [Gr. *labu-rĩnth'os*, a labyrinth; *odon'ta*, a tooth]: in *geol.*, a batrachian of the New Red Sandstone. LAB'YRINTHODON'TIA, n. plu. *-dõn'shĩ-ă*, or LAB'YRINTH'ODONTS, n. plu. *-dõnts*, one of the thirteen orders into which Professor Owen arranges the *Reptilia*, living and extinct—so named from the complex structure of the teeth as seen in section. LABYRINTHIBRANCH'IDAE, see ANABASIDÆ.

LABYRINTHODON, *lăb-ĩ-rĩnth'o-dõn*: genus of gigantic sauroid batrachians, found in the New Red Sandstone measures of Great Britain and the continent. The



Labyrinthodon Pachygnatus.

remains of several species have been described, but all so fragmentary, that no certain restoration of the genus can yet be made. The head was triangular, having a crocodilian appearance both in the shape and in the external sculpturing of the cranial bones, but with well-



Footprint and Rain-drops.

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marked structural modifications in the vomer, and in the mode of attachment of the head to the atlas, that stamp it with a batrachian character, conspicuous above the apparent saurian resemblances. The mouth was furnished with a series of remarkable teeth, numerous and small in the lateral rows, and with six great laniary teeth in front. The bases of the teeth were anchylozed to distinct shallow sockets. Externally, they were marked by a series of longitudinal grooves, which correspond to the inflected folds of the cement. The peculiar and characteristic internal structure of the teeth is very remarkable, and to it these fossils owe their generally accepted generic name of *Labyrinthodon* (labyrinth-tooth). The few and fragmentary bones of the body of the animal exhibit a combination of batrachian and crocodilian characters, leaning, however, on the whole, more to the first type. The restoration exhibited in the cut is that suggested by Owen; it must be considered as to a large extent imaginary, owing to the imperfect materials for such a work. In the same deposits there have been long noticed the prints of feet, which so much resembled the form of the human hand, that Kaup, their original describer, gave the generic name of *Cheirotherium* to the great unknown animals which produced them. From the fore foot being much smaller than the hind foot, he considered that they were the impressions of a marsupial; but this relative difference in the feet exists also in the modern batrachians; and the discovery of the remains of so many huge animals belonging to this order, in these very strata, the different sizes of which answer to the different foot-prints, leave little doubt that the cheirotherian foot-prints were produced by labyrinthodont reptiles.

LAC, n. *lāk* [Pers. *lak*, an insect nidus on certain trees of India which yields a beautiful red-lake: Ger. *lack*; Dan. *lak*; F. *laque*, rose or ruby color]: a resinous substance obtained from the eggs and remains of the insect *Coccus lacca* as found on certain trees, used in the manufacture of sealing-wax, varnishes, dyes, etc. SHELL-LAC, lac in the form of a thin crust. LACCIC, a. *lāk'sīk*, applied to an acid produced from lac. LAC'CINE, n. *-sīn*, a yellow substance obtained from shell-lac.—*Lac* is the general name under which the various products of the lac insect (*Coccus lacca*) are known. The curious hemipterous insect which yields these valuable contributions to commerce is in many respects like its congener the Cochineal Insect (*Coccus cacti*), but it also differs essentially from it: the males alone, and those only in their last stage of development, have wings, therefore the whole life of the creature is spent almost on the same spot. They live upon the twigs of trees, chiefly species of *Butea*, *Ficus*, and *Croton*, and soon entomb themselves in a mass of matter, which oozes from small punctures made in the twigs of the tree, and which thus furnishes

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them with both food and shelter. It is said that to each male there are at least 5,000 females, and the winged males are at least twice as large as the females. When a colony, consisting of a few adult females and one or two males, find their way to a new branch, they attach themselves to the bark, and having pierced it with holes, through which they draw up the resinous juices upon which they feed, they become fixed or glued by the superfluous excretion, and after a time die, forming by their dead bodies little domes or tents over the myriads of minute eggs which they have laid. In a short time, the eggs burst into life, and the young, which are very minute, eat their way through the dead bodies of their parents, and swarm all over the twig or small young branch of the tree in such countless numbers as to give it the appearance of being covered with a blood-red dust. They soon spread to all parts of the tree where the bark is tender enough to afford them food, and generation after generation dwells upon the same twig until it is enveloped in a coating, often half an inch in thickness, of the resinous exudation, which is very cellular throughout, the cells being the casts of the bodies of the dead females. During their lifetime, they secrete a beautiful purple coloring matter, which does not perish with them, but remains shut up in the cells with the other results of decomposition.

The small twigs, when well covered, are gathered by the natives, and are placed in hot water, which melts the resinous matter, liberates the pieces of wood and the remains of the insects, and dissolves the coloring matter. This is facilitated by kneading the melted resin while in the hot water; it is then taken out and dried, and is afterward put into strong and very coarse cotton bags, which are held near enough to charcoal fires to melt the resin without burning the bags. By twisting the bags, the melted resin is then forced through the fabric, and received in thin curtain-like films upon strips of wood. This hardens as its surface becomes acted upon by the air, and being broken off in fragments, constitutes the shell-lac of commerce. The best shell-lac is that which is most completely freed from impurities, and approaches most to a light orange brown color. If the coloring matter has not been well washed out, the resin is often very dark, consequently we find the following varieties in commerce—orange, garnet, and liver. Much that is squeezed through the bags falls to the ground without touching the sticks placed to catch it; small quantities falling form button-like drops, which constitute the *button-lac*; while larger ones, from an inch to two or three inches in diameter, constitute the *plate-lac* of commerce. That known as *stick-lac* is the twigs as they are gathered, but broken short for the convenience of packing. Below the lac-bearing trees there is always a considerable quantity of the resin in small particles, which

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have been detached by the wind shaking and chafing the branches; this also is collected, and constitutes the seed-lac of our merchants.

The water in which the stick-lac is first softened contains, as before mentioned, the coloring matter of the dead insect. This is strained and evaporated until the residue is a purple sediment, which, when sufficiently dried, is cut in small cakes, about two inches square, and stamped with certain trade-marks, indicating its quality. These are then fully dried, and packed for sale as *lac-dye*, of which large quantities are used in the production of scarlet cloth, such as that worn by some soldiers; for this purpose, lac-dye is found very suitable.

As there is no strictly analogous resin from the vegetable kingdom, not even from the lac-bearing trees, it may be assumed that the juices of the trees are somewhat altered by the insects. The best analyses show that shell-lac contains several peculiar insects. The great value of the lacs is found in their adaptability for the manufacture of varnishes, both in consequence of their easy solubility, and also because of the fine hard coating, susceptible of high polish, which they give when dry. The well-known 'French polish' is little more than shell-lac dissolved in alcohol; and a fine thin varnish made of this material constitutes the lacquer with which brass and other metals are coated, to preserve their polish from atmospheric action.

All the varieties of lac are translucent, and some of the finer kinds, in flakes not much thicker than writing-paper, are quite transparent, and all, as before stated, are colored various shades of brown, from orange to liver. Nevertheless, if a quantity of shell-lac be softened by heat, it may, by continually drawing it out into lengths, and twisting it, be made not only quite white, but also opaque; in this state it has a beautiful silky lustre; and if melted and mixed with vermilion, or any other coloring matter, it forms some of the fancy kinds of sealing-wax: the more usual kinds are made by merely melting shell-lac with a little turpentine and camphor, and mixing the coloring matter. Shell-lac has the property of being less brittle after the first melting than after subsequent meltings; hence the sealing-wax manufactured in India has always had a high reputation, and hence also the extreme beauty and durability of those Chinese works of art in lac, some of which are very ancient. These are usually chow-chow boxes, tea-basins, or other small objects made in wood or metal, and covered over with a crust of lac, colored with vermilion, which, while soft, is molded into beautiful patterns. So rare and beautiful are some of these works, that even in China they cost almost fabulous prices.

LAC, or LAKH, *lāk*: in the E. Indies a sum of 100,000 rupees. A lac of *Government Rupees* is equal to £9,270 sterling; a lac of *Sicca Rupees*, which in some places

LACANDONES—LACE.

are also in very general use, is equal to £9,898 sterling. One hundred lacs, or 10,000,000 of rupees, make a *Crore*.

LACANDONES, *lâ-kan-dō'nās*: tribe of Central American Indians, formerly occupying a large region in n. Guatemala, now almost confined to the vicinity of the Chiche Mountains. They belong to the Maya stock, fought the Spaniards stubbornly, and though refusing permission to whites to visit their settlements are now quite peaceably inclined. They are nominally subject to Guatemala, but are independent in govt., and adhere to their ancient forms of worship.

LACCADIVES, *lāk'a-dīvz* (native name *Lakara-Divh*, i.e., the Lakara Islands): group of islands in the Arabian Sea, discovered by Vasco de Gama 1499; about 150 m. w. of the Malabar coast of the peninsula of Hindustan. They extend in n. lat. 10°—12°, and in e. long. 72°—74°, and are 17 in number; 744 sq. m. Being of coral formation, they are generally low, with deep water immediately around them, and are therefore dangerous to navigators. Chief productions, coir, jaggery, rice, cocoa and betel nuts, sweet potatoes, and cattle of a small breed. The inhabitants, who are called *Moplays*, are of Arabian origin, and in religion follow a sort of Mohammedanism. Since 1875 the islands are dependencies of Great Britain, having been then annexed to the province of Madras. Pop. about 7,000.

LACE, n. *lās* [OF. *las*, a snare, a noose—from L. *la-quēus*, a snare, a noose: It. *laccio*; F. *lacs* or *lacqs*, a lace, a tie: Prov. *lassar*; F. *lacer*, to bind]: a fine kind of network, texture, or trimming; a string or cord used for a fastening; in *old familiar language*, spirits added to tea or coffee: V. to fasten or draw together with a lace or cord, as a boot or stays; to trim with lace; in *OE.*, to embellish. LAC'ING, imp.: N. a fastening with a lace or cord; the cord used in fastening. LACED, pp. or a. *lāst*, fastened with a lace or cord. STRAIT-LACED, narrow-minded; bigoted in opinion. LACE'MAN, one who deals in lace. LACED MUTTON, in *OE.*, a bawd. GOLD LACE, yellow silk thread covered with flattened gold wire, or silver-wire gilt, and then woven into lace. SILVER LACE, thread covered with silver and woven into lace.

LACE: ornamental fabric of linen, cotton, or silk thread, made either by the hands, somewhat after the manner of embroidery, or with machinery. The manufacture of lace by hand is an operation of exceeding nicety, and requires both skill and patience of no ordinary kind, and the best productions of this fabric surpass all other textile materials in costliness and beauty.

Whether the ancients had any knowledge of lace-making, excepting gold-lace (see end of this article), is not known; nor is it known with certainty when this art came into practice in Europe; but there is good reason to suppose that *point-lace*, the oldest variety known, was

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the work of nuns during the latter half of the 14th and the beginning of the 15th c. This point-lace is very characteristic, and is truly an art production. The artistic character of the patterns, and the wonderful patience and labor shown in carrying them out, places them, as productions by women, on a parallel with the decorative works in stone, wood, and metal of the monks. They indicate no tiresome efforts to copy natural objects, but masterly conceptions of graceful forms and tasteful combinations. The exact figures of the pattern were cut out of linen, and over these foundation-pieces, as they may be called, the actual lace-work was wrought by the needle, with thread of marvellous fineness, and with such consummate art, that the material of the foundation is quite undiscoverable under the fairy-like web which has been woven over it. These portions of the fabric were then joined together by connecting threads,

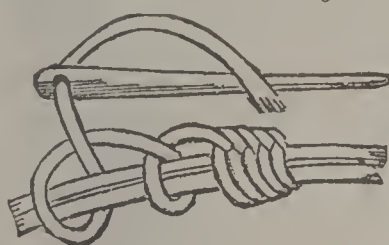


Fig. 1.

each of which, like the broader parts, consists of a foundation, and lace-work covering; the former being a mere thread, often of exceedingly fine yarn; the latter being a sort of loop-work like the modern crochet (fig. 1). The wonderful durability of point-lace is attested by the fact, that it is not uncommon in the most choice collections of the present, though the art is supposed to have been lost about the beginning of the 16th c., when a more easily made, and consequently cheaper style of point-lace, displaced the older and more artistic kind.

The point-lace of the second period, though always very beautiful, was deficient in solidity and in purity of design; moreover, it bears indications of having been copied from patterns, while the older kind was evidently the carrying out of artistic thoughts, as they were conceived, in the original material, the worker and the designer being the same person. It was during the second period that the pillow was first used, and it is probable that the use of patterns led to the application of the pillow. First, the lace would be worked on the pattern, to insure correctness, where the worker was merely a copyist; then it would soon become evident that if the pattern were so arranged as to avoid shifting, the facilities of working would be greatly increased; and it has been suggested that the pattern pinned to the pillow, and the threads twisted around the pins, to prevent raveling when not in use, suggested the net-work which afterward became a leading feature in the fabric.

The invention of pillow-lace has been claimed by Beckmann, in his quaint way, for one of his country-women. He says: 'I will venture to assert that the knitting of lace is a German invention, first known about the middle of the 16th c.; and I shall consider as true,

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until it be fully contradicted, the account given us that this art was found out before 1561, at St. Annaberg, by Barbara, wife of Christopher Uttmann. This woman died in the 61st year of her age, after she had seen 64 children and grandchildren; and that she was the inventress of this art is unanimously affirmed by all the annalists of Saxony.' Whether she invented, or merely introduced the art, cannot now be proved, but certain it is, that it soon became settled in Saxony, and spread thence to the Netherlands and France. Even to the present day, we occasionally hear of 'Saxon bone-lace,' a name which was given to indicate the use of bone-pins, before the introduction of the common brass ones.

It will readily be supposed that an art depending so much on individual skill and taste, would be likely to vary exceedingly; nevertheless, all the varieties resolve themselves into few well-marked groups, under three distinct classes. The first class is the *Guipure*, which comprises all the true needle-worked lace, whether ancient or modern; its varieties are—*Rose-point*, in which the figures are in high relief, having a rich embossed appearance; *Venetian-point*, *Portuguese-point*, *Maltese-point*: in all of these the pattern is flatter than in the *Rose-point*, *Point d'Alençon*, and *Brussels-point*. The last two are still made, the modern *Point d'Alençon* quite equalling in beauty and value that made in the middle of the 17th c., when its manufacture was introduced by the celebrated Colbert, chief minister of Louis XIV. The *Point d'Alençon* has very distinctive characteristics. When the pattern is once designed, each portion may be worked by a separate person, and the various figures are then connected by a groundwork of threads, which are so passed from one figure to another as to represent a web of wonderful delicacy and regularity: small spots or other figures are here and there skilfully worked in where the threads cross each other; these are called *modes*, and not only add much to the strength of the fabric, but greatly increase its richness of effect. In all these varieties, but two kinds of stitches are employed, and these differ chiefly in the greater or less closeness of the threads employed. First, a series of threads are laid down all in one direction, so as to cover the pattern, and then a certain number of these are taken up and covered by loops of the cross-stitches, as in fig. 1, or are more lightly held together, as in fig. 2.

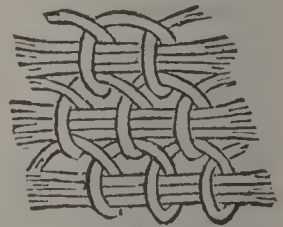


Fig. 2.

The second class is *Pillow-lace*, sometimes called *Cushion* or *Bobbin lace*, from the pillow or cushion being used to work the pattern upon, and the various threads of which the figures are made up, each being wound upon a bobbin, usually of an ornamental character, to distinguish one from the other. The pattern

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on parchment or paper, being attached to the *pillow* or cushion, pins are stuck in at regular intervals in the lines of the pattern, and the threads of the bobbins are

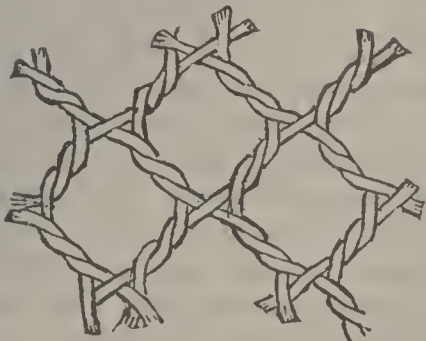


Fig. 3.



Fig. 4.

twisted or plaited around them so as to form the network arrangement which is characteristic of this class of lace (figs. 3 and 4), the patterns, or figured portions, being worked out by a crossing of threads, which, although actually plaiting, gives the effect of weaving, as in fig. 5.



Fig. 5.

The varieties of this lace are—*Spanish, Grounded Spanish, Saxony, Brussels, Flemish Brussels, Mechlin, Valenciennes, Dutch Lisle, Chantilly, Silk and Cotton Blonde, Limerick, Buckinghamshire, and Honiton*. The last has of late years become the most beautiful of all the varieties now made, though the Irish or Limerick also has taken a high position.

The third class is machine-made lace, which, by its wonderful improvement and rapid development, has worked a complete revolution in the lace-trade, so that the prices formerly obtained for hand-made lace can no longer be commanded, while machine lace, of great beauty, has become so cheap and plentiful as to be worn by all classes. It has been mentioned before that the use of the pillow led to the introduction of net as the ground-work for lace figures, and it was to the manufacture of this so-called *bobbin-net* that the machinery was first applied (see *BOBBINET*). The figure in the article referred to indicates the structure of net. The lace-machine, or *frame*, as it is technically called, is very complicated, but one or two points of chief importance may show its general principles. First, then, as in the loom (see *LOOM*), there is a series of warp-threads, placed, however, perpendicularly instead of horizontally, and not so close as in ordinary weaving, the space between each being sufficiently wide to admit of a shilling passing edgeways between them. Behind these threads, and corresponding to the interspaces, is a row of ingeniously constructed flat bobbins or reels resting in an arrangement called a *comb-bar* or *bolt-bar*. These are so placed, that with the first movement of the machine, each bobbin, which carries its thread with it, passes through two of the parallel and perpendicular threads

LACE.

of the warp, and is lodged in another and similar bolt-bar in front of the warp. But this front bolt-bar, besides an advancing and receding motion, has another movement, called *shogging*—from right to left. When it receives a bobbin by its forward motion, it draws back, bringing the bobbin and thread through two of the upright threads; it then *shogs* or moves to one side, and goes forward again, taking the thread through the next two warp-threads, and lodging the bobbin on the back bolt-bar again, one distance beyond its last space; this it recovers by the next movement, and it again passes through the first space, to be again received by the front bolt-bar. By these movements, the bobbin-thread is twisted quite round one upright thread of the warp; another movement then shifts the bobbin, so that it will pass through the next pair of upright threads, and so carry on its work, the warp-threads moving at the same time, unwinding from the lower beam, and being rolled on the upper one. There being twice as many bobbins as there are threads in the warp, each bolt-bar having a set which it exchanges with the other, and all being regulated with great nicety, a width of lace is made in far less time than has been required to write this short description. The various additions to, and variations on, these operations, which apply only to bobbinet, for the production of patterns, are numerous and complicated—each pattern requiring new complications. They all depend on the variations which can be given to the movements of the flat, disk-like bobbins.

The history of the lace-machine is not clear; it is said to have been invented by a *frame-work* knitter of Nottingham, from studying the lace on his wife's cap; but it has been continually receiving improvements, among which those of Heathcote, 1809—the first to work successfully—Morley, 1811 and 24, and those of Leaver and Turton, and of Clark and Marl, all 1811. The manufacture of lace by machinery is chiefly in Nottingham, whence it is sent to all parts of the world; but the statistics of its manufacture and market are not known; as only *thread-lace* is mentioned in the British official lists of exports, while the vast production of cotton-lace is mixed with the returns of calico and like fabrics.

Gold-lace and *Silver-lace*, properly speaking, are laces woven, either by the hand or by machinery, from exceedingly fine threads of the metals, or from linen, silk, or cotton threads coated with still finer threads of gold or silver; but gold or silver lace designate not only that which is rightly so-called, but also fringe made of these materials; also gold and silver embroidery, such as is seen on state robes and trappings, and on some ecclesiastical dresses, etc. Gold-lace is made in London, but considerable quantities of that used for decorating uniforms and other dresses, etc., is made in Belgium. France supplies much of the gold and silver thread used,

LACE-BARK TREE—LACHAISE.

and excels all other countries in production of some of the more artistic varieties of gold and silver lace and embroidery. Italy has lately shown great taste and skill. The works of Luigi Martini, of Milan, attained great celebrity.

LACE'-BARK TREE (*Lagetta lintearia*): tree of nat. ord. *Thymeleacæ*, native of the W. Indies. It is a lofty tree, with ovate, entire, smooth leaves, and white flowers. It is remarkable for the tenacity of the fibers of its inner bark, and the readiness with which the inner bark may be separated, after maceration in water, into layers resembling lace.

LACEDÆ'MON. See SPARTA.

LACE'-LEAF. See LETTICE LEAF.

LACÉPÈDE, *lâ-sâ-pâd'*, BERNARD GERMAIN ÉTIENNE DE LAVILLE, Count DE: French naturalist and writer. 1756, Dec. 26—1825, Oct. 6; b. Agen; of a noble family. In the study of natural history he was encouraged by the friendship of Buffon, and was appointed curator of the Cabinet of Natural History in the Royal Gardens at Paris. At the Revolution, he became prof. of nat. his., and entering on a political career, rose to be a senator 1799, a minister of state 1809, and, after the return of the Bourbons, a peer of France, though previously a most zealous adherent of Bonaparte. He died of small-pox at his mansion of Epinay, near St. Denis. A collective ed. of his works was published 1826: among them are works on Reptiles, Fishes, and the Cetacea, a Work on the Nat. Hist. of Man, and one entitled *Les Ages de la Nature*. His greatest work, that on Fishes (5 vols. 1798-1803) was long unrivalled in that department, though now in a great measure superseded. Lacépède, who was an accomplished musician, was the author of a work entitled *La Poétique de la Musique* (2 vols. 1785), and of two romances intended to illustrate social and moral principles. He was an amiable man, extremely kind, delighting in domestic life, and very simple, almost abstemious, in his habits.

LACERATE, v. *lās'ér-ât* [L. *lacerātus*, torn or mangled—from *lacer*, torn: It. *lacerare*; F. *lacérer*]: to wound and tear; to rend. LAC'ERATING, imp. LAC'ERATED, pp. ADJ. rent; torn; appearing torn. LAC'ERABLE, a. *-ă-bl*, capable of being lacerated or torn. LAC'ERATION, n. *-ă-shŭn* [F.—L.]: the marks made by wounding and tearing; the act of tearing or rending. LAC'ERATIVE, a. *-tív*, having power to tear or rend.

LACER'TA and LACER'TIDÆ. See LIZARD.

LACERTIAN, a. *lă-sér'shĭ-ăn*, or LACERTILIAN, a. *lăs'ér-tĭl'ĭ-ăn* [L. *lacerta*, a lizard]: pertaining to the family of lizards. LACERTINE, a. *lăs'ér-tĭn*, like a lizard.

LACHAISE, *lâ-shâz'*, FRANCIS D'AIX DE: 1624, Aug. 25—1709, Jan. 20; b. of a noble family, in the castle of

LACHES—LACHINE.

Aix, now in the department of Loire; Jesuit and provincial of his order, whom Louis XIV. selected for his confessor on the death of Father Ferrier 1675. His position was one of great difficulty, owing to the different parties of the court, and the strife between Jansenists and Jesuits. In the most important questions of his times, Father Lachaise avoided extreme courses. A zealous Jesuit, and of moderate abilities, he yet sustained among his contemporaries the reputation of a man of mild, simple, honorable character. Madam Maintenon could never forgive him the little zeal with which he opposed the reasons urged against the publication of her marriage with the king; but during the 34 years that he filled his office of confessor, he never lost the favor of the king. He was a man of some learning, and fond of antiquarian pursuits. Louis XIV. built him a country-house at Paris, the large garden of which was 1804 converted into a burial-place, known as the *Père-la-Chaise*.

LACHES, n. *läch'ěz* or *lăsh'ěz* [Norm. F. *luchesse*; OF. *lasche*, slack, remiss—from mid. L. *lascus*, a transposition of L. *lacsus* or *laxus*, loose: F. *lâche*, idle, sluggish]: in *law*, a term meaning neglect or negligence; inexcusable delay. The courts do not charge with laches any person under legal disability, e.g., an infant. Laches is not generally relieved by equity, unless where the rights of the person seeking relief were doubtful or to him unknown.

LACHESIS, n. *lăk'ě-sīs* [Gr. the allotter]: in *L.* and *Gr. myth.*, one of the three Fates, who spins the thread of life, allotting to man and things their duration in time: *Clotho* holds the distaff, and *Atropos* cuts the thread.

LACHESIS, *lăk'ě-sīs*: genus of serpents allied to Rattlesnakes (*Crotalidæ*), but differing from rattlesnakes in having a tail terminated with a spine instead of a rattle, and in having the head covered with scales, and not with plates. All the species are natives of the warm parts of America, where some of them are among the most dreaded of venomous serpents. They are usually seen coiled up, with keen glaring eyes, watching for prey, on which they dart with the swiftness of an arrow, and then coiling themselves up again, wait quietly till the death-struggle of the victim is over. Some of them attain the length of seven feet. Unlike rattlesnakes, they are said to be apt to attack men, even when not attacked or threatened.

LACHINE, *lâ-shên*: town in Jacques Cartier co., Quebec, Canada; on the Grand Trunk railway, eight m. southwest of Montreal; on Montreal Island, which is here connected with Caughnawaga, on the s. bank of the St. Lawrence, by a bridge. It is a popular resort for pleasure parties in the winter, and in summer is

LACHLAN—LACHRYMAL.

largely a residential place for Montreal business men. It has fine residences, churches, schools, a convent, etc. It is best known as the terminus of the Lachine Canal, nine m. long, connecting it with Montreal and built to carry steamers around the Lachine Rapids. All the commerce of Montreal by the Great Lakes passes through this canal. Lachine is also the terminus of the Ottawa line of steamers, and daily at noon in summer a steamer of the Royal Mail Line leaves the town for Toronto, Hamilton, and Kingston. Lachine has some manufactories, and here are the electric works of the Lachine Power Company (1894-7) with a plant of 21,000 horsepower, designed to furnish power and light for the city of Montreal. The name was given to the site in 1669. In 1689 the Indians burned the town and massacred all the inhabitants. Pop. (1901) 5,561.

LACHLAN, *lâk'lan*: river of e. Australia, rising in New South Wales, w. of the Blue Mountains. After a course of 700 m., with the characteristics of the Darling (q.v.) on a smaller scale, it joins the Murrumbidgee, which itself, a little further down, enters the Murray. The former of these two points of confluence is in lat. 34° 30' s., and long. 144° 10' e.

LACHMANN, *lâch'mân*, KARL: celebrated German critic and philologist: 1793, Mar. 4—1851, Mar. 13; b. Brunswick. He studied at Leipzig and Göttingen, became prof. in the Univ. of Königsberg 1816, and at Berlin 1827. Lachmann's literary activity was extraordinary. He was devoted equally to classical studies and to old German literature, and illustrated both by a profound and sagacious criticism. Among his most important productions are editions of the *Nibelungenlied*, of the works of Walter von der Vogelweide, Propertius, Catullus, Tibullus, and of the New Testament (Berl. 1831; 3d ed. 1846) of which a larger edition, with the Vulgate translation, appeared in 2 vols. (Berl. 1846-50). The design of the last of these works was to restore the Greek text as it existed in the Eastern Church in the 3d and 4th c.; and Lachmann thought himself more likely to attain that end by attaching weight only to such MSS. as exist in Uncials (q.v.).

LACHRYMAL, a. *lâk'rî-mäl* [mid. L. *lachrymâlis*, pertaining to tears—from L. *lach'ryma*, a tear]: pertaining to tears; generating or conveying tears. LACH'RYMARY, a. *-mâr-î*, containing tears. LACH'RYMA'TION, n. *-mâ'shün*, act of shedding tears; a preternatural flow of tears. LACH'RYMA'TORY, n. *-mâ'ter-î*, small bottle-shaped vessel anciently buried with the dead, and supposed to contain the tears shed for their loss, but whose real use probably was to hold perfumes or ointments: these little vials of glass or earthenware had long necks, and mouths shaped as if to receive the eyeball. LACH'RYMOSE, a. *-môs*, generating or shedding tears; tearful; sad; dole-

LACHRYMAL ORGANS.

ful. LACH'RYMOSELY, ad. -li. LACHRYMAL CANALS, the canals which convey the tears from the eye to the nasal ducts. LACHRYMAL DUCTS, the ducts or small tubes which convey the tears from the lachrymal gland to the eye. LACHRYMAL GLAND, the gland which secretes the tears. LACHRYMÆ CHRISTI, *lăk'rĭ-mē krĭs'tĭ* [L. *lachrymæ*, the tears; *Christi*, of Christ]: a muscated wine of sweet but piquant taste, and a most agreeable bouquet; produced from the grapes of Mount Somma, near Vesuvius. There are two kinds, the white and the red, the first generally preferred. The demand being greater than the supply, large quantities of the produce of Pozzuoli, Istria, and Nola are sold under this name. A similar wine is produced in many islands of the Archipelago, as Candia and Cyprus. The name is sometimes applied to any liquid supremely excellent.

LACHRYMAL ORGANS, DISEASES OF THE: arising from various causes. (For the organs themselves, see EYE.)

There may be a deficient secretion of tears (*Xerophthalmia*): this may be palliated by keeping the cornea constantly moist with diluted glycerin by means of an eye-cup. Or there may be an over-secretion of tears, so that they run down the cheeks: this affection (termed *Epiphora*, not to be confounded with the *Stillicidium lachrymarum*, or overflow of tears that arises from an obstruction of the channels through which they pass into the nose) is common in scrofulous children, and should be treated with gentle aperients, such as rhubarb combined with bicarbonate of soda, and tonics, such as the citrate of iron and quinine.

Obstruction of the nasal duct is generally caused by a thickening of the mucous membrane that lines it, and is a common affection, especially in scrofulous young persons. There is a feeling of weakness of the eye on the affected side, and tears run down the cheek, while the nostril on that side is unnaturally dry. The lachrymal sac (see EYE) is distended with tears, and forms a small tumor by the side of the root of the nose. On pressing this tumor, tears and mucus can be squeezed backward through the puncta, or downward into the nose, if the closure is only partial. This affection often leads to *inflammation of the sac*, or to the formation of a fistulous aperture at the inner corner of the eye, communicating with the lachrymal sac, and known as *Fistula lachrymalis*. This fistulous aperture, caused by the bursting of an abscess, arising from inflammation of the sac, is generally surrounded by fungous granulations (popularly known as *proud flesh*), and the adjacent skin is red and thickened from the irritation caused by the flow of tears. In these cases, the sac must be opened by a puncture, and a style (a silver probe about an inch long, with a head like a nail) should be pushed through the duct into the nose. The retention of this instrument

LACINIA—LACLÉDE.

causes the duct to dilate, so that the tears flow by its side. The flat head of the style lies on the cheek, and both keeps the instrument in its place and facilitates its occasional removal for the purpose of cleansing. Sometimes it is necessary that the instrument should be worn for life, but in less severe cases the duct remains permanently dilated, and a cure is effected in a few months.

LACINIA, n. *lă-sîn'î-ă*, LACINIÆ, n. plu. *lă-sîn'î-ē* [L. *laciniā*, a fragment of cloth, the lappet or flap of a garment]: in *bot.*, a slash; a deep taper-pointed incision; such strips as the petals are cut up into in the plant Ragged Robin. LACINIATE, a. *lă-sîn'î-ăt*, or LACINIATED, a. *lă-sîn'î-ăt-ēd*, in *bot.*, irregularly cut into narrow segments; fringed; or LACINIOSE, a. *lă-sîn'î-ōs*, fringed. LACINIOLATE, a. *lă-sîn'î-ō-lăt* [dim. of *laciniā*]: having very minute laciniæ. LACINULA, n. *lă-sîn'î-lă* [dim.]: the small inflexed point of the petals of Umbellifers.

LACK, n. *lăk* [Dut. *lack*, want, defect; *laecken*, to become deficient: Icel. *lakr*, defective: Swab. *lack*, slow, faint: possibly connected with LEAK]: want; deficiency; need: V. to want; to be destitute of; to be in want. LACK'ING, imp. LACKED, pp. *lăkt*. LACKALL, n. *lăk'awl*, in *familiar language*, a needy person. LACK'BRAIN, *-brăn*, a witless or stupid person.

LACK, *lăk*: another spelling of LAKH, which see.

LACKADAISY, a. *lăk'ă-dă'zî*, or LACK'ADAISICAL, a. *-zî-kăl*: affectedly pensive; sentimental.

LACK-A-DAY! int. *lăk'ă-dă'* [a contr. of ALACK-A-DAY, which see]: an expression of sorrow or regret; alas!

LACKAWANNA, *lăk-a-wŏn'a*, RIVER: small stream rising in Susquehanna co., Penn., flowing s.w. through Luzerne co., and emptying into the Susquehanna river at Pittston. For 30 m. it passes through the largest and richest anthracite coal region in the United States, known as the Lackawanna, and sometimes as the Wyoming, basin. The city of Scranton, formerly Lackawanna, is the most important place on its course.

LACKER. See LACQUER.

LACKEY, n. *lăk'î* [F. *laquais*, a footman—from OF. *laquay*—from Sp. *lacayo*, a lackey: Gael. *laoch*, a young man: OF. *naquais*, an attendant at a tennis-court]: an attending male servant; a footman: V. to attend servilely; to act as a lackey. LACK'EYING, imp. *-î-îng*. LACKEYED, *lăk'îd*.

LACK-LUSTRE, a. *lăk'lūs-tēr* [*lack*, and *lustre*]: wanting lustre or brightness; void of expression.

LACLÉDE, *lă-klăd'*, PIERRE LIQUESTE: 1724—1778, June 20; b. Bion, France: colonist. He obtained the exclusive right to trade with the American Indians on the Missouri river 1762, established with Auguste Chouteau (q.v.) the Louisiana Fur Company, and made a permanent settlement and station on the site of St.

LA CONDAMINE—LACONIC.

Louis (which he named in honor of Louis XV.) 1764, Feb. 15.

LA CONDAMINE, *lâ kōng-dâ-mēn'*, CHARLES MARIE DE: 1701, Jan. 28—1774, Feb. 4; b. Paris: geographer, mathematician, and explorer. He studied at the Univ. of Paris, and entered the army 1719; but soon turned to science. His account of caoutchouc led to its introduction into Europe. In 1736 he was chosen, with Godin and Bouguer, to determine the figure of the earth, by measurements to be made in the equatorial regions of South America, and remained abroad for eight years. In 1748 he was elected a fellow of the Royal Society of London, and in 1760 a member of the Academy of Sciences of Paris. His principal works are his account of his travels (1745), his work on the figures of the earth (1749), and that on the measurement of three degrees of the meridian in the equatorial regions.

LACONIA, *lā-kō'nī-a*, formerly the name for a large tract of land granted by royal patent to Ferdinand Gorges and John Mason. It was located between the Merrimac and Kennebec rivers, the ocean, and the Saint Lawrence River of Canada. The present State of New Hampshire formed a considerable portion of Laconia.

LACONIA: a territory in ancient Greece. See SPARTA.

LACONIA: city, county-seat of Belknap County, New Hampshire; on the Winnepesaukee River, and on two divisions of the Boston & Maine railroad; about 28 miles north of Concord, the capital of the state, and 100 miles north of Boston. It was settled in 1780-2 by English people from the southern part of New Hampshire. It was incorporated as a town in 1852 and chartered as a city in 1893. It is in an agricultural and manufacturing section, in a beautiful lake region. Its charming scenery, cool climate and opportunities for fishing make it a favorite summer resort. Its principal manufactures are hosiery, railroad cars, machinery, lumber, and paper boxes. The hosiery mills employ about 1,200 operatives; and the car shops employ about 600 men. The State Home for Feeble-Minded Children is located here, also the State Fish Hatchery. The educational institutions of the city are the public and parish schools and the Gale Memorial library. The prominent buildings are 12 churches, an opera house, and the court-house. The three national banks have a combined capital of \$200,000. The government is vested in a mayor and 14 councilmen. Pop. (1900) 8,042.

LACONIC, a. *lā-kōn'īk*, or LACON'ICAL, a. *-ī-kāl* [Gr. *lakonikos*; L. *laconicus*, of or belonging to Laconia, a country of Greece, whose chief city was Sparta (q.v.) and whose inhabitants were noted for sententious brevity and gravity in discourse: F. *laconique*: It. *laconico*]: short; brief; pithy; expressing much in few words.

LACORDAIRE.

LACONICALLY, ad. -kŏn'î-kâl-î. LACONICISM, n. lâ-kŏn'î-sîzm, or LACONISM, n. lâk'ŏn-îzm, a laconic style; a concise manner of expression; a brief expression.—SYN. of 'laconic': sententious; pointed; concise; succinct.

LACORDAIRE, lâ-kŏr-dâr', JEAN-BAPTISTE-HENRI: most distinguished of the modern pulpit-orators of France: 1802, Mar. 12—1861, Nov. 22; b. Recey-sur-Ource, in the department Côte-d'or. He was educated at Dijon, where also he entered on legal studies; and having taken his degree, he began to practice as an advocate in Paris 1824, and rose rapidly to distinction. As his principles at this period were deeply tinged with unbelief, it was a matter of universal surprise in the circle of his acquaintance that he suddenly gave up his profession, entered the College of St. Sulpice, and 1827 received holy orders. His change of views had been occasioned by his reading of Lamennais's *Essai sur l'Indifférence*. He soon became distinguished as a preacher, and in the College of Juilly, to which he was attached, he formed the acquaintance of the Abbé Lamennais, with whom he speedily formed a close and intimate alliance, and in conjunction with whom, after the revolution of July, he published the well-known journal, the *Avenir*, an organ at once of the highest church principles and of the most extreme radicalism. The articles published in this journal, and the proceedings which were adopted in asserting the liberty of education, led to a prosecution in the chamber of peers 1831; and when the *Avenir* itself was condemned by Gregory XVI., Lacordaire formally submitted, and for a time withdrawing from public affairs, devoted himself to the duties of the pulpit. The brilliancy of his eloquence, and the novel and striking character of his views, excited an interest altogether unprecedented, and attracted unbounded admiration. His courses of sermons at Notre-Dame drew to that immense pile crowds such as had never been seen by the living generation, and had produced an extraordinary sensation even on the non-religious world, when once again Lacordaire fixed the wonder of the public by relinquishing the career of distinction which was open to him, and entering the novitiate of the Dominican order 1840. A short time previously, he had published a memoir on the re-establishment of that order in France, which was followed, after his enrolment in the order, by a Life of its founder, St. Dominic; and 1841 he appeared once again in the pulpit of Notre-Dame, in the well-known habit of a Dominican friar. From this date, he gave much of his time to preaching in various parts of France. In the first election which succeeded the revolution of 1848, he was chosen one of the representatives of Marseille, and took part in some of the debates in the assembly; but he resigned in the following May, and withdrew entirely from political life. In 1849, 50 and 51, he resumed his

LACOSTE—LACQUER.

courses at Notre-Dame, which, together with earlier discourses, have been collected in three vols., under the title of *Conferences de Notre-Dame de Paris*, 1835-50. His health having begun to decline, he withdrew 1854 to the convent of Soreze, where he died. In 1858, he wrote a series of *Letters to a Young Friend*, which have been much admired; and 1860, having been elected to the Acad., he delivered what may be called his last address—a Memoir of his predecessor, M. de Tocqueville. A collected ed. of his works appeared Paris 1872; his Memoirs by Montalembert 1862.

LACOSTE, *la-kōst*, SIR ALEXANDER: Canadian jurist: b. Boucherville, Quebec 1842, Jan. 12. He was educated at the College St. Hyacinthe and at Laval University and was called to the bar in 1863. He began practising his profession in Montreal and after a brilliant legal career was appointed Queen's Counsel in 1880. He sat in the Legislative Council of Quebec 1882-4, became a Dominion senator in 1884, and in 1891 chief-justice of Quebec. He was knighted in 1892.

LACQUER, or LACKER, n. *lāk'ēr* [F. *laque*, rose or ruby color—from It. *Lacca*, lacquer: Port. *lacre*, sealing-wax (see LAC 1)]: varnish prepared for coating metal-work (see LAC), usually polished brass. The formula usually is—for gold color: alcohol, two gallons; powdered turmeric, one lb., macerate for a week, and then filter with a covered filter, to prevent waste from evaporation; to this add, of the lightest-colored shellac, 12 oz.; gamboge, 4 oz.; gum-sandarach, 3½ lbs: this is put in a warm place until the whole is dissolved, when one qt. of common turpentine varnish is added. A red lacquer, prepared by substituting 3 lbs. of annatto for the turmeric, and 1 lb. of dragan's blood for the gamboge, is extensively used. LACQUER, or LACKER, v. to varnish or cover with lacquer. LACQUERING, imp. *lāk'ēr-īng*: N. the art of coating metal with varnish. The term has also a wider signification, and is made to apply to the process by which some varieties of goods in wood and papier mâché are also coated with layers of varnish, which are polished, and often inlaid with mother-of-pearl, etc. See PAPIER MÂCHÉ. It would appear, from the very fine specimens from Japan in the International Exhibition, that the Japanese excel in the art of producing articles of exquisite thinness and delicacy. The varnish used by the Chinese and Japanese appears to be the same, and is a natural secretion which flows from incisions in the stem of the Varnish-tree (q.v.). Usually, the oriental lacquered work is tastefully ornamented with designs painted in gold, or with inlaid shell-work. The Japanese have carried this art so far as to apply it to their delicately beautiful china, some of which is lacquered and inlaid with mother-of-pearl, forming landscapes and other designs. LACQUERED, pp. a. *lāk'érd*, cov-

LACROIX—LA CROSSE.

ered with lacquer; varnished. LACQUERER, n. *lāk'ér-ér*, one who varnishes metals. LACQUERED WARE [Dut. *lak-werk*]: ware covered with a varnish of lac.

LACROIX, *lâ-krwâ'*, or LACRAIX, SYLVESTRE-FRANÇOIS: French mathematician: 1765-1843; b. Paris; of poor parentage. He gained so great knowledge of elementary mathematics, that, at the age of 17, he obtained, by the recommendation of Monge (q.v.), the professorship of mathematics in the Naval School at Rochefort. He was successively promoted to a corresponding position in the Ecole Normale, Ecole Polytechnique, the Sorbonne, and the College of France; was chosen member of the Acad. of Sciences 1799, gratefully remembered for his *Traité du Calcul Différentiel et Intégral* (Paris 1797), on which he spent immense labor, in compilation of the results of all previous research, and whose value may be estimated by Laplace's statement, that it had cost him ten years' labor to supply for himself the want of such a work.

LA CROSSE: city and county-seat of La Crosse County, Wisconsin, on the Mississippi River and the Chicago, M. & St. P., the Chicago & N.-W., the C., B. & Q., and several other railroads; 200 miles northwest of Milwaukee, and 130 miles south of Saint Paul. La Crosse is the centre of the farming, manufacturing and dairying trade of western Wisconsin, southern Minnesota and northern Iowa. There are manufactories of boots and shoes, plows, agricultural implements, boilers and heavy machinery, extensive carriage works, rubber mills, cracker and knitting factories, etc., large flour mills, pearl button factories, steel and corrugated roofing works, woolen mills, a large tannery, mammoth cooperages, five large breweries, affording a market for 150,000 bushels of barley and 100,000 pounds of hops per annum; extensive cigar manufactories and various other industries. The city has five banks with a combined capital of \$805,000, surplus of \$400,000 and business of \$180,000,000. La Crosse has a public library, the Washburn, containing 25,000 volumes, two business colleges, a high school, public school buildings and several Catholic and Lutheran parish schools. The city has a fine city hall, a Federal building, a convent, asylum for chronic insane, Saint Francis, the Lutheran and La Crosse hospitals, numerous churches, opera houses, etc. La Crosse was first permanently settled in 1841 by Nathan Myrick, John M. Levy and others. It became a village in 1851 and was incorporated a city in 1856. Under a revised charter of 1891 the government is administered by a mayor, elected every two years, and a council of 20 aldermen, one-half elected biennially. The council appoints the minor officials. The city owns and operates the waterworks, and has electric light and street railroad plants. Pop. (1910) 30,417.

LA CROSSE.

LA CROSSE, n. *la krös'* [F. *la*, the; *crosse*, a bishop's staff or crosier]: a field game played with a ball. The Iroquois Indians have long played it in Canada. The game was introduced to England and the United States about 1867, in which year 18 Indians went to England to play it.

In La Crosse every player is provided with a kind of large battledore. This consists of a long stick of light hickory, bent at the top like a bishop's crosier; strings of deer-skin are stretched diagonally across the hooked portion in different directions, forming a network—not so tightly as in a regular battledore or racquet-bat, nor so loosely as to form a bag. As the battledore, called the *crosse*, is five or six feet long, there is great leverage power in handling it. Only one ball is employed, made of india-rubber, and eight or nine inches in circumference. The players divide themselves into two parties, the reds and the blues; their number, as well as the size of the play-field, are nearly optional, more players being needed as the area is larger. Red predominates in the dress of one party, and blue in that of the other, for facility in distinguishing colleagues from opponents. To prepare for the game, a red goal is set up at one end of the field, consisting of two small red flags on posts, about six ft. high and six ft. apart; a similar goal, blue in color, is set up at the opposite end of the field. The object of the game is for the blues to drive the ball through the red goal, and the reds to drive it through the blue goal; and each party strives to frustrate the plan of the other. The ball is not thrown by the hand, but is hooked up from the grass by the bent end of the *crosse* or battledore; it is borne on the netting horizontally, while the player runs, and is dexterously thrown off the *crosse* when the exigencies of the game require such a maneuver. No player is allowed to wear spiked shoes; but a good hold of the ground is obtained by wearing moccasins, which the Indians prefer, for the purpose, to regular shoes.

In the arrangement of the men on each side, the *goal-keeper* defends the goal; *point* is the position of the first man out from the goal; *cover-point* is a little in advance of point; *centre* is in the centre of the field; *home* is the player nearest the opponent's goal; while the *fielders* comprise the rest of the players. Beginning near the centre of the field, the players struggle to obtain a mastery over the ball, and convey it to the opponents' goal. When scooped up from the ground, it is carried horizontally on the *crosse*, the player running toward one of the goals, trying to elude the vigilance of his antagonists. If it seems prudent, he pitches the ball off his *crosse* towards a colleague, who may be in a better position to convey it toward the goal. The ball is not touched by the hand, except under special and clearly-defined circumstances. If the ball be accidentally driven through

LACRYMAL ORGANS—LACTATION.

the red goal by one of the reds, the blues win the game; and *vice versâ*. The players must not strike, trip up, or grasp one another; nor must any one lay hold of the crosse of another. One player strikes the ball off an opponent's crosse with his own crosse, and not by any other means. Two players on the same side may fling or carry the ball consecutively.

Thus there is a little of football, of hockey, and of racquet in La Crosse. The goals resemble those of football and hockey; the occasional struggle for the ball is like the 'scrimmage' of football, though not so rough and dangerous; the general mode of play may be compared to hockey; while the battledore claims some resemblance to the racquet-bat. There is nevertheless sufficient originality in the game to render it wholly distinct.

LACRYMAL ORGANS. See LACHRYMAL ORGANS.

LACRYMATORY. See LACHRYMATORY.

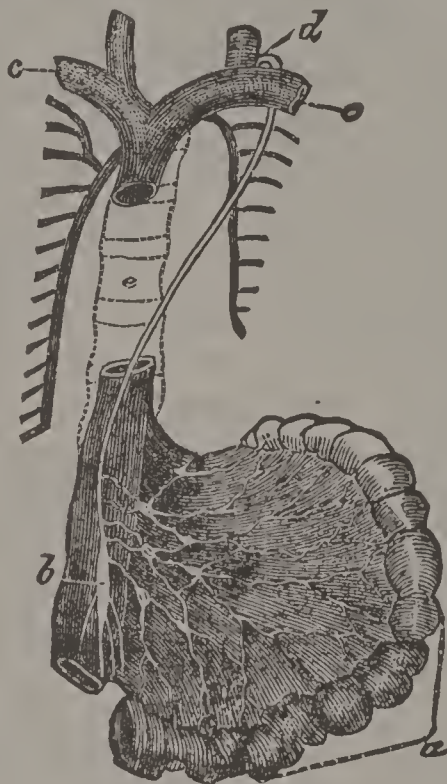
LACS D'AMOUR, *lăk dă-môr'*, in Heraldry: cord of running knots used as an external decoration to surround the arms of widows and unmarried women, the *cordelier*, which differs slightly, being used similarly with the shields of married women.

LACTANTIUS FIRMIANUS, *lăk-tăn'shĭ-ŭs fĕr-mĭ-ă-nŭs*, or **LUCIUS CÆCILIUS** (or **CÆLIUS**) **LACTANTIUS FIRMIANUS**: eminent Christian author in the early part of the 4th c.; of Italian descent. He studied at Sicea, in Africa, under the rhetorician Arnobius, and in 301 settled as teacher of rhetoric in Nicomedia. He was invited to Gaul by Constantine the Great (312-318), to act as tutor to his son Crispus, and is supposed to have died at Treves about 325 or 330. Lactantius's principal work is his *Divinarum Institutionum*, libri vii., of polemical and apologetic character. A supposed tendency to Manicheism in his views, and his Chiliasm, have marred his reputation for orthodoxy. He attacks paganism and defends Christianity. Among his other writings are treatises *De Ira Dei* and *De Mortibus Persecutorum*. Some elegies have been erroneously ascribed to him. His style is surprisingly elegant for the late age at which he wrote, and has earned for him the title the *Christian Cicero*. As he appears not to have become a Christian till he was advanced in years, his religious opinions are often very crude and singular. Lactantius was a great favorite during the middle ages. The *editio princeps* of this writer (Subiaco 1465) is one of the oldest extant specimens of typography.

LACTATION, n. *lăk-tă'shŭn* [F. *lactation*—from mid. L. *lactatiōnem*; L. *lactatus*, filled with milk, having ability to give suck; *lactĕŭs*, milky, containing milk—from *lac*, milk]: the time of suckling; the act of giving milk. **LACTATE**, a. *lăk'tăt*, a salt of lactic acid with a base. **LACTARENE**, n. *lăk'tă-rĕn*, a preparation of the curds of milk, used by calico printers. **LAC'TEAL**, a. *-tĕ-ăl*, per-

LACTATION.

taining to milk; conveying milk: N. in *animals*, one of the small tubes which convey the chyle from the intestines to the thoracic ducts; a lymphatic vessel. The lacteals, or *Chyliferous vessels*, were discovered, 1622, by Aselli (q.v.), and received their name from conveying the milk-like product of digestion, the Chyle, during the



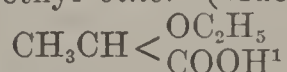
The Lacteals :

a, a portion of small intestine connected by the membranous structure termed the mesentery, with the spinal column (the white lines seen in the mesentery are the lacteals, and the white patches are the mesenteric glands); *b*, the receptaculum forming the commencement of the thoracic duct, which enters the circulating system at the junction of *c*, the subclavian, and *d*, the jugular vein, on the right side; *e*, the vertebral column. The large vessel, with a portion removed, lying in front of the vertebral column, is the ascending or inferior vena cava.

digestive process, to the thoracic duct, by which it is transmitted to the blood. These vessels commence (see DIGESTION) in the intestinal villi, and passing between the layers of the mesentery enter the mesenteric glands, and finally unite to form two or three large trunks, which terminate in the thoracic duct: see LYMPHATICS. LACTESCENT, a. *lăk-tēs'ěnt* [L. *lactescens*, or *lactescens*, being changed into milk]: producing milk; milky. LACTES'CENTE, n. *-ěns*, milkiness, or milky color; a state resembling milk. LACTIC, a. *-tĭk* [L. *lac*, or *lactem*, milk]: pertaining to milk; of or from milk or whey, as *lactic acid* (see below). LACTIF'EROUS, a. *-tĭf'ěr-ŭs* (L. *fero*, I bear or produce]: bearing or producing milk or milky juice. LACTINE, or LACTIN, n. *-tĭn*, or LACTOSE, n. *lăk-tōs'*, sugar of milk—a sweetish substance existing in milk: see SUGAR (*Milk Sugar*).

LACTIC ACID—LACTIC FERMENTATION.

LACTIC ACID: the chemical name of which is α hydroxypropionic acid, $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$, is formed by the action of the 'lactic acid bacillus' on milk sugar, as in the souring of milk, and also on ordinary sugar, grape sugar, starch, or gums, in presence of casein (cheese). It occurs in sauerkraut, ensilage and in the stomach juices, and can be obtained artificially, by synthesis, in a variety of ways which demonstrate the correctness of the formula given above. Lactic acid is generally prepared by adding putrid cheese to a solution of sugar. The cheese contains the bacilli which attack the sugar, but when the lactic acid formed has reached a certain concentration in the liquid it kills the bacilli that caused its formation, consequently it is necessary to add chalk or zinc oxide in order to neutralize the acid and so permit the operation to continue to the end. Lactic acid is a colorless crystalline solid, without odor, melting at 18° . The liquid usually sold under its name contains water and other impurities. Apart from its importance in the animal economy, lactic acid has played a most interesting and prominent part in the development of *stereo-chemistry* (q.v.). As the formula shows, it contains *an asymmetric carbon atom* (q.v.) and should exist, therefore, in three modifications. The acid produced by fermentation ('Fermentation L.') is the racemic form because it is optically inactive. That modification which can be extracted from meat juice, formerly termed 'sarcolactic acid,' is dextro rotatory, and a third modification is known, which turns the ray of polarized light to the left (laevo-rotatory). These have all been prepared artificially; indeed, the last one does not occur in nature. Lactic acid is an important example of a hydroxy acid, i. e., it is at once an alcohol and an acid; thus as the former it forms an ethyl ether (vide ether),



As an acid it yields an ethyl ester, $\text{CH}_3\text{CH}(\text{OH})\text{COOC}_2\text{H}_5$, or, of course, both reactions may occur together. In general, then, it exhibits the chemical reactivities characteristic of both the alcohol and acid classes of compounds. The name *ethylenelactic acid*, or *B. lactic acid*, is sometimes applied to a substance which should be termed *B. hydroxy-propionic acid*, $\text{HOCH}_2\text{CH}_2\text{COOH}$. It was thought for many years to be a form of lactic acid and consequently great confusion arose. A comparison of the formulæ of the two substances shows that they have a totally different structure. This latter acid does not occur in natural products. It has been made synthetically and, as the theory indicates, only exists in one modification, which is, of course, without optical activity, because no asymmetric carbon atom is present.

LACTIC FERMENTATION: fermentation producing lactic acid (q.v.).

LACTOMETER—LAD.

LACTOMETER, n. *lăk-tōm'č-tēr* [L. *lac*, milk, *lactis*, of milk; Gr. *metron*, a measure]: an instrument for ascertaining the quality of milk: see GALACTOMETER.

LACTOSCOPE, n. *lăk'to-skōp* [L. *lactis*, milk; *skopeo*, I see, I observe]: instrument for assisting in determining the quality of milk by ascertaining its relative opacity.

LACTUCARIUM, n. *lăk'tū-kā'rī-ŭm*, called sometimes **LETTUCE OPIUM** [L. *lactūca*, a lettuce—from *lac*, milk]: the thickened milky juice of the common lettuce, and of several species of *Lactuca*, or Lettuce, obtained by incision of the stem. By drying in the air the juice loses about half its weight of water, the residue being lactucarium. It usually occurs in commerce in small lumps about the size of a pea or small bean; they are of reddish-brown color, but are sometimes covered with a grayish efflorescence; and they have a bitter taste, and a smell resembling opium. Lactucarium has been frequently analyzed, but chemistry has thrown little light on its composition.

Lactucarium has anodyne and sedative properties, and is employed where opium is considered objectionable; as, for instance, when there is morbid excitement of the vascular system; and it is of service in allaying cough in phthisis and other pulmonary diseases. The usual dose is five grains, but it may be safely given in larger doses. **LACTU'CIC**, a. *-tū'sīk*, denoting an acid obtained from the strong-scented lettuce. **LACTU'CINE**, n. *-sīn*, the active principle of the wild lettuce.

LACUNA, n. *lă-kū'nă*, **LACU'NÆ**, n. plu. *-nē* [L. *lacuna*, a hollow: F. *lacune*, a gap]: a blank space; one of the hollows or pits on the upper surface of lichens, called the *thallus* or *frond*; a large opening or blank space in the midst of a group of cells; in *anat.*, minute recesses or cavities in bone. **LACU'NAL**, a. *-năl*, pertaining to small pits or depressions; having a blank space. **LACU'NAR**, n. *-nēr*, a kind of arched ceiling, divided into compartments sunk or hollowed: also a panel or coffer in a ceiling or in the soffit of a classic cornice. Lacunars, or Lacunaris, are much used in the ceiling of porticoes and similar classic structures, and frequently ornamented with pateræ: **ADJ.** pertaining to or arising from lacunæ. **LACU'NARY**, a. *-nēr-ī*, having lacunæ or blank spaces. **LACU'NOSE**, a. *-nōs*, or **LACU'NOUS**, a. *-nūs*, furrowed or pitted; containing cavities.

LACUSTRAL, a. *lă-kūs'trăl*, or **LACUS'TRINE**, a. *-trīn* [L. *lacus*, a lake: It. *laco*]: of or relating to swamps or lakes; living in or on the margins of lakes. **LACUSTRIANS**, n. dwellers on or near lakes. **LACUSTRINE DEPOSITS**, in *geol.*, the deposits which have been accumulated in fresh-water areas. **LACUSTRINE HABITATIONS**, or **LACUSTRIAN VILLAGES**, or **LAKE DWELLINGS**: see CRANNOGS.

LAD, n. *lăd* [OE. *laddes*, a man of inferior station:

LADAKH—LADD.

W. *lodes*, a lass; *llawd*, a lad: mid. L. *leudis*, a vassal: Gael. *laidir*, strong, stout; *laoch*, a lad]: a well-grown boy; a youth. LADDIE, n. *lăd'dĭ*, in *Scot.*, a little lad.

LADAKH, *lă-dâk'*, otherwise known as MIDDLE TIBET: a province of Cashmere which is under a Maharajah, and is a British feudatory; capital, Le (q.v.): it is between Great Tibet on the e., and Little Tibet on the w., n. lat. 32° to 36°, and e. long. 76° to 79°. On the s., it is separated from Cashmere by the Himalaya, while on the n. it is divided by the Karakorum Mountains from Chinese Turkestan; about 30,000 sq. m. The country was conquered 1835, by Gholab Singh, ruler of Cashmere. It lies chiefly within the basin of the Upper Indus, being little else than a mass of mountains with narrow valleys between. Notwithstanding its great elevation, equally unfavorable to soil and climate, the temperature is sometimes singularly high—a phenomenon attributed partly to the thinness of the atmosphere, and partly to the absence of moisture. Moderately good crops of wheat, barley, and buckwheat are raised; while the mineral products are sulphur, iron, lead, copper, and gold. The transit-trade is extensive, being carried on mostly by mules and sheep. The inhabitants are very peaceful and industrious; they are excellent farmers, and their woolen manufactures are said to be important. The women are fresh and fair, but lax in their morals; among the lower classes polyandry is common. The population is essentially Mongolian, but has intermixed with the Cashmerians. The language is Tibetan, and in the opinion of Klaproth the primitive dialect of the aboriginal people inhabiting the region between Hindustan and Tartary. The religion is Lamaism, a form of Buddhism (q.v.). Pop. abt. 125,000.

LADANUM, n. *lă'dă-nŭm* (L. *lădănŭm*; Gr. *lădănŭm*, a resinous substance exuding from the shrub *lada*): a resinous juice of an agreeable odor which exudes from shrubs of the *Cistus* (q.v.) kind, or rock-rose, found growing in the island of Candia and Syria, used chiefly for making plasters; also spelled LABDANUM, *lăb'dă-nŭm*.

LADD, GEORGE TRUMBULL, D.D., LL.D.: American educator; b. Painesville, Lake County, Ohio, 1842, Jan. 19. In 1864 he was graduated from Western Reserve College, and after spending the next two years in business, entered Andover Theological Seminary, where he was graduated in 1869. In 1869-71 he preached in Edinburg, Ohio; and was pastor of Spring Street Congregational Church, Milwaukee, Wis., 1871-9. He was called to the chair of philosophy at Bowdoin College in 1879 and held that position until he became professor of philosophy at Yale College in 1881. After the death of President Porter he was made Clarke professor of metaphysics and moral philosophy, which position he held till 1905, when he resigned and was made *emeritus* anđ

LADD.

awarded one of the pensions of the Carnegie Foundation. While still a student at Andover he prepared and published two important articles on the origin of the Synoptic Gospels in the *Bibliotheca Sacra*. His published works include: *Principles of Church Polity* (1882); *Doctrine of Sacred Scripture* (1884); *Lotze's Outlines of Philosophy* (translation, 5 vols. 1887); *Elements of Physiological Psychology* (1887); *What is the Bible?* (1888); *Introduction to Philosophy* (1889); *Outlines of Physiological Psychology* (1890); *Philosophy of Mind* (1891); *Primer of Psychology* (1894); *Psychology Descriptive and Explanatory* (1894); *Philosophy of Knowledge* (1897); *Outlines of Descriptive Psychology* (1898); *Essays on the Higher Education* (1899); *A Theory of Reality* (1899); *Lectures to Teachers on Educational Psychology* (in Japanese); *Philosophy of Conduct* (1902); and *Philosophy of Religion* (2 vols., 1905). Besides his work as an author he has achieved remarkable distinction as a lecturer. During the academic year of 1895-6 he was chosen a member, for the year, of the Faculty of Harvard University and conducted a graduate seminary in ethics; in 1905-6 he held a similar position in Western Reserve University. Twice he has been invited by the Imperial Educational Society of Japan to deliver courses of lectures. In the summer of 1892 and again in 1899 he visited and lectured at Doshisha, Kyoto, Tokyo, Hakone, and Kobe. For his distinguished services to the cause of education he was admitted into audience with the emperor of Japan and by him decorated with the third degree of the order of the Rising Sun. In 1899-1900 he lectured on philosophy before the University of Bombay, India, and on the philosophy of religion at Calcutta, Madras, Benares, and elsewhere. In the fall of 1906 he went for the third time to Japan, where he spent a year in lecturing under the auspices of the Educational Department on education, ethics, and the philosophy of religion, in both the Imperial universities, the government commercial colleges, and in several of the private universities. He also delivered courses of lectures to the teachers in various centers of education throughout the empire. In the spring of 1907 he spent two months in Korea as the guest and 'unofficial adviser' of Marquis Ito. On his return to Japan the Emperor raised his decoration to the second class of the Rising Sun, in recognition of his services to the country, and summoned him to a private audience. His writings have been adopted as text-books in Russia, India, Japan, and other countries.

His contributions to the science of psychology have been recognized by all experts. He was one of the founders of the American Psychological Association, was its second president and its delegate to the International Congress at Paris in 1900. He is a member of the American Society of Naturalists, American Oriental

LADD—LADE.

Society, of the Connecticut Academy of Science, American Philosophical Association, of the New Haven Historical Society, of the Imperial Educational Society of Japan and of other learned societies. Among the most permanent of his achievements is the founding of the psychological laboratory at Yale University, which, under his guidance, became one of the best equipped in the world. From Yale there has proceeded a continuous stream of teachers of philosophy, whose success has been largely due to the teaching and influence of Professor Ladd.

LADD, HERBERT WARREN, M.A.: American journalist and politician: b. New Bedford, Mass., 1843, Oct. 15. After obtaining a high school education he secured a position on the staff of the New Bedford *Mercury*, and went to the field with the 43d and 44th Massachusetts regiments; his report of Gen. Foster's Tarboro march was published in the Boston *Journal* before the New York papers had news of it. He issued a Sunday edition of the *Mercury* to announce the battle of Fredericksburg, the first Sunday paper published in New England outside of Boston. In 1864 he entered the dry goods business and in 1871 formed the firm of Ladd and Davis in Providence, which in 1887 was incorporated as the H. W. Ladd Company, of which he was president. He founded the Commercial Club in Providence, was vice-president of the board of trade for two years, was a generous patron of Brown University, and in 1891 presented to the University a fully equipped astronomical observatory. In 1889 he was elected governor of Rhode Island, was a candidate for that office in 1890 and was defeated, but was re-elected in 1891.

LADD, WILLIAM: American philanthropist; b. Exeter, N. H., 1778; d. Portsmouth, N. H., 1841, April 9. He was graduated at Harvard College in 1797, and subsequently took an active part in organizing the American Peace Society, of which he was for many years president, and in behalf of which he labored efficiently until the close of his life. In the interests of this society he edited the *Friend of Peace*, commenced by Dr. Noah Worcester, and the *Harbinger of Peace*, and published a number of essays and occasional addresses on the subject of peace. He carried his views to the extent of denying the right to maintain defensive war, and caused this principle to be incorporated into the constitution of the American Peace Society.

LADDER, n. *lād'dēr* [AS. *hlædre*; Ger. *leiter*; Pol. *letra*, a ladder: Dut. *ladder*, the rack or rails of a cart; *laede*, the comb or reed of a weaver: W. *Uetnr*, the slope of a hill]: a set of cross-bars; a long frame consisting of two strong sides with fixed cross-pieces serving for steps; anything by which one ascends or rises.

LADE, n. *lād* [AS. *lad*; Dut. *leyde*: a canal, a conduit

LADE—LADIES OF THE MACCABEES.

—from AS. *lædan*; Dut. *leyden*, to lead]: a passage for water; the mouth of a river; a drain. MILL-LADE, the cut or canal which brings the current to the water-wheel of a mill; a mill-race.

LADE, v. *lād* (AS. *hladan*, to heap together, to lade out: connected with LADE 3, which see]: to throw a liquid out of a vessel by repeatedly dipping in it a smaller receptacle, and then dropping the contents outside; to draw out water; to drain; in *OE.*, to let in water; to leak.

LADE, v. *lād* [AS. *hladan*; Ger. *laden*, to load; Icel. *hlada*, to lay in regular order, to pile up; *hlād*, anything piled up or laid in order: connected with LADE 2]: to put on or in, as a burden; to load or freight. LA'DING, imp.: N. a load or cargo; a weight. LA'DED, pt. LADED, pp. *lādēd*, or LADEN, pp. *lādū*, oppressed; burdened. LADEMAN, n. *lād'mān*, in *Scot.*, a man employed by a miller to return the loads of meal to the owners of the corn sent to be ground; a man having the charge of a pack-horse.

LADIES' CATHOLIC BENEVOLENT ASSOCIATION: a fraternal society of Roman Catholic women organized at Titusville, Pa., in April, 1900. The object of the society is the payment of death benefits. In 1906 there was a supreme council, 990 subordinate branches and 95,500 members. The amount of benefits paid during 1906 was \$649,266.

LADIES OF THE MACCABEES OF THE WORLD: a fraternal beneficiary association, composed exclusively of women and officered and managed by women. It exists solely for the benefit of its members and not for profit, having a lodge system with ritualistic work and representative government, and granting life protection upon satisfactory medical examination. Its jurisdiction is world-wide, but its growth until 1904 has been in North America. It is now entering Great Britain and will extend to other foreign countries where conditions are favorable.

The origin of the Order dates back to 1886, when the first hive was organized in Muskegon, Mich. It maintained a social existence until 1890, when the benefit feature was introduced. The first hive in New York was organized at Grand Island, 1891, March 11; in Ohio, at Cleveland, 1892, July 15.

The Supreme Hive of the Ladies of the Maccabees of the World was organized in order to establish unity, its incorporators being members of hives in Michigan, New York, and Ohio. No attempt was made to work in the states where Great Hives were already established, but hives were instituted in states not yet organized. Direct representation in the World's Association was soon accorded Michigan, New York, and Ohio, all branches thereby becoming recognized as parts of the Ladies of

LADIES OF THE MODERN MACCABEES.

the Maccabees of the World. In 1898, Ohio transferred its benefit certificates and consolidated wholly with the World's Order. In 1899, New York took the same action, the total membership then reaching 72,424.

With uninterrupted success and prosperity, with 150,000 members and protection of \$100,000,000 in force, this association is one of the greatest financial institutions among women of modern times. There is probably no other organization of women today, having the direction of business of such magnitude or so valuable to the individual member.

The government is representative. Business is conducted through the Supreme Hive, Great Hives, or state bodies and subordinate Hives or local branches. The subordinate Hive works under a charter issued upon the application of twenty ladies. Great Hives are composed of representatives of subordinate Hives, and meet triennially, amending state laws and electing state officers. The Supreme Hive is composed of representatives from each state. It meets triennially, and amends Supreme Hive laws, elects Supreme officers, and transacts other business of the Order. The business management is in charge of the Supreme Board of Trustees during the recess of the Supreme Hive. The Order is a representative organization of women, making its own laws, transacting its own business, and making and paying assessments and death benefits involving thousands of dollars, and doing other legitimate acts as outlined by its laws. The officers are commander or president, record keeper or corresponding and financial secretary, finance keeper or treasurer, past commander, lieutenant commander, chaplain, sergeant, sentinel, picket, banner bearers, color bearers, and guards. There are 149,060 members gathered in 2,679 hives in 51 states, provinces, and countries. The total receipts of the Association since organization amount to \$5,056,519.33; disbursements in death benefits, relief, and general expense, \$3,982,272.21; balance on hand, \$1,074,247.12, of which \$829,070.27 is invested in government and municipal bonds, the securities required by the laws of the Order.

LADIES OF THE MODERN MACCABEES: a fraternal beneficial society exclusively for women, founded in 1886, as a social organization, auxiliary to the Knights of the Maccabees. In 1890 it became a life benefit society. The name of the society is derived from the same source as that of the Knights of the Modern Maccabees (q.v.), and although bearing the name 'Maccabees,' is entirely distinct in its management and is governed by a different code of laws. The term 'Modern' was only recently adopted to distinguish it from another organization bearing a similar name.

The society for a number of years after incorporation confined its work entirely to the State of Michigan, but when the membership had exceeded 70,000 the Great

LADINO—LADISLAS II.

Hive voted to extend its jurisdiction, and the society is now operating in 24 states and territories, with a membership of 84,952 and 967 subordinate bodies or 'hives.' The order admits as life benefit members all white women, of good moral character and socially acceptable to its members, between the ages of 18 and 50 years, of course subject to the approval of the Great Medical Examiner. The social members, eligible between the ages of 16 and 70 years, pay the same membership fees, dues, and tax, as life benefit members, but are exempt from death assessments.

Certificates are issued for \$250, \$500, and \$1,000, payable to the designated beneficiaries in event of death, or in case of permanent and total disability, they are payable one-twentieth semi-annually to the member herself. Five per cent from every assessment is placed in an 'Emergency Fund' to be used when the interests of the Order demand. This fund amounts to over \$115,000. Since the organization of the society there has been paid to beneficiaries of deceased members over \$3,000,000, and in disability benefits over \$75,000. A fund of \$10,000 was voluntarily contributed for the endowment of two beds, one each in Grace Hospital, Detroit, and in Butterworth Hospital, Grand Rapids. Funds are now being raised to endow a third bed to be located in some city in the Upper Peninsula. The Order has an official organ edited monthly and containing the various reports of business transactions.

LADINO, *lâ-dē'nō*: common name of the mestizo or half-breed descendants of whites and Indians in Central America, especially Nicaragua and Guatemala. The white element predominates in the males, the Indian in the females. Male Ladinos resemble the Europeans in form and feature, and have yellowish-orange tinged skin; the females are considered the most beautiful women in all Central America. Both sexes have struggled for many years to be recognized as the equals in all respects of the wealthiest whites, and neither will engage in manual labor.

LADISLAS, or LADISLAUS, *lăd'is-lawss*, or VLADISLAS, or VLADISLAF, or ULADISLAS: different forms of a name frequent in the histories of Poland, Hungary, Bohemia, and Servia.

LADISLAS I., King of Poland, surnamed Lokietek (the Short): ruler of the small province of Cracow, when Poland was subdivided into countless small independencies. Ladislas united them 1319; and for greater stability of the government, he reduced the privileges of the higher nobles, removed the council of prelates and magnates, replacing it by a popular assembly; he greatly improved the administration of justice, and furthered commerce and industry.

LADISLAS II., and LADISLAS III. Sec JAGELLONS.

LADISLAS IV.—LADRONES.

LADISLAS IV., King of Poland: (reigned 1632-48). While yet a youth, he was elected Czar of Russia 1610, but was prevented by his father, Sigismund, from accepting the crown. He was a wise and politic prince, yet it was under his reign that Sweden, Russia, and Turkey commenced to nibble at the outlying provinces of Poland. He strove manfully to remedy the peculiar defects of the Polish constitution, but they were too deeply rooted; and though he sought to end the oppression of the dissidents, and took the part of the Cossacks against those nobles who had deprived them of their rights, so weak was the royal authority, that his support availed them nothing. The Cossacks, maddened by deprivation of their liberties, the imposition of new taxes, and the persecuting zeal of the Rom. Cath. clergy, rose in rebellion, annihilated the Polish army, and put themselves under the rule of Russia. At this critical moment, Ladislas died.

LADLE, n. *lā'dl* [from LADE 2]: a large spoon used for lading or lifting out a liquid from a vessel; the receptacle of a mill-wheel that receives the water which turns it; an instrument for drawing charges from a cannon: V. to lift or serve out with a ladle. LADLING, imp. *lā'dlŋg*. LADLED, pp. *lā'dld*.

LADOGA, *lā'dō-ga*, LAKE: largest lake of Europe, in the n.w. of Russia, between Finland and the govts. of Olonetz and Petersburg. It is 120 m. in length, 70 m. in breadth; 6,804 sq.m. in area. It receives the waters of Lake Onega, Lake Saim, and Lake Ilmen; and its own waters are carried off to the Gulf of Finland by the Neva (q.v.). The depth of Lake Ladoga varies from 12 to 1,200 ft., and the navigation is exceedingly dangerous, owing to the shallows, sand-banks, and sunken rocks in which it abounds, and to the gusty winds occasioned by its steep and rocky banks. Of the several islands of the lake, the principal are the Valaam and Konevetz, with monasteries, which attract numbers of pilgrims. Of the 70 rivers which fall into Lake Ladoga, the principal are the Wolkhof, the Sias, and the Svir, each of which is a means of communication between the Neva and the Volga. In order to obviate the difficulty of navigation, canals have been constructed along its s. and s.e. shores, the principal being the Ladoga canal (70 feet wide) which unites the mouth of the Wolkhof with the Neva. Other two canals unite the mouths of the Sias and Svir with the Ladoga canal. This canal-system forms a thoroughfare for extensive traffic between the Volga and the Baltic. There is also communication by water between Lake Ladoga and the White Sea and the Caspian.

LADRONES, *la-drōnz'* or *lād-rōnz'*, or MARIANA ISLANDS, *mā-rē-ā'nā*: group of about 20 islands, the north-most Australasian group; lat. $13\frac{1}{2}^{\circ}$ — $20\frac{1}{2}^{\circ}$ n., and long. 145 — $147\frac{1}{2}^{\circ}$ e. They are disposed in a row almost due n.

LADY.

and s.; united area 1,254 sq.m. They were discovered by Magellan 1521, who gave them their name from the thievish propensity of the natives. They were afterward called the *Lazarus Islands*; and the Jesuit missionaries, who settled here 1667, called them the *Mariana Islands*. They are mountainous, well watered, and wooded (among the trees are bread-fruit, banana, cocoanut), fruitful in rice, maize, cotton, and indigo. European domestic animals are now very common. When discovered, the population was reckoned at 100,000, but the present population is only about 5,500. The inhabitants, who are docile, religious, kind, and hospitable, resemble in physiognomy those of the Philippine Islands. The islands were very important to the Spaniards, in a commercial point of view. The principal island, Guam, was ceded to the United States by the peace treaty of Paris (1898), and the other islands together with the Carolina group were sold to Germany (1899).

LADY, n. *lā'dī* [AS. *hlæfdige*, a mistress, a lady—probably from *hláf*, a loaf, bread; *dægee*, a kneader—*lit.*, a maker of bread]: a woman of distinction or rank, correlative to *Lord* (q.v.); in common parlance used more extensively as correlative to *gentleman*; wife of a titled gentleman; title of the daughters of peers of the first three grades; familiar term applied to the mistress or female head of a house of the better class; a woman in any station of life who is possessed of refined manners and kindness of heart; a term of courtesy applied to any respectable woman. As a title, it belongs to peeresses, the wives of peers, and of peers by courtesy, the word lady being in all these cases prefixed to the peerage title. The daughters of dukes, marquises, and earls are by courtesy designated by the title lady prefixed to their Christian name and surname; a title not lost by marriage with a commoner, when the lady only substitutes her husband's surname for her own, and retains her precedence. But a peer's daughter marrying a peer, can no longer be designated by her Christian name with lady; she must take her husband's rank and title, even should a loss of precedence be the result, as when the daughter of a duke marries an earl, viscount, or baron. Should her husband, however, be merely a courtesy peer, she may retain her designation by Christian name with lady prefixed, substituting her husband's courtesy title for her surname; this title and precedence being again dropped on her husband's succession to the peerage by his father's death. The daughter-in-law of a duke, marquis, or earl, is generally designated by the title Lady prefixed to the Christian name and surname of her husband; but if she be the daughter of a peer of a higher rank than her father-in-law, she may, if she pleases, be designated by Lady prefixed to her *own* Christian name and her husband's surname, and in that case she retains the precedence which she had when unmarried. The wife

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of a baronet or knight is generally designed by Lady prefixed to her husband's surname; the proper legal designation, however, being Dame, followed by her Christian name and surname. LA'DYBIRD, or LA'DYBUG [named after *Our Lady*, i.e., the Virgin Mary], (*Coccinella*): genus of coleopterous insects of the section *Trimera*, containing a great number of species very similar to each other. They are very pretty little beetles, generally of brilliant red or yellow color, with black, red, white, or yellow spots, the number and distribution of which is one of the characteristic marks of the different species. The form is nearly hemispherical, the under-surface being very flat, the thorax and head small; the antennæ are short, and terminate in a triangular club; the legs are short. When handled, these insects emit from their joints a yellowish fluid, having a disagreeable smell. They and their larvæ feed chiefly on aphides, in devouring which they are very useful to hop-growers and other agriculturists. They deposit their eggs under the leaves of plants, on which the larvæ are to find their food, and the larvæ run about in pursuit of aphides. LADYLIKE, a. elegant in appearance; becoming or proper to a lady; well-bred. LADYSHIP, n. the title of a lady whose husband is not of a lower rank than a knight. LADY CHAPEL, a chapel dedicated to the Virgin ('Our Lady'), frequently added, in cathedrals and large churches, to the eastward of the high altar: Henry VII.'s chapel at Westminster is the Lady Chapel of that establishment. LADY-DAY, day of the annunciation of the Virgin Mary, Mar. 25; one of the festivals of the church (in the Roman Catholic Church it is called the Feast of the Annunciation); one of the regular quarter-days in England and Ireland, on which rent is payable. LADY-FERN (*Athyrium filix fœmina*, or *Asplenium filix fœmina*), beautiful fern, growing in moist woods, with bipinnate fronds sometimes two ft. long. The whole plant has an extremely graceful appearance. It is said to possess the same anthelmintic properties as the male fern. LADY-LOVE, a sweetheart. LADY'S-MAID, the female personal attendant of a woman of wealth or rank. OUR LADY, the Virgin Mary. LADY'S-BEDSTRAW, a small yellow-flowering plant, common by road and ditch sides; the *Galium vërum*, used for curdling milk, and *G. cruciatum*, cross-wort, ord. *Galîacœæ*. LADY'S MANTLE (*Alchemilla*), genus of herbaceous plants, natives chiefly of temperate and cold climates, of nat. ord. *Rosacœæ*, sub-order *Sanguisorbecœæ*; having small and numerous flowers, an 8-cleft calyx, no corolla, and the fruit surrounded by the persistent calyx. The name Lady's Mantle, signifying *Mantle of Our Lady*—i.e., of the Virgin Mary, is derived from the form of the leaves. —The COMMON LADY'S MANTLE (*A. vulgaris*) is abundant on banks and in pastures throughout Britain. Its root-leaves are large, plaited, many-lobed, and serrated; its flowers in corymbose terminal clusters are usually

LADY OF MERCY—LADYSMITH.

yellowish-green.—Still more beautiful is the ALPINE LADY'S MANTLE (*A. alpina*), which grows on mountains in Scotland, and has digitate serrated leaves, white and satiny beneath.—A plant of very humble growth and unpretending appearance is the FIELD LADY'S MANTLE, or PARSLEY PIERT (*A.*—or *Aphanes—arvensis*), found in pastures, an astringent and diuretic, said to be sometimes useful in cases of stone in the bladder, by producing a large secretion of lithic acid. LADY'S SLIPPER (*Cypripedium*), genus of plants of nat. ord. *Orchidææ*, of which one species, *C. Calceolus*, is reckoned among the most beautiful orchids. The genus is remarkable for the large inflated lip of the corolla. Several very beautiful species are natives of the colder parts of N. America.

LADY OF MERCY, OUR: Spanish order of knighthood, founded 1218, by James I. of Aragon, in fulfillment of a vow to the Virgin during his captivity in France. The object for which the order was instituted was the redemption of Christian captives from among the Moors, each knight at his inauguration vowing that, if necessary for their ransom, he would remain himself a captive in their stead. Within the first six years of the existence of the order, no fewer than 400 captives are said to have been ransomed by its means. On the expulsion of the Moors from Spain, the labors of the knights were transferred to Africa. Their badge is a shield party per fess gules and or, in chief a cross pattée argent, in base four pallets gules for Aragon, the shield crowned with a ducal coronet. The order was extended to ladies 1261.

LADY OF MONTESA, *mõn-tã'sã*, OUR: order of knighthood, founded 1317 by James II. of Aragon, who, on the abrogation of the order of the Templars, urged Pope Clement V. to allow him to employ all their estates within his territory in founding a new knightly order for the protection of the Christians against the Moors. His request was acceded to by the next succeeding pope, John XXII., who granted him for this purpose all the estates of the Templars and of the Knights of St. John situated in Valencia. Out of these was founded the new order, which King James named after the town and castle of Montesa, which he assigned as its headquarters. The order is now conferred merely as a mark of royal favor, though the provisions of its statutes are still nominally observed on new creations. The badge is a red cross edged with gold, the costume a long white woolen mantle, decorated with a cross on the left breast, and tied with very long white cords.

LADYSMITH: town of northern Natal, South Africa, near the Klip river, 119 miles by rail north by west of Pietermaritzburg, and 322 southeast of Pretoria. It is situated in a hilly region about 30 miles east of the Drakensberg Mountains. During the South African war

LÆLAPS—LÆTARE SUNDAY.

of 1899-1901, Ladysmith was besieged by a strong force of Boers. The complete investment began 1899, Nov. 2, and the relief was not effected till Feb. 28 of the following year, or 118 days after the Boers succeeded in isolating the town. The town was held by a garrison of about 10,000 men under Sir George White, and during the siege much damage was done by the shells of the Boer artillery. Disease also carried off many of the garrison and the inhabitants. The relief was effected by Gen. Buller after a hotly contested march by way of Pieters and Nelthorpe, to the east of the railway. Three previous attempts by the same general to relieve the town had to be abandoned owing to the strength of the Boer positions and to their superiority in long-range guns. The population numbers about 4,000.

LÆLAPS, *lě'laps*, or DRYPTOSAURUS, *drĭp-to-saw'rūs*: extinct genus of deinosaurian reptiles, probably about 25 ft. long (with the tail), and when standing on the long hind legs, 12 ft. in height; American representative of Megalosaurus (q.v.).

LÆMODIPODA, n. plu. *lě'mō-dĭp'ō-dǎ* [Gr. *laimos*, the throat; *dis*, twice; *podēs*, feet]: an order of crustacea, so named from having two feet placed so far forward as to be, as it were, under the throat.

LAENNEC, *lā-něk'*, RENE THEODORE HYACINTHE, M.D.: 1781, Feb. 17—1826, Aug. 13; b. Quimper, Lower Brittany: distinguished physician. He studied medicine in Paris, where he attended the practice of Corvisart. In 1814, he became chief editor of the *Journal de Médecine*. In 1816, he was appointed chief physician to the Hôpital Necker, where he soon made the discovery of mediate auscultation, or, in other words, of the use of the Stethoscope (q.v.). In 1819, he published *Traité de l'Auscultation Médiante*, which has undoubtedly produced a greater effect, so far as the advance of *diagnosis* is concerned, than any other single book. His treatise had not long appeared, when indications of consumption were discovered in his own chest by means of the art of his own creation, and after a few years of delicate health, he retired to die in his native province.

LÆ'SA MAJES'TAS, or LEZE MAJESTY: High treason, an offense against sovereign power. As transferred from Roman to civil law, it denoted an offense against the person or office of the king. See TREASON.

LÆTARE SUNDAY, *lě-tā'rē*, called also MID-LENT: the fourth Sunday in Lent; named from the first word of the Introit of the mass, from Is. lxvi. 10. From this name the characteristic of the services of the day is joyousness, and the music of the organ, which throughout the rest of Lent is suspended, is on this day resumed. Lætare Sunday is the day selected by the pope for the blessing of the GOLDEN ROSE (q.v.).

LÆVIGATOUS—LA FARGE.

LÆVIGATOUS, a. *lǣ'vī-gā'tūs* [L. *lævigātus*, made smooth—from *levis*, smooth]: in *bot.*, having a smooth polished appearance.

LÆVO, prefix, *lǣv-ō* [L.]: the left.

LÆVOGYROUS, a. *lǣ-vō'jī-rūs* [L. *lævus*, the left, *lævo*, on the left; *gyrus*, a circle]: turning the plane of polarized light toward the left. LÆVO'GYRA'TION, n. *-vō'jī-rā'shūn*, polarization to the left hand.

LÆVULOSE, n. *lǣ'vū-lōs* [L. *lævus*, on the left side, as opposed to *dexter* (see DEXTRINE)]: fruit-sugar which is found associated with other kinds of sugar in treacle, honey, and ripe fruit—so named as causing left-handed rotation of polarized light.

LA FARGE, *la fârj*, CHRISTOPHER GRANT: American architect: b. Newport, R. I., 1862, Jan. 5. He studied at the Massachusetts Institute of Technology 1880-1, and in the office of H. H. Richardson (q.v.), and in 1884, with G. L. Heins, took charge of the architectural works of his father, John La Farge (q.v.). Since 1886 he has been a member of the firm of Heins & La Farge, whose principal work is the Cathedral of St. John the Divine, New York. Other works that may be named are the Houghton Chapel at Wellesley College; the Roman Catholic Chapel at West Point; and St. Matthew's Church, Washington, D. C.

LA FARGE, JOHN: American artist: b. New York, 1835, Mar. 31. He was the son of Jean Frédéric de la Farge, French midshipman, who escaped imprisonment at San Domingo 1806, and eventually settled at Philadelphia. John La Farge began life in a lawyer's office in New York, became much attracted by the Arundel prints of Giotto, turned away from the commonplace of the Hudson River School, and with a deep appreciation of Japanese art found a friend and master in William Hunt. He originally developed a taste founded on Japanese literalism, Pre-Raphaelite conventionality and imaginative conventionalism. Japanese art has certainly determined the line of his success, and his windows in the palaces of New York and elsewhere are beyond criticism. He is one of the most versatile among American painters; his paintings include all classes of subjects; he works equally well with oil or water-color, on wood or on glass; and his drawing is good.

He has attained wide repute as a painter of flowers and landscapes, decorator of church interiors, and mural painter of biblical subjects. He is a member of the National Acad. of Design and of the Soc. of American Artists. The most noted of his works are the interior decoration of Trinity Church, Boston; the chancel of St. Thomas's Church, New York; the *Adoration of the Wise Men* in the Church of the Incarnation, New York; *The Ascension* in the Church of the Ascension, New York; the chancel of Trinity Church, Buffalo; the *Battle Win-*

LA FARINA—LAFAYETTE.

dow in colored glass in the Harvard Univ. Memorial Hall; and the Ames memorial window, Easton, Mass. Among his paintings are *New England Pasture-Land*; *View Over Newport*; *A Gray Day*; *A Snowy Day*; *The Triumph of Love*; *The Last Valley*; *St. Paul*; *The Wolf-Charmer*; and *The Sleeping Beauty*.

LA FARINA, *lâ fâ-rĕ'nâ*, GIUSEPPE: Italian author and politician: 1815-63; b. Messina. In the Univ. of Catania, the degree doctor of laws was conferred on him at the age of 19; and in 1837, having taken part in an ineffectual revolutionary movement in Sicily, he sought safety in expatriation. In 1839, he returned to Sicily, was received as a lawyer, and started several political journals—all successively suppressed. In the rising of 1848, he was elected deputy to the Sicilian parliament, appointed commissioner to the courts of Rome, Turin, and Florence, and Aug. became minister of war and of the marine. On the failure of the liberal cause he went to Paris, where he kept up relations with the Italian patriots till 1853, and then established himself in Turin. He labored hard to promote the organization of a united constitutional monarchy under the house of Savoy, and co-operated with Cavour in the war 1859 and with Garibaldi in organizing volunteer troops. In 1860, he was elected by 6 districts a deputy to the Italian parliament. His best-known historical work is *La Storia d'Italia*.

LAFAYETTE: city, and county-seat of Tippecanoe co., Indiana, on the Wabash river, and the Cleveland, C. C. & St. L., the C. I. & L. (Monon), the Lake E. & W., and the Wabash railroads; 64 miles northwest of Indianapolis. The Indianapolis & N. W. traction lines also connect the city with outside points. Lafayette derives its chief business from agriculture, being the farming and manufacturing centre for the surrounding country. Other industries are: carpet mills, breweries, soap factories, and flour mills. There are five national, two state, and one savings banks; and two loan and trust companies, having a combined capitalization of \$965,000 and deposits of about \$10,000,000. There are 24 church edifices. Lafayette is the seat of Purdue University, embracing the State Agricultural College, contains a high school, supplemented by an excellent public school system, a public library, containing over 20,000 volumes, and the Indiana State Soldiers' Home. The city stands six miles above the site of the old French fort, built in 1720 and called Post Oniatanon. In 1760, the fort was surrendered to the British, but later in the same year was captured by the Indians. Lafayette was first settled in 1826 and chartered as a city in 1853. It is governed, under the general Indiana charter which went into effect in April, 1905, by a board of public works composed of three members, and a city council composed of 10 members elected for four years. The city owns and operates

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the waterworks, has electric lights, electric street railway and a well-equipped fire department. Pop. (1910) 20,081.

LAFAYETTE: town of Lafayette Parish, La.; branches of the Southern Pacific railroad; about 120 miles west by north of New Orleans. It is 41 feet above the level of the Gulf, and has a healthy climate. It is the commercial centre of a region noted for its sugar, cotton, and rice, and it is near extensive oil fields. It is the seat of the Southwestern Louisiana Industrial Institute and the Mount Carmel Academy. It has good church buildings and public and parish schools. The town has a municipal ownership of the electric-light plant and waterworks. Pop. (1910) 6,392.

LAFAYETTE, *lâ-fâ-ět'*, MARIE JEAN PAUL ROCH YVES GILBERT MOTIER, Marquis DE: 1757, Sep. 6—1834, May 20; b. in the castle of Chavagnac, now in the dept. of Upper Loire; descended from an ancient family of Auvergne. He became a soldier at an early age, and 1777 went to America, to take part with the colonists in their war of independence. Lafayette formed the resolution to offer his services to the American colonies in their struggle while at a banquet given by the French officers in Metz to the Duke of Gloucester, brother of the King of England. Information had just been received from London of the declaration of independence, and of the British plans for crushing the rebellion. Lafayette went to Paris to consult with old friends; these strongly dissuaded him from what seemed a hopeless and foolish project. But soon came news of the early disasters to the colonial forces; and Lafayette, whose first plan had been only to offer the services of himself and a few friends, rose with the magnanimous courage characteristic of him to give help on a larger scale: he resolved to buy a ship, to stock it with munitions of war, of which Washington was in great need, and to go in it to America. So grave was the situation that even the American envoy in France felt compelled to withhold further encouragement of Lafayette in his plan. Lafayette, though a mere boy, had excellent prudence, and kept his plans secret, lest his government, coming to an official knowledge of them, might feel bound to check them at the demand of the British minister. Some one, however, revealed his scheme (his family, ~~o~~excepting his wife, all were strongly opposed to it); and when his ship was about ready to sail, Lafayette was arrested and detained, and at length commanded to go to Marseilles, and there await orders. He started ostensibly for Marseilles; but in disguise reached his ship—which for safety had been removed to a neighboring port in Spain—and set sail, arriving in America 1777, June. His tender of service to the congress met at first some official coolness, as the list of military volunteer applicants was large; but he soon won the confidence of the congress, and

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received his commission as maj.gen. in the army. With Washington, Lafayette established loving relations at their first meeting, and these endured through life. The cabal against Washington in the congress and the army (see CONWAY, THOMAS, Count DE), sought, after a few months, to enlist the sympathy of the popular young French officer; but his native nobleness spurned all such intrigue. In the field his combined prudence, quickness, and bravery caused Lafayette to be intrusted by Washington with important, though not at first extensive, commands. At the battle of Brandywine he was wounded in the leg; and this wound doubtless secured him the command of a division.

Toward the end of 1778, Lafayette went to France, against which England had now declared war, to report to his king and to further the interests of the colonies. He returned 1779, Apr.; and soon thereafter a French fleet arrived with large supplies of munitions of war and a land force. Lafayette, who had used all his influence for the sending of these supplies, had by his urgent representations also greatly aided to procure the issuing of orders putting all the French military and naval force in America under the control of Washington—thus precluding those conflicts of authority and that lack of unity in action which might have been fatal to the success of the colonial arms. The marquis fought at the battle of Monmouth 1778; and later was charged with the defense of s. Va., which duty he performed with as much success as was possible under unfavorable circumstances, and with a force always inferior. He held Cornwallis in check 1781, borrowing money on his own account from bankers in Baltimore to supply the needs of his troops. In the final battle of Yorktown he bore an honorable part. Soon afterward he obtained from the congress leave to return to France, to take part in negotiations for a general peace between France, Spain, Holland, and the American colonies on one side, and Britain on the other. To the generous young marquis was given the privilege of first communicating to the American congress the joyful intelligence of the treaty of peace, signed, as to its preliminaries, 1782, Nov. 30. Then, burdened with the gratitude of the new nation, he returned to his native land, which awaited him with the admiration due to such surpassing chivalry and heroism.

Lafayette never had large bodies of troops under his command, and thus was precluded from any display of high military genius. In all soldierly duties that devolved on him, he acquitted himself with honor.

The friendship of Washington had exerted great influence in the development of Lafayette's mind and the formation of his opinions. He had imbibed liberal principles, and eagerly sought to promote a thorough reform in his native country. He was called to the assembly of notables 1787; and was one of those who most earnestly

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urged the assembly of the states. He took part also in the movements which converted the assembly of the states into the national assembly 1789. He was very active in the proceedings of the assembly, and being appointed to the chief command of the armed citizens, laid the foundation of the national guard, and gave it the tricolor cockade. In these first periods of the Revolution, it seemed as if Lafayette had the destinies of France in his hands. But he found himself unable to control the excitement which sprang up. The extreme republicans soon came to dislike him, because he advocated a constitutional kingdom; and the court-party, especially the queen, disliked him—in spite of the services that he rendered them—because of his zeal for the new order of things. With Bailly, he founded the club of the Feuillants. After the adoption of the constitution of 1790, he retired to his estate of Lagrange, till he received the command of the army of Ardennes, with which he won the first victories at Philippeville, Maubeuge, and Florennes. Nevertheless, the calumnies of the Jacobins rendered him exceedingly unpopular, and he was accused of treason, but acquitted. After several vain efforts to maintain the cause of rational liberty, he left Paris for Flanders, but was taken prisoner by the Austrians, and remained at Olmütz till Bonaparte obtained his liberation 1797; but he took no part in public affairs during the ascendancy of Bonaparte. He sat in the chamber of deputies 1818-24 as one of the extreme Left, and 1825-30 he was again a leader of the opposition. In 1830, he was active in the Revolution, and commanded the national guards. On his visit to the United States 1824, as a public guest by invitation of the congress, that body voted him a grant of \$200,000 and a township of land. The heart of the nation was as the heart of one man in its outburst of honor and grateful love toward the chivalrous and heroic friend who nearly half a century before had cast himself in with them in their almost desperate struggle. Consult: *Mémoires et Manuscrits de La Fayette* (1837-40); Tuckerman, *Life of Lafayette* (1889); Tower, *The Marquis de La Fayette in the American Revolution* (1895).

LAFAYETTE, MARIE MADELEINE PIOCHE DE LAVERGNE, Comtesse DE: 1633-93: authoress of a number of novels, excelled by no works of that age in the development of character. Her father, Aymar de Lavergne, was gov. of Havre. She received an excellent education, and in 1655 married the Count de Lafayette, after which her house became a resort of the most distinguished literary men of her age, at the same time that it was frequented by the persons of highest rank and fashion in Paris. Her novels, *Zaïde* and *La Princesse de Clèves*, have been frequently reprinted.

LAFAYETTE COLLEGE: in Easton, Penn.; chartered 1826, organized 1832, opened under the presidency



LAFAYETTE.

LAFFITTE—LAFITTE.

of its founder, the Rev. George Junkin, D.D., and conducted under the auspices of the Presb. Church. It has usually 30 professors and instructors; an annual enrollment of over 400 students; productive funds amounting to \$258,250; the annual income averages \$68,000; the benefactions amount to nearly \$410,000; and the grounds and buildings are valued at over \$1,000,000. There is a well-stocked library and considerable sums have been expended on the equipment of buildings and apparatus for scientific and technical instruction. Six schools or courses of study are provided: classical, scientific, Latin-scientific, mining engineering, civil engineering, and chemistry; and in addition special courses are given on iron, road-engineering, and chemistry. The institution is noted for its course of Anglo-Saxon and English in connection with comparative philology; as a centre of technical education in coal and iron, because of the surrounding coal and iron regions of Penn. and N. J.; and as the owner of the most complete flora of Penn. in existence. There are now 30 buildings, including Pardee Hall, a memorial library and the Gayley Laboratory of Chemistry and Metallurgy.

LAFFITTE, *lâ-fêt'*, JACQUES: 1767, Oct. 24—1844, May 26; b. Bayonne, France; of humble parentage: banker and statesman. He was early employed as a clerk by the rich banker Perregaux in Paris, and succeeded him in business 1809. He soon rose to great wealth and a European reputation. He was made pres. of the chamber of commerce, and 1814 governor of the Bank of France. On the return of Napoleon from Elba, Louis XVIII. deposited a large sum in Laffitte's hands; and after the battle of Waterloo, Napoleon intrusted 5,000,000 francs to him, which he kept safe, though the government made some attempts to lay hold of it. After the second restoration, he became one of the opposition in the chamber of deputies, and enjoyed the highest popularity in Paris. When the revolution broke out in 1830, he wrote to the Duke of Orleans, saying, 'You have to make your choice between a crown and a passport.' He freely supplied the money requisite on that occasion. He became one of the first ministry of the new king, and 1830, Nov., was intrusted with the formation of a cabinet, the conservative character of which caused the loss of his popularity. Meanwhile his banking affairs fell into confusion, and he was obliged to sell all his property to pay his debts. A national subscription preserved him his house in Paris. Again elected to the chamber as a deputy for Paris, he became a leader of the opposition.

LAFITTE, *lâ-fêt'* (or LAFFITE), JEAN: about 1780-1826; b. France: buccaneer. He settled in New Orleans with his elder brother Pierre about 1809, and for a while engaged in blacksmithing. Subsequently he became interested in the successes of the privateersmen and

LA FLECHE—LA FOLLETTE.

smugglers then infesting the region of the W. India Islands, and preying on the rice commerce of Spain, and joined them. His courage and audacity soon promoted him to chief leadership. He fitted out several privateers under commissions granted by the French govt. at Guadaloupe, and when these commissions expired soon after the declaration of the independence of Colombia, he received others from the new government at Carthage. The brothers established headquarters at Grande Terre, in Baratavia Bay, in the Gulf of Mexico, and conveyed thither for sale their numerous and costly captures. In 1814, the Lafittes were offered naval commissions and large grants of money and land if they would join the British in the war against the United States; but they declined and informed the governor of Louisiana of the offer. They also tendered the services of themselves, their vessels, and their followers to the governor on condition of pardon for past offenses. The governor proposed acceptance, but was overruled by his council; and a combined U. S. army and naval expedition made a sudden descent on Grande Terre, broke up the headquarters, and took Lafitte's vessels and booty to New Orleans. When Gen. Jackson assumed command at New Orleans, he accepted the services of the Lafittes and their followers, who gave him valuable aid during the memorable battle, and Pres. Madison proclaimed full pardon for privateering and smuggling prior to 1815, Jan. 8. After the war the Lafittes were settled at Galveston 1816-20, and there resumed depredations against Spanish commerce off the coast of Yucatan. Lafitte is believed to have died in Cozumel or Isla de Mugerres, Yucatan. Several romantic works have been founded on the careers of the brothers.

LA FLECHE, *lâ flâsh'*: town in France, dept. of Sarthe, on the right bank of the Loire, about 24 m. s.w. of Le Mans. It has a milit. acad., founded as a college by Henry IV. 1607. There are various manufactures. Pop. 10,477.

LA FOLLETTE, *lâ fôl-lêt*, ROBERT MARION, LL.D.: U. S. senator, state governor, and jurist; b. at Primrose, Wis., 1855, June 14, of French-American parentage. His father, a small farmer, died when La Follette was fourteen, and he supported the family, while continuing his early studies at the district school. When he was eighteen, the family moved to Madison, the seat of Dane county, and of the University of Wisconsin, and to obtain a college education and at the same time continue supporting his family, he ventured all the money they possessed in the purchase of the college paper. With characteristic courage and industry—writing almost all the subject-matter, procuring advertisements, and even typesetting—he made it a sufficient success, while also pursuing his college studies, to meet the requirements of the

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family and of his university course, after which he sold it for a substantial profit. He graduated from the university in 1879, and qualifying by a legal course, was admitted to the local bar in 1880, the same year becoming the elected republican nominee for county district attorney. From 1884 to 1887, he engaged in private practice, when he was elected to congress. He was made a member of the Ways and Means Committee, framed the agricultural schedules of the McKinley Bill, and became known as a forcible debater. He retired with his party in 1891, and resuming his legal practice, achieved a notable success in his profession and also in state politics. As leader of the 'Half-Breeds,' the younger members of the republican party, he fiercely contested with the 'Stalwarts,' or machine republicans, who were accused of being the creatures and tools of the railroads and corporations, and after defeats in 1896 and 1898, was elected governor of Wisconsin in 1900, re-elected in 1902 and in 1904, and elected U. S. senator to replace J. V. Quarles in Mar., 1905. His fearless fight in his state for the nomination of candidates by direct vote, equal taxation for corporations and private interests, government regulation of transportation charges, questions of vital importance throughout the country, made him a figure of national prominence.

LA FONTAINE, *lâ fõn-tân'*, F. *lâ fõng-tân'*, JEAN DE: French poet, distinguished above all his countrymen as a fabulist: 1621 (prob.), July 8—1695, Apr. 13; b. Chateau Thierry, Champagne; son of a Maitre des Eaux et Forêts. In his early youth, he learned almost nothing, and at the age of 20, he was sent by his father to the Oratory at Rheims, in a state of extreme ignorance. Here he began to show decided taste for the classics and poetry. Though selfish and vicious to the last degree, he possessed withal a certain childlike *bonhomie*; it was not grace, or vivacity, or wit, but a certain soft and pleasant amiability of manner, so that he never wanted friends. He successively found protectors in the Duchess de Bouillon, who drew him to Paris; in Madam de Sablière, and in M. and Madame Hervart. He had the friendship of Molière, Boileau, Racine and other contemporary celebrities; and even the saintly Fénelon lamented his death in extravagant strains. In 1693, after a dangerous illness, he carried into execution what a French critic characteristically terms his *projet de conversion*, and spent the brief remainder of his life in a kind of artificial penitence, common enough among licentious men and women in those sensual days. He died at Paris. He was ludicrously absent-minded and had a childlike inefficiency in affairs. His finest productions are *Contes et Nouvelles en Vers* (Paris 1665; 2d part, 1666; 3d part, 1671), and *Fables Choisies mises en Vers* (also in three parts, of which the first appeared 1668, and the third 1693). The *Contes* reflect the uni-

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versal immorality of the times, and are now little read outside of France. The *Fables* are universally known as marvels of literary art, vivid narration, and sagacious reflection on life and character; the editions of the *Fables* have been innumerable. The best ed. of La Fontaine's collected works is that of Walckenaër (18 vols. Paris 1819-20; improved, 6 vols. 1622-23). See Taine's *Essai sur les Fables de La Fontaine* 1860.

LAFONTAINE, SIR LOUIS HIPPOLYTE: Canadian lawyer and politician: b. Boucherville, Lower Canada, 1807, Oct.; d. Montreal, 1864, Feb. 26. He achieved prominence at the bar and in Dominion politics, but in 1838 was charged with high treason as implicated in Papineau's rebellion, and though not convicted, withdrew to England, thence to France, and returned to Canada only after the end of the rebellion. In 1848-51, he was premier, and in 1853 became chief justice of the Queen's bench.

LA FOURCHE, *lâ fôrsh*: bayou in s.e. Louisiana, an outlet of the Mississippi, leaving that river on the w. bank at Donaldsonville and extending 150 m. to the s.e., intersecting the parish of La Fourche and emptying into the Gulf of Mexico. It is navigable for 100 m. from the gulf, and is the channel of considerable inland commerce.

LAG, v. *låg* [W. *llag*, loose, slack: Gael. *lag*, feeble, to grow faint or weary: Gr. *lagaros*, slack, pliant: Icel. *lakra*, to lag behind: L. *laxus*, lax, loose]: to trail behind; to loiter; to fall behind; to flag; to move slowly; to delay: ADJ. in *OE.*, coming behind; sluggish; late; long delayed; tardy: N. the rump or fag-end; one who hangs behind. LAG'GING, imp.: ADJ. loitering; falling behind. LAGGED, pp. *lågð*. LAGGARD, n. *låg'erd*, or LAG'GER, n. *-ér*, a slow or tardy person; a loiterer. LAG'GINGLY, ad. *-lī*.—SYN. of 'lag, v.': to linger; saunter; tarry; be tardy.

LAG, ANGLE OF. See ELECTRO-DYNAMICS.

LAGAN, n. *lā'gān* [Mæso-Gothic, *lagjan*, to lay, to place: comp. Eng. *lag*, to trail behind: W. *llag*, loose, slack]: applied to goods sunk in the sea from a vessel, and fastened to a buoy or float that they may be found again: V. to sink and float goods at sea. LA'GANING, imp. LAGANED, pp. *lā'gānd*. LAGAN GOODS, merchandise placed in the sea from a vessel, sunk in the water with a buoy attached, with the view of subsequent recovery. *Note.*—LAGAN is the correct word, but LIGAN, apparently through some confusion, is used precisely in the same sense; the AS. *licgan*, Scot. *lig*, Icel. *liggja*, to lie, show, however, an identity of origin: See FLOTAGE, and note under JETSAM.

LAGENIFORM, a. *lā-jē'nī-fawrm* [L. *lagēna*, a bottle, a flask; *forma*, shape]: in *bot.*, having a shape like a Florence flask.

LAGER-BEER—LAGOS.

LAGER-BEER, n. *lâ-gér-bēr'* [Ger. *lager*, a bed, a storehouse; *bier*, beer]: store-beer, or beer laid up or stored for some months before use; a popular German beer. **LAGER-WINE**, old bottled wine; wine which has been kept in the cellar for a long time. See **BEER**; **BREWING AND MALTING**.

LAGERSTRÆMIA, *lăg-ér-strē'mī-a*: genus of plants of nat. ord. *Lythraceæ*, type of a sub-ord. *Lagerstræmiæ*, which is distinguished by winged seeds, and in which are found some of the noblest trees of tropical forests, whereas the true *Lythraceæ* are generally herbaceous. *Lagerstræmia Regiæ* is the Jarool of India—a magnificent tree, with red wood, which, though soft, is durable under water, and is used for boat-building.

LA'GO MAGGIO'RE. See **MAGGIORE**, **LAGO**.

LAGOMYS, n. *lăg'ō-mīs* [Gr. *lagos*, a hare; *mus*, a rat]: genus of rodent quadrupeds, of family *Leporidaæ*, much resembling hares or rabbits, but with limbs of more equal length, more perfect clavicles, longer claws, longer head, shorter ears, and no tail. They are interesting from their peculiar instincts, storing up herbage for winter use in heaps or stacks. The Alpine Lagomys, or Pika of Siberia (*L. alpinus*), largest of the genus, is scarcely larger than a guinea-pig, yet its stacks are sometimes four or five ft. high, by eight ft. in diameter, and often afford adventurous sable-hunters the food necessary for their horses. The little animals live in burrows, from the inhabited part of which galleries lead to the stacks. The herbage of which they are composed is of the choicest kind, and dried so as to retain much of its juices, and form the very best of hay.

LAGOON, n. *lă-gôn'*, or **LAGUNE'**, n. *-gūn'* [Sp. and It. *laguna*, a marsh: It. *lago*, a lake—from L. *lacūna*, a pool—from *lacus*, a lake]: shallow, and often marshy lake formed by the overflowing of the sea or of rivers, or by the infiltration of water from these: hence lagoons are sometimes divided into fluvial and marine. They are found only in low-lying lands, such as the coasts of Holland, Italy, the Baltic, and the e. coast of S. America; are generally shallow, and do not always present the same aspect. In some instances they are completely dried up in summer; in others, after being once formed, they preserve throughout the year the character of stagnant marshy pools; and in others the sea, which reunites them to itself in winter, is separated from them in summer by a bar of sand or shingle.

LAGOS, *lă'gōs*: a British colony in W. Africa, comprising Lagos island and the coast between Dahomey and Southern Nigeria; area, 25,450 sq.m.; pop. 1,500,000. The island lies at the entrance to a lagoon of the Bight of Benin, near the mouth of the river Ogun. The town is at the w. end of the island, 150 m. w. of Benin. A number of English and other traders reside here, and the

LAGOS—LA GRANGE.

town contains many good houses built in the English style. Lagos was formerly a notorious seat of the slave-traffic. It was captured and destroyed by the British 1851, Dec., and a treaty was concluded by which the ruler guaranteed freedom of commerce, the protection of Christianity, and the abolition of the slave-trade and of human sacrifices. Lagos, since 1861, has been a British possession.

LAGOS, *lâ'gōs*: city in Mexico, state of Jalisco, near the boundary of Guanajuato. It has some fine churches. There are growing manufactures, and the town has prospective importance in view of railroads which are to connect it with the capital, with the Rio Grande, and with the Pacific. Pop. abt. 15,000.

LAGOS, *lâ'gōs*: city and seaport of Portugal, province of Algarve, on a wide bay, 23 m. e. from the extremity of Cape St. Vincent. The harbor affords protection from n. and w. winds only, and accommodates only small vessels. There is a productive tunny-fishery in the vicinity. In the bay of Lagos, Admiral Boscawen obtained a signal victory over the French Toulon fleet 1759, Aug. 18. Pop. 7,300.

LAGOSTA, *lâ-gōs'tâ* (ancient *Lastobon*): island belonging to Austria, off the coast of Dalmatia, in the Adriatic; 6 m. long, 4 m. wide. It has a steep, rocky coast and mountainous interior. Pop. 1,200.

LAGOSTOMUS, *la-gōs'to-mūs*: genus of the *Chinchillidæ*, ord. *Rodentia*; an interesting S. American animal having many resemblances to the rabbit. The viscacha of the pampas is the principal species. They live in burrows which communicate underground like extensive subterranean villages, and around the mouths of the burrows they gather stones, bones of animals, and other objects in large piles. Another genus of the same family is *Lagotis* (q.v.). See CHINCHILLA.

LAGOTIS, *la-gō'tīs*, or LAGIDIUM, *la-jīd'ī-ūm*: genus of the family *Chinchillidæ*, ord. *Rodentia*. There are two species, both S. American and known as mountain viscachas, as distinguished from *Lagostomus* (q.v.) viscachas of the pampas or plains. They are found on the w. slopes of the Andes in Chili, Peru, and Ecuador. See CHINCHILLA.

LA GRANDE. *la gränd'*: city in Union co., Oregon, on the Grande Ronde river, and on the Oregon railroad; 300 miles east of Portland. It is the commercial and trading centre of an extensive live-stock, grain, and fruit growing region, and has flour mills, brick works, lumber mills, beet sugar, and other factories. Pop. (1910) 4,843.

LA GRANGE, *la grānj'*: city, and county-seat of Troup co., Georgia, on the Macon & Birmingham and on the Atlanta & West Point railroads; 70 miles southwest of Atlanta. A Baptist female college and a Meth-

LA GRANGE.

odist female college are located here. The town was settled in 1826, and was incorporated two years later. Under a charter of 1891, the city is governed by a mayor elected annually, and a council elected every two years. It has numerous industries, including cotton and cottonseed-oil mills. Pop. (1910) 5,587.

LA GRANGE: town in Cook co., Illinois, on the Chicago, Burlington & Quincy railroad; 15 miles from Chicago. It is a suburban and residential town largely populated by Chicago business men, and has numerous churches, public and private schools, and two weekly newspapers. Pop. (1910) 5,282.

LA GRANGE: town, and county-seat of La Grange co., Indiana, on the Grand Rapids & Indiana railroad; 45 miles northwest of Fort Wayne. It is the centre of a considerable agricultural section and has numerous manufacturing industries, including flour and lumber mills, chair factories, agricultural implement works, etc. Pop. 2,000.

LA GRANGE: city, and county-seat of Fayette co., Texas, on the Colorado river, and on the Southern P. and the Missouri, K. & T. railroads; 80 miles southeast of Austin. It has a cotton trade of 15,000 bales annually, and is an important shipping point for grain and live-stock. There are cotton gins and cottonseed-oil mills and other industries here. Pop. 2,450.

LAGRANGE, *lâ-grôngzh'*, JOSEPH LOUIS, Comte: one of the greatest of mathematicians: 1736, Jan. 25—1813, Apr. 10; b. Turin; of French extraction, grandson of Descartes. When still a youth, he solved the isoperimetric problem of Euler, and when scarcely 19 years of age, was appointed prof. of mathematics in the Artillery School in Turin. Frederick the Great appointed him Euler's successor, as director of the Acad. at Berlin, in 1759. After Frederick's death, Naples, Sardinia, Tuscany, and France strove for the honor of offering Lagrange a better position. He accepted the offer of France, and took up his quarters in the Louvre 1787, obtaining a pension of 6,000 francs (\$1,200). In 1791, he was chosen a foreign member of the Royal Soc. of London, and the same year the national assembly confirmed to him his pension, and he was appointed one of the directors of the Mint. He was in great danger during the Reign of Terror, but was not seriously molested, and was afterward prof. in the Normal and Polytechnic Schools. Napoleon made him a member of the senate, bestowed on him the grand cross of the Legion of Honor, the title Count, and many other favors. He died at Paris, and was interred in the Pantheon. His principal works are: *Memoirs 'on the Motion of Fluids'* and *'the Propagation of Sound'*; another memoir refuted D'Alembert's views regarding the theory of the earth's formation. When only 24 years of age, he published his *New Method*,

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subsequently known as *Calculus of Variations*, thus adding a new and powerful weapon to the philosophical armory. In 1764, his memoir on the 'Liberation of the Moon' took the first prize at the Acad.: in this treatise he showed the extent and fruitfulness of the principle of 'virtual velocities' which he afterward so successfully applied to mechanics. Next appeared works on the solution of 'numerical' and 'algebraic' equations; and in 1787, *Mécanique Analytique*, in which mechanics is reduced to a mere question of calculation. His last important works were *Calcul des Fonctions Analytiques*, *Traité des Fonctions*, and *Résolution des Equations Numériques*. Lagrange made many other important investigations in pure and mixed mathematics, particularly in astronomy—the chief subjects of which are, the problem of Three Bodies, the Long Inequality of Jupiter and Saturn, the moon's Secular Inequality, attraction of ellipsoids, perturbations of Jupiter's satellites, diminution of the ecliptic, variation of the elements of the planetary orbits, etc.

LAGRIMOSO, *lāg-rī-mō'zo*: Italian term in music, meaning weeping, or mournfully; similar to *lamentoso*, which expresses the same in higher degree. The delivery should be heart-stirring, but at the same time free from mannerisms and embellishments.

LA GUAY'RA. See GUAYRA, LA.

LA GUÉRONNIÈRE, *lā gā-ro-ne-är'*, LOUIS ETIENNE ARTHUR, Vicomte DE: 1816—1875, Dec. 23; of a noble family of Poitiers: French politician. He attracted notice first by the articles which he contributed to the *Avenir National* of Limoges, about 1835. Subsequently, he made the acquaintance of Lamartine, whom for many years he regarded as his political and literary master. Ultimately, he came to a rupture with Lamartine, and became an ardent Bonapartist, and after the *coup d'état* (1851, Dec. 2), the apologist of that audacious deed. In 1853, he entered the council of state. La Guéronnière stood so well in the good graces of the late French emperor, that his articles and pamphlets were considered to possess a semi-official value. In 1868, he went as ambassador to Brussels, and afterward to Constantinople. On the downfall of the empire, he was imprisoned for a time. Among his most noted publications are *L'Empereur Napoléon III. et l'Angleterre* (1858), *L'Empereur Napoléon III. et l'Italie* (1859), *Le Pape et le Congrès* (1859), and *La France, Rome, et l'Italie* (1861).

LAHEE, HENRY CHARLES: American writer on musical topics: b. London, England, 1856, July 2. He was educated at St. Michael's College, Tenbury, Worcestershire, where he was chorister 1865-9, and was in the English mercantile marine 1871-9. Coming to the United States he was secretary of the New England Conservatory of Music at Boston 1891-9, and since the last named date

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has conducted a musical agency in Boston. He has published *Famous Singers of Yesterday and Today* (1898); *Famous Violinists of Yesterday and To-day* (1899); *Famous Pianists* (1900); *Grand Opera in America* (1901); *The Organ and its Masters* (1902).

LAHN, *lân*: important affluent of the Rhine (q.v.).

LAHORE, *lâ-hôr'*: one of the chief cities of the Punjab; on the left bank of the Ravi, the middle of the five rivers which give name to the country; lat. 31° 36' n., long. 74° 21' e. It is surrounded by a brick wall, formerly 25 ft. high, and by fortifications seven miles in circuit. In the n.w. corner of the city stand the citadel, the great magazine, and military workshops. The streets are narrow and gloomy, the bazaars well furnished, but the houses in general insignificant. Within the circuit, wells are abundant; the ground is well cultivated, adorned with magnificent gardens, and strewn with numerous ruins of bygone splendor. The town is said to have possessed under the Moguls 1,000,000 inhabitants. In the 12th c., it was cap. of the dynasty of the Ghaznevites, and subsequently a favorite residence of the successors of Baber. In 1799, Runjeet Singh, Sikh prince, became ruler of Lahore; but as he chose for his headquarters Amritsir, a city about 40 m. e., Lahore became neglected. Since 1849, the epoch of the British conquest of the Punjab, Lahore, now the administrative cap. of the province, has advanced in prosperity. The town has a mean and gloomy appearance, relieved only by the Mosque of Aurungzebe, the tomb of Runjeet Singh and the Mogul palace. Lahore is an important educational centre, having in it the Punjab Univ. College, the Oriental College, the Lahore, Govt. College, and a medical school (with the Mayo Hospital), and a museum. There is not much commerce; but Lahore is connected by rail with most parts of the province, and so with the rest of India. Pop. about 175,000.

The *civil division* of Lahore, most central of the British Punjab, has 8,961 sq.m. Its climate is warm, rainfall scanty; harvests are largely dependent on irrigation. Pop. 4,600,000.

The *district* of Lahore has 3,648 sq.m.; pop. 1,075,000.

LAIBACH, or LAYBACH, *l'wâch*: town of Austria, cap. of the crownland of Krain or Carniola, in an extensive plain on the river Laibach, 50 m. n.e. of Trieste. It contains a lyceum, gymnasium, and other educational institutions, and has extensive transit trade with Trieste, Fiume, Grätz, etc. Its cotton manufactures and sugar-refineries employ many of its inhabitants. To the s.w. of the town is the Laibach Morass, formerly often covered by the swollen waters of the river: it is more than 80 sq.m. in extent, and three-fourths of it have been brought under cultivation; the remainder affords an inexhaustible supply of turf. Pop. (1900) 36,547.

LAICAL—LAING.

This town is famous for the congress of monarchs 1821. The purpose of this congress was to secure the peace of Italy against Carbonarism, to arrest the increasing progress of revolution, and to restore in Naples and Sicily the former condition of affairs. The result of it was the passing of a resolution establishing among European nations the right of armed intervention in the affairs of any neighboring state which may be troubled with factions. In this congress the British minister refused to take part.

LAICAL, a. *lā'ī-kāl*, or LAIC, a. *lā'īk* [Gr. *lāīkōs*, of or belonging to the common people—from *lāōs*, the people: mid. L. *lāīcus*; It. *laico*; F. *laïque*, lay, secular]: pertaining to the people, as distinguished from the clergy. LA'ICALLY, ad. *-lī*. LAITY, n. *lā'ī-tī*, the people; not the clergy. See LAITY below.

LAID, *lād*: pp. of LAY, which see. LAID-PAPERS, writing papers with a ribbed surface, called *cream-laid*, *blue-laid*, etc., according to shade or color. LAID UP, stored up; confined to bed through sickness; put aside from use for a time, as a ship.

LAIDLIE, *lād'lī*, ARCHIBALD, D.D.: 1727, Dec. 4—1779, Nov. 14; b. Kelso, Scotland. After studying at the Univ. of Edinburgh, he was ordained to the Presb. ministry, and from 1759 pastor of the Scotch Church, Flushing, Holland. He acquainted himself with the Dutch language and theology (Reformed Dutch), accepted a call to the pastorate of the Collegiate Church, New York; and preached in the Middle Dutch Church, corner of Nassau and Cedar sts., the first sermon in English by a regular pastor to a Dutch congregation in America, 1764, Apr. 15. He was successful as a preacher, though at first there was opposition to him from some in the denomination. He died at Red Hook, N. J.

LAING, *lāng*, ALEXANDER GORDON: British African explorer; b. Edinburgh, Scotland, 1793, Dec. 27; d. near Timbuktu, Africa, 1826, Sept. 26. After serving for several years in the English army, he entered on his career as an African traveler in 1822, when promoted to the command of a company in the Royal African Corps. An opportunity having presented itself of proceeding on the discovery of the course of the Niger, it was arranged that he should accompany the caravan from Tripoli to Timbuktu. He left Tripoli in July 1825, in company with the Sheik Babani, and after a tedious journey of nearly 1,000 m. arrived at Ghadames; and on Dec. 3 reached Ensala. He quitted Ensala on Jan. 10, 1826, and on the 26th entered on the sandy desert of Tenezaroff. After some fighting with the Tuaregs he arrived at Timbuktu on Aug. 18, the first European who had ever reached that city. After a short stay he set out on his return, but was assassinated on Sept. 26, 1826. The murder was committed by order of the son of the prime

LAING—LAIRD.

minister of Tripoli, whose agent Babani was. He prepared for the press a work published in 1825, under the title *Travels in the Timmanee, Kooranko, and Soolima Countries of Western Africa*.

LAING, MALCOLM: Scottish historian; b. Mainland, near Kirkwall, Orkney, 1762; d. there 1818, Nov. He is the nephew of Samuel Laing (1780-1863). He was a lawyer by profession, and later a member of Parliament, but devoted himself principally to historical investigation. He wrote a continuation of Henry's *History of Great Britain* (1785), and *History of Scotland* (1800), which may be regarded as supplementary to Robertson's history. In the preliminary dissertation he presents an elaborate argument to prove Queen Mary's participation in the murder of Darnley.

LAING, SAMUEL: Scottish author; b. Kirkwall, Orkney, 1780, Oct. 4; d. Edinburgh 1863, April 23. Entering the army in 1805 he served in the Peninsular war and in 1834 travelled in the Scandinavian countries. He published *Journal of a Residence in Norway* 1834-6 (1836); and *A Tour in Sweden* (1839), but is best known by his important translation of the *Heimskringla* or *Icelandic Chronicle of the Kings of Norway*, with a *Preliminary Dissertation* (1844).

LAING, SAMUEL: English statesman and philosophical writer; b. Edinburgh 1812, Dec. 12; d. Sydenham Hills, Kent, 1897, Aug. 6. He is the son of Samuel Laing (1780-1863). He was prominently identified with railway legislation in England, was for many years prominent in Parliament, and from 1861 to 1863 held the office of finance minister to India. Of his works, *Modern Science and Modern Thought* (1886), and *A Modern Zoroastrian* (1887), have occasioned some discussion. His other publications of a miscellaneous character include: *India and China* (1863); *A Sporting Quixote; or the Life and Adventures of the Hon. Augustus Fitzmuddle* (1886); *The Antiquity of Man* (1890); *Human Origins* (1892).

LAIR, n. *lär* [Dut. *leger*, a bed: Dan. *leir*, a camp: Dut. *leggen*, to lie: AS. *legcr*, a lying, a bed: Gael. *lâr*, the ground]: the resting-place or couch of a wild beast; a pen or stall for cattle; in *OE.*, pasture-ground; in *Scot.*, the space for a grave.

LAIRD, n. *lârd* [Scot.: AS. *hlaford*, a lord]: in *Scot.*, a proprietor; a landed gentleman.

LAIRD, *lârd*, DAVID: Canadian politician; b. New Glasgow, P. E. I., 1833. He was educated in the Presbyterian Theological Seminary at Truro, N. S., and subsequently established the *Patriot* in Charlottetown, a journal which he edited for many years. In 1871 he became a member of the Assembly of Prince Edward Island, and after the admission of the province to the Dominion, was a member of the House of Commons,

LAIRD—LAISSEZ FAIRE.

1873-6. He was lieutenant-governor of the Northwest Territory 1876-81, and while minister of the interior 1873-6, concluded the Qu'Appelle treaty which extinguished by purchase the title of several tribes to 75,000 sq. m. of territory on the route of the Canadian Pacific railway.

LAIRD, JOHN: English ship-builder; b. Greenock, Scotland, 1805, June 14; d. Birkenhead, Cheshire, England, 1874, Oct. 29. His ship yards were at Birkenhead, on the other side of the Mersey from Liverpool, and he was for a long time the head of the firm of John Laird and Sons. He was the first builder of iron steamships, and built the John Randolph, the Nemesis and the Alabama. The first was the earliest iron vessel that crossed the Atlantic; the second the first armed vessel of iron. The history of the Alabama is well known. He entered Parliament in 1861 when he retired from active business.

LAIRESSE, GERARD DE: Dutch painter and etcher; b. Liège, Belgium, 1640; d. Amsterdam 1711, June 11. He was early a pupil of his father, Regnier Lairesse, and of Flemalles, and left them for Utrecht, and afterward Amsterdam, where he labored hard for perfection in his art. He first of all confined himself to models of the antique, and the classical ideals of Poussin. His work was thus distinguished by somewhat wearisome mannerism, and his pictures very frequently seem painted in an unnatural silvery, metallic tone. His masterpieces are to be seen in Amsterdam, Schleissheim, Cassel, and in the Louvre, Paris. His ideas on art, as dictated to his pupils and associates, together with his etchings, were published after his death in two volumes, under the title *Het Groot Schilderboek* (1712). The work has been translated into German, French, and English, and has had a great influence in the art education of the 18th c.

LAIS, *lā'is*: name of one, or, probably, two Greek courtesans, celebrated for extraordinary beauty. The elder is believed to have been born at Corinth, and lived during the Peloponnesian war. She was reckoned to possess the most graceful figure of any woman of her time in Greece, but she was capricious, greedy of money, and in her old age became a tippler. The younger appears to have been born in Sicily, but came to Corinth when a child. She sat as a model to the painter Apelles, who is said to have recommended her to adopt the profession of a prostitute, in which she obtained a 'bad eminence.' She was stoned to death by some Thessalian women whom she had made jealous. Both of these women had temples erected to their memory.

LAISSEZ FAIRE, phrase, *lās-sā fär* [F. let alone]: a term applied to that mode of government which concerns itself as little as possible with regulating the affairs or proceedings of the people in general. A 'let-alone' policy in any interest or concern.

LAITY—LAKE.

LAITY, *lā'i-tī* [see **LAICAL**, **LAITY**]: name given in the Rom. Cath. Church and in other churches that emphasize the distinction of the clerical order, to all persons who are not in the ranks of the clergy (q.v.). The name appears to have originated as early as the 2d c., when the idea grew up that the priesthood formed an intermediate class between Christ and the Christian community. The influence which the laity had at first exercised in the government of the church gradually declined as the power of the hierarchy increased, and though, as late as the end of the 3d c., cases occurred in which learned laymen taught publicly with the approval of bishops, still this liberty was ever more and more narrowed, until finally, 502, a synod at Rome under the bishop Symmachus forbade laymen to interfere in any way in the affairs of the church. The Prot. Church, in general, maintains on scriptural grounds the common and equal priesthood of all Christian disciples; still, as marking a visible distinction of office, the words clergy and laity continue in very general use, the depth of the distinction implied varying with the 'church' views of those employing them. Some strict Protestants are careful to say minister and people, instead of clergy and laity; others use the words clergy and laity in a loose conversational sense, but not in formal utterance; as also the words, temple, altar, priest.

LAKE, n. *lāk* [L. *lacus*, a lake: It. *lacc*: F. *lac*, a lake: comp. Gael. and Scot. *loch*: Ir. *lough*, an arm of the sea, a lake]: body of water surrounded by land. There are (1) some lakes which neither receive nor emit streams; (2) some, fed by springs, emit, but do not receive streams; (3) others, as the Caspian and Aral Seas, receive rivers, but have no visible outlet; but (4) by far the greater number both receive and emit streams. Most lakes under the third class are salt or brackish; Lake Tchad, in Africa, being an exception. **LAKELET**, n. a little lake. **LAKY**, a. *lā'ki*, pertaining to a lake. **LAKE-DWELLINGS**, dwellings in lakes, erected either on piles or on artificial islands. See **LACUSTRINE**, under **LACUSTRAL**: see also **CRANNOGS**.

LAKE (Lat. *lacus*): a body of water surrounded by land. Lakes are of two kinds—fresh-water and saline—and have been formed in various ways. Taking first the *fresh-water lakes*, these may be grouped as follows: (1) *Obstruction Lakes*.—Some of these are more or less temporary sheets of water, such as the lake-like expansions of certain rivers, and the deserted loops of river-channels. Other temporary lakes are due to the operations of the beaver; to the choking of the narrower passages of a river-channel by drifted vegetable debris or river-ice; or to the advance of a glacier across the mouth of a lateral valley. (2) *Crater Lakes*.—These occupy the craters of extinct or quiescent volcanoes. (3) *Sink Lakes*.—These lie in hollows caused by subsidence of the

LAKE.

surface consequent upon the removal of underlying soluble rocks, such as rock-salt, and calcareous and gypseous rocks. (4) *Earth-movement Lakes*.—Unequal movements or warping of the earth's crust have occasionally originated hollows by direct subsidence. It is possible also that local elevation by affecting the lower ends of valleys may sometimes have obstructed the flow of rivers, and thus given rise to lakes. (5) *Glacial Lakes*.—These consist of (a) hollows of erosion or *rock-basins*, which have been excavated by glacier-ice, and (b) hollows caused by the unequal distribution or accumulation of glacial detritus during the glacial period. (6) *Subterranean Lakes*.—These are found chiefly in calcareous regions, where they occupy the underground channels which have been excavated by the chemical and mechanical action of water. *Fresh-water* lakes are very unequally distributed. They are most numerous in those regions which were overflowed by land-ice during the glacial period, as in the British Islands, Scandinavia, Finland, Canada, and the United States. Lakes occur at all heights above the sea; the most elevated being Lake Tsana in Abyssinia (7,500 ft.), Lake Titicaca in the Bolivian Andes (12,500 ft.), and Askal Chin in Tibet (16,600 ft.). The largest lake in the world is Lake Superior, which covers an area of 31,200 sq. m., and has a mean depth of about 475 ft. Lake Baikal, in central Asia, is the largest and deepest mountain lake, its area being 13,500 sq. m., and its mean depth 850 ft., but in places it reaches a depth of more than 4,000 ft. Some of the mountain lakes of Europe also attain great depths; thus, Lake Geneva is 1,000 ft., Lago Maggiore, 1,158 ft., and Como 1,358 ft.

Salt Lakes.—Two kinds are recognized: (a) portions of the sea cut off from the general oceanic area by epigene or hypogene agencies; (b) lakes, originally fresh-water, which have been rendered saline by evaporation and concentration. Those of the first group range in size from mere pools and lagoons up to inland seas, such as those of the great Aralo-Caspian depression. The Dead Sea and the Great Salt Lake of Utah are good examples of the second group of saline lakes, which might be defined shortly as lakes which have no outlet to the ocean. The Caspian Sea is 97 ft. below the level of the Black Sea, has an area of about 170,000 sq. m., and is from 2,500 to 3,000 ft. deep in the deepest parts. A still more depressed area is that of the Dead Sea, the surface of which is 1,292 ft. below the level of the Mediterranean Sea.

LAKE n. *lāk* [OF. *lacque*, a rose or ruby color—from LAC 1, which see]: name applied to all those colors which consist of a vegetable or animal dye, combined by precipitation with a white earthy basis, which is usually alumina, which has a remarkable property of uniting with and separating these colors from their so-

LAKE—LAKE CITY.

lutions. Thus, if we take the colored solution of cochineal, and add to it a solution of alum, the alumina in the alum immediately combines with the coloring matter, and the result is a precipitate which is carmine or Florentine lake. Red lake is made in a similar manner from Brazil wood, a little solution of tin being added to heighten the color, and potash being used to accelerate the precipitation. Lakes of several shades of red and purple are made from madder-roots, the quantity of potash used determining the proper color. Two or three yellow lakes are used, the manufacture of which is very similar; they are prepared from yellow berries or from arnotto. Almost every known animal or vegetable color may be converted into a *lake*, but those mentioned are the ones practically useful. They are employed chiefly by calico-printers and paper-stainers.

LAKE, in Law: property of the owner of the land which surrounds it; by which is meant that not only the water and the use of it, but the soil under the water belongs to such owner. Where the land surrounding the lake belongs to different owners, each has *prima facie* the right to use the lake for ordinary purposes, including fishing or boating; but it depends on how the properties were acquired, whether and how far this general rule applies in any particular case.

LAKE AGASSIZ, *ăg'a-sî*: a glacial lake once covering a large area in the Red River Valley of Minnesota, North Dakota and Canada. The lake during its existence was larger than all the Great Lakes combined. The bed of this extinct lake is now a great plain, covered with till and silt, yielding its soil to the growth of wheat and other grain. Consult Upham, *The Glacial Lake Agassiz* (1895). See also GLACIAL PERIOD.

LAKE CARP: a fish, *Carpiodes Thompsoni*, one of the carp-suckers (q.v.), inhabiting the Great Lakes.

LAKE CHARLES: city and parish-seat of Calcasieu Parish, Louisiana, on the Calcasieu river, and Southern Pacific railroad, 216 m. w. of New Orleans. Located on the banks of the picturesque Lake Charles it is one of the most attractive cities in the state. It has Acadia College, the Carnegie Library, Parish court-house, high school and numerous churches. It was settled in 1849 and was first incorporated in 1860. Under a new charter of 1886, the city is governed by a mayor and common council, elected every two years. There are extensive cotton and rice mills here and a large trade in lumber. Pop. (1910) 11,449.

LAKE CITY: town and county-seat of Columbia co., Florida, on the Southern, the Florida C. and other railroads; 60 m. w. of Jacksonville. Here is located the State Agricultural College and an agricultural experiment station. In 1901 the state legislature granted the town a new charter greatly enlarging its limits. The

LAKE CITY—LAKE DWELLINGS.

town has an important trade in cotton, lumber, turpentine, fruit, etc. Pop. (1910) 5,032.

LAKE CITY: city in Wabasha co., Minnesota, on Lake Pepin and on the Chicago, M. & St. P. railroad, 57 m. s.e. of St. Paul. It has a public library and high school, and numerous manufactures, including grain elevators, flour mills, wagon and carriage factories, foundries, machine shops, and an extensive nursery covering 1,400 acres. The city is governed by a mayor and council, and owns the waterworks and electric light plant. Pop. 3,000.

LAKE DWELLINGS: those constructed on artificial or partly artificial islands in lakes. The use of habitations of this nature is a subject which has engaged the attention of archæologists and others very largely since the discovery of the remains of a lake dwelling in Ireland in 1839, of similar ones in Switzerland in 1854, and subsequently of numbers of others elsewhere. The archæological interest thus attaching to these remains has drawn attention to similar dwellings being still used in various parts of the world, in Russia, the Malay Archipelago, Venezuela, New Zealand, and in a modified form in some parts of Central Africa. The first who is known to have described lake dwellings is Herodotus, who mentions that the Persians in their invasion of Thrace and Macedonia in the beginning of the 5th c. B.C. found certain tribes inhabiting Lake Prasias, whose dwellings were constructed on platforms supported above the surface of the lake by piles driven into its bottom.

The lake dwellings are built after two chief types, one of which has an Irish name, *crannogs*, given to it, from the fact that those of this type are chiefly found in Ireland; and the other of which has a German name, *Pfahlbauten*, because those of this type were first found in Switzerland. Crannogs are made in the following way: Great quantities of small stems, sticks, and the like, are collected and sunk by means of stones in the lake, so as to form an island. Very often advantage is taken of the existence of an island just level with the surface of the water, which can be raised a foot or two above the surface with comparatively little labor. Sometimes a few upright piles are driven in on the top after the chief part of the island has been made in the manner described. When the island is thus raised to a sufficient height it is frequently strengthened by an enclosure of stakes driven into the bottom of the lake perpendicularly. A platform of thin stems of trees, either round or split into boards, is then made on top of the island, and this supports the structures that are built on them. The crannogs of Ireland appear to have been rather used as strongholds than as dwellings.

Pfahlbauten, or pile dwellings, are made by driving piles into the lake bottom as a support for the platforms on which the dwellings are erected. The piles are sharp-

LAKE FOREST—LAKE FOREST COLLEGE.

ened at the lower end, and an examination shows the sharpening to have been performed partly by heat and partly by some cutting instrument, either of stone, bronze, or iron, as is proved by the fact that such instruments are frequently found on the platforms. Greater solidity and compactness is sometimes given to the structure of vertical piles by means of stakes transversely inserted between them or notched on to them just below the top. In other cases heaps of stones are thrown down between the upright stakes, forming what is called in Germany a *Steinberg*. The upper ends of the vertical piles are brought to an exact level to allow a platform to rest on them similar to that of a crannog. Coarse gravel was frequently strewed over the platform to keep it dry, and the interstices were often filled up with mud. It was also common to make a hurdle wall around the whole artificial island by means of small branches and twigs interwoven between the outermost stakes. Huts were built on the platform in a similar manner to the rest of the structure. The walls were of stakes bound together by wattles, and covered over by a thick clay, and the roofs were probably thatched. A single platform was in many cases large enough to support a considerable number of huts. Consult: Munro, *Ancient Scottish Lake-dwellings* (1882); Wood Martin, *Lake-dwellings of Ireland* (1886); and Munro, *Lake-dwellings of Europe* (1890).

LAKE FOREST: city in Lake co., Illinois, on Lake Michigan, and on the Chicago & N. W. railroad, 28 m. n. of Chicago. It is a suburban and residential town without industries or manufactories. There is here a seminary for young ladies, a public library, an academy for boys and Lake Forest University (q.v.). It was settled in 1859, and is governed by a mayor and council elected every two years. Pop. 2,250.

LAKE FOREST COLLEGE: a school for both sexes at Lake Forest, Ill. The history of the institution shows that in 1855 a number of citizens of Chicago, under the leadership of the Rev. Robert W. Patterson, formed an association for the purpose of establishing an educational institution near Chicago, which, despite its proximity to the city, would always retain the advantages of a rural situation. In 1856, Feb., the Lake Forest Association was organized, and the 1,300 acres of land along the shore of Lake Michigan, 28 m. from Chicago, were purchased by the association, which is now the site of the town of Lake Forest. Half of the land was to be association property, every alternate lot being set aside for the university, and 62 acres being left for an 'inalienable campus.' The educational institution was chartered in 1857, Feb. 13, under the title Lind University. This name was changed in 1865 to Lake Forest University. The boys' department was opened first, and through the bequest of \$35,000 from the Rev. W. W.

LAKE OF THE FOUR FOREST CANTONS.

Ferry the school for girls was founded 11 years later. The college department, known as Lake Forest College, was opened in September, 1876. The institution was founded by Presbyterians, but it is not denominational in its character. It has 127 professors, 1,400 students, 21,000 volumes in the library, and an income of \$120,000; productive funds \$500,000; value of grounds and buildings \$700,000. Lake Forest College is also attracting favorable notice from the literary world, owing to the fact that it has received a large endowment for a prize, a library and a lectureship, which, it is believed, will attract as much attention in the United States as the famous Bampton and Gifford lectures have done in Great Britain.

LAKE OF THE FOUR FOREST CANTONS: a common name for the Lake of Lucerne. The city of Lucerne, and the towns of Küsnacht, Brunnen, and Flüelen are on its shores.

LAKE GENEVA, *jě-ně'va*: city in Walworth co., Wisconsin, on the Chicago & N. W. railroad, 70 m. n.w. of Chicago. Situated on Lake Geneva, the city has developed into a popular summer resort. The lake is 9 m. long and from 1 to 3 m. in width, and is fed entirely by springs. The Yerkes Observatory, belonging to the University of Chicago, is located here. There are numerous large hotels, churches, schools, a public library and other buildings. The city was incorporated in 1893 and is governed by a mayor and council elected annually. Pop. 2,675.

LAKE HERRING, or LAKE WHITING: a local name for certain whitefish of the Great Lakes, especially the cisco (q.v.).

LAKE LAHON'TAN: an extinct lake which once existed in the western part of Nevada. The pebbly beaches, and other shore-line marks are still quite distinct. It, like Lake Bonneville, in Utah, belonged to the glacial period, when what is known now as the Great Basin had much larger bodies of water than exist now in the same section. The place occupied by Lake Lahontan is at present a saline waste, with here and there small salt lakes. Consult: U. S. Geological Survey, Monograph 11 (1885); Russell, *Geological History of Lake Lahontan*.

LAKE SCHOOL, or LAKISTS: a name formerly given to certain British poets who came forward conspicuously at the beginning of the 19th c., and endeavored to substitute a natural and simple taste for the classicism of which Addison and Pope furnish leading examples. They received their name from the picturesque lakes of Cumberland and Westmoreland, where Wordsworth, Coleridge, Southey, Wilson, and others, had fixed their residence permanently or for a time.

LAKE STATE—LAKE TROUT.

LAKE STATE, THE: a popular name given to Michigan. Its shores are watered by Lakes Superior, Michigan, Huron, and Erie. The Indian word Michigan signifies 'great lake.'

LAKE STURGEON: the great sturgeon (*Accipenser rubicundus*) of the Great Lake region. See STURGEON.

LAKE TROUT: two salmonoid fishes of the genus *Cristivomer* inhabiting lakes in the northern United States and southern Canada, (1) the Great Lake trout (*C. namaycush*); and (2) the siscowet (*C. siscowet*). The former, and more important, occurs in most of the larger lakes and ponds from New Brunswick to Idaho and Vancouver Island, and throughout northern Canada and Alaska. The Canadians call it namaycush, and by other Indian names; in Maine and Vermont it is known as 'togue' and 'longe' respectively; and on the upper Great Lakes as Mackinaw trout. It is the largest of the trout family, sometimes exceeding 100 pounds in weight, but the average specimen weighs from 15 to 20 pounds; the biggest fish are found in the largest and deepest lakes. It is trout-like in form, thin-skinned, with little or no underlying fatty tissue, and dark gray spotted with round paler spots sometimes of a slightly reddish tinge. It is fierce and voracious, seizing and feeding upon 'all fishes with soft fins' and anything else edible that falls in its way; and when mature it can hold its own against any other depredator, so that it may be regarded as ruler of the lakes. It spawns on the reefs in the late autumn, but otherwise dwells in the deeper waters; Jordan says that the usual number of eggs deposited at one spawning is only 5,000 or 6,000. As a game-fish it seems variable, in some waters affording good sport by trolling with a spoon-bait or live minnow, and in others having small repute among anglers. All agree, however, as to the excellence of its flesh on the table; and it furnishes a commercial fishery on the Great Lakes only excelled in importance by that for whitefish. These trout are usually caught by vast gill-nets operated by steam vessels, and three or four tons are sometimes taken in a single haul. About 1885 the supply in the Great Lakes was diminished to an alarming extent; but artificial propagation by the state and national governments soon restored the quantity, so that at the beginning of the present century more could be taken by fishermen than could profitably be sold. It is outranked in market-price and demand, however, by the whitefish.

The siscowet is very similar, but has a deeper body, thicker skin, beneath which is an excessive development of fatty tissue, and paler coloration. It is rarely seen outside of Lake Superior, where it is numerous in deep water. Consult: Goode, *American Fishes* (1888); Jordan and Evermann, *American Food and Game Fishes* (1902); Sage and Cheney, *Salmon Trout* (1902).

LAKE OF THE WOODS—LAKEY.

LAKE OF THE WOODS: a boundary lake, partly in the province of Ontario, Canada, and partly within the state of Minnesota, 220 m. w. of Lake Superior and 377 ft. above its level. It is broken by one long promontory and several smaller ones into distinct portions, of which only the southern, containing Big Island, is properly designated the Lake of the Woods, while the eastern bears the name of White Fish bay, the northern, which is studded with islands, being called Clear Water lake, and the northwestern, Shoal lake. The whole expanse of water forms a single lake of very irregular shape about 70 m. in length and 60 in breadth, the water area being about 1,500 sq.m. Rainy river, the principal feeder of the lake, enters it at its southeastern extremity, just below Fort Louise; its discharge is at the north by the Winnipeg. It abounds with sturgeon. The boundary between Canada and the United States follows the Rainy river to its mouth in the lake, and then proceeds across the lake in such a way as to leave Big Island to Canada, whilst giving most of the Lake of the Woods proper to Minnesota. A little west of the meridian of 95° the boundary strikes due south to meet the parallel of 49° , which is then followed, the result being that the United States owns an isolated portion of the land on the northwest shore. There are gold mines in the neighborhood.

LAKEWOOD: township and village of the same name in Ocean co., New Jersey; the town is a famous health and winter resort, surrounded by an extensive pine forest, in which are numerous lakes. Here are numbers of large hotels and many cottages owned by residents of New York and Philadelphia. Known for more than a score of years to a few, discovered and originally promoted by men who found here the conditions which were a necessity of long life, and developed and made successful by the presence of manifold advantages, Lakewood is known on both sides of the ocean, among the most critical and intelligent travelers from Canada to the Gulf and from the Atlantic to the Golden Gate, in England and on the Continent, as the most popular resort in America's middle east. Lakewood has grown steadily in its normal population, as well as its taxable inventory. Its streets and avenues, carefully laid out and well built of stone, are kept in perfect repair during the season, and afford one of the chief charms of the place in an almost endless variety of drives. The lakes of the place, among its great charms, are protected carefully from contamination, and at once furnish an adequate water supply for fire purposes, are points of much attraction at the infrequent times when skating is available, and throughout the season a picturesque viewpoint, admired by thousands. Pop. (1910) 3,200.

LAKEY, EMILY JANE: American artist; b. Quincy, N. Y., 1837, June 22; d. Cranford, N. J., 1896, Oct. 24.

LAKSHMĪ.

She received her art education at the National Academy of Design in 1873 and in Paris, and made a specialty of cattle pieces. Among her paintings of this character are: *The Leader of the Herd*; *An Anxious Mother*; *The Right of Way*; *From Pasture to Pool*.

LAKSHMĪ, *lāksh'mē*, Hind. *lūsh'mē*, in Hindu Mythology: consort of the god Vishn'u (q.v.), considered also his female or creative development. According to the mystical doctrine of the worshippers of Vishn'u, this god produced the three goddesses, Brāhmī, Lakshmī, and Chan'dikā, the first representing his creating, the second, his preserving, and the third, his destroying energy. This view, however, founded on the superiority of Vishn'u over the two other gods of the Hindu triad—Brāhmī, or Saraswatī, being generally looked on as the energy of Brahmā, and Chan'dikā, another name of Durgā, as the energy of S'iva—is later than the myth, relating to Lakshmī, of the epic period; for, according to the latter, Lakshmī is the goddess of Fortune and of Beauty, and arose from the Ocean of Milk when it was churned by the gods to procure the beverage of Immortality, and it was only after this wonderful occurrence that she became the wife of Vishn'u. When she emerged from the agitated milk-sea, one text of the Rāmāyan'a relates, 'she was reposing on a lotus-flower, endowed with transcendent beauty, in the first bloom of youth, her body covered with all kinds of ornaments, and marked with every auspicious sign. . . . Thus originated, and adored by the world, the goddess, called also *Padmā* and *S'ri*, betook herself to the bosom of Hari—i.e., Vishn'u.' A curious festival is celebrated in honor of this divinity on the fifth lunar day of the light half of the month *Māgha* (Feb.), when she is identified with Saraswatī, the consort of Brahmā, and the goddess of learning. In his treatise on festivals, a great modern authority, Raghunandana, mentions, on the faith of a work called *Samwatsara-sandīpa*, that Lakshmī is to be worshipped in the forenoon of that day with flowers, perfumes, rice, and water; that due honor is to be paid to inkstand and writing-reed, and no writing to be done. Wilson, in his essay on the *Religious Festivals of the Hindus* (works, II. 188, ff.), adds that, on the morning of Feb. 2, 'the whole of the pens and inkstands, and the books, if not too numerous and bulky, are collected, the pens or reeds cleaned, the inkstands scoured, and the books, wrapped up in new cloth, are arranged upon a platform, or a sheet, and strewn over with flowers and blades of young barley, and that no flowers except white are to be offered. After performing the necessary rites . . . all the members of the family assemble and make their prostrations; the books, the pens, and ink have an entire holiday; and, should any emergency require a written communication on the day dedicated to the divinity of scholarship, it is done with chalk or char-

LALANDE—LALLY.

coal upon a black or white board.' In different parts of India this festival is celebrated at different seasons, according to the double aspect under which Lakshmi is viewed by her worshippers. The festival in the month Mâgha seems originally to have been a vernal feast, marking the commencement of the season of spring.

LALANDE, *lâ-lôngd'*, JOSEPH JÉRÔME LEFRANÇAIS DE: 1732, July 11—1807, Apr. 4; b. Bourg: eminent French astronomer. He applied himself with such success to mathematics and astronomy, that the French Acad. sent him to Berlin 1751, to determine the moon's parallax, at the same time that Lacaille was sent to the Cape of Good Hope. In 1752, he returned, and was appointed one of the astronomers-royal; and 1761 succeeded Lemonnier as prof. of astronomy in the Collège de France. His lectures had rare attractiveness; and he published several popular astronomical works, as well as works of profound science. He became director of the Paris Observatory. His character was marked by extreme vanity; but no one has ever equalled him as a lecturer on astronomy, and few have contributed more to the general progress of astronomical science. His principal work is his *Traité d'Astronomie* (2 vols. Paris 1764—a new and augmented edition, 4 vols. Paris 1771-81.) He published also minor works on astronomy, navigation, etc., and an account of his travels in Italy during 1765-6 (9 vols. Paris 1786).

LALITA-VISTARA: one of the most celebrated works of Buddhistic literature. It contains a narrative of the life and doctrine of the Buddha S'âkyamuni (see BUDDHA), and is considered by the Buddhists as one of their nine chief works, treating of Dharma, or religious law. It is one of the developed Sûtras of the Mahâyâna system. An edition of the Sanskrit text, and an English translation of this work by Bâbu Râjendralâl Mitra, is in process of publication under the auspices of the Asiatic Soc. of Bengal. A French translation from the Tibetan has been made by Ph. Ed. Foucaux. In Chinese, there are two translations. See E. Burnouf, *Introduction à l'Histoire du Bouddhisme Indien* (1844); and W. Wassiljew, *Der Buddhismus, seine Dogmen, Geschichte und Literatur* (St. Petersburg 1860).

LALLY, *lâ-lê'*, THOMAS ARTHUR, Count DE, Baron DE TOLLENDAL, *to-lông-dâl'*: French general, of historic note as the victim of a judicial murder: 1702, Jan.—1766, May 9; b. Dauphiné; son of Sir Gerard Lally, an Irish Jacobite refugee, and commander of an Irish regiment. Lally distinguished himself as a soldier in Flanders; accompanied Prince Charles Edward to Scotland 1745; and 1756, was made a lieut.-gen. and appointed commander-in-chief in the French E. Indian settlements. He commenced hostilities against the British in India, took many places, and besieged Madras itself; but sus-

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tained a severe defeat under the walls of Vindarachi, and was compelled to retreat to Pondicherry, which was attacked 1760, Mar., by land and sea by a greatly superior British force. Lally, however, held out for ten months; and before Pondicherry fell, 1761, Jan. 16, the sufferings of its defenders were terrible. Lally was conveyed as prisoner of war to England; but hearing that he had been accused in France of betraying his trust in India, he obtained leave to proceed to France for the vindication of his character. An investigation was promised, but no step was taken for a year, and then Lally was only thrown into the Bastille, where he remained 19 months before his trial took place. Popular indignation at the French losses in India required a victim, and the parliament of Paris at last, 1766, May 6, condemned him to death for betraying the interests of the king, and the Indian Company, and the sentence was executed three days after. But his son, supported by the powerful assistance of Voltaire, procured a royal decree 1778, May 21, declaring the condemnation unjust, and restoring all the forfeited honors.—The son, TROPHIMUS GERARD, Marquis DE LALLY-TOLLENDAL (1751, Mar. 5—1830, Mar. 11; b. Paris), was one of those nobles who, in the States General, 1789, united with the Third Estate; but alarmed at the democratic tendencies of the national assembly, he afterward allied himself more with the court. He earnestly sought to protect the king, but was himself compelled to flee to England. After the revolution of 18th Brumaire, he returned to France and lived at Bordeaux. Louis XVIII. made him a peer; but he remained true to his political principles, and defended constitutional liberty. He was author of a Defense of the French Emigrants, which made a great sensation in France, and of many other pamphlets.

LAMA, or LLAMA, n. *lâ'ma* or *lā'ma* [Peruvian], (*Auchenia lama*): a most useful S. American quadruped of the family *Camelidæ*; doubtful whether to be classed a distinct species, or as a mere domesticated variety of the Huanaca (q.v.). It was in general use as a beast of burden on the Peruvian Andes at the Spanish conquest, and was the only beast of burden used by the natives of America before the horse and ass were introduced by Europeans. It is still much used in this capacity on the Andes, the peculiar conformation of its feet (see AUCHENIA) enabling it to walk securely on slopes too rough and steep for any other animal. Many silver mines of the Andes could scarcely be worked but for the lamas. The burden carried by the lama should not exceed 125 lbs. When too heavily loaded, the animal lies down, and refuses to move, nor will either coaxing or severity overcome its resolution. It is generally very patient and docile. Its rate of traveling is about 12 or 15 m. a day. The lama is about 3 ft. in height at the shoulder, has a longish neck, and carries its head ele-

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vated. The females are smaller and less strong than the males, and only the latter are used for carrying burdens. The color is very various, generally brown, with shades of yellow or black, frequently speckled, rarely quite white or black. The flesh is spongy, coarse, and not of agreeable flavor. The hair or wool is inferior to that of the alpaca, but is used for similar purposes; that of the female is finer than that of the male. The lama has been introduced with the alpaca into Australia; but it seems adapted only for steep mountain regions.

LAMA, or LLAMA, n. *lâ'mă* [from Tibetan *bLama*,* spiritual teacher or lord]: a Tartar priest. DALAI-LAMA, or GRAND LAMA, the chief or principal Lama, worshipped as a god. LAMAISM, n. *lâ'mă-izm*, the religion of the Asiatic Tartars who worship the Grand Lama. LA'MAIS'TIC, a. *-tĭk*, pertaining to.—Lamaism prevails in Tibet and Mongolia. It is Buddhism (q.v.) corrupted by S'ivaism (see SIVA), and by Shamanism (q.v.), or spirit-worship. As ancient Buddhism knows no worship of God, but merely an adoration of saints, the latter is the main feature also of Lamaism. The essence of all that is sacred is comprised by this religion under the name of dKon mChhog gSsum (pronounced *Konchogsum*), which consists of the 'three most precious jewels'—viz., 'the Buddha-jewel,' the 'doctrine-jewel,' and 'the priesthood-jewel.' A similar triad is implied by the three Buddhistic formulæ: 'I take my refuge in Buddha; I take my refuge in the law (or doctrine); I take my refuge in the congregation (of the priests),' but it did not obtain the same dogmatic importance in Buddhism as in Lamaism, where it is looked on as a kind of trinity, representing an essential unity. The first person of this trinity is the Buddha; but he is not the creator, or the origin of the universe; as in Buddhism, he is merely the founder of the doctrine, the highest saint, though endowed with all the qualities of supreme wisdom, power, virtue, and beauty, which raise him beyond the pale of ordinary existence. The second jewel, or the doctrine, is the law or religion—that which is, as it were, the incarnation of the Buddha, his actual existence after he had disappeared in the Nirvâna. The third jewel, or the priesthood, is the congregation of the saints, comprising the whole clergy, the incarnate as well as the non-incarnate representatives of the various Buddhistic saints. The latter comprise the five Dhyâni-Buddhas or the Buddhas of contemplation; also all those myriads of Bodhisattwas, Pratyeka-Buddhas, and pious men, who became canonized after their death. It is obvious that among their number a portion only can enjoy practical worship; but the clergy, as the visible representative of these saints, claim and receive due homage

*The small letters prefixed to the initials of the Tibetan words in this article are not pronounced.

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at all the religious ceremonies. Inferior in rank to these saints are the gods and spirits, the former chiefly taken from the Pantheon of the S'ivaits. The highest position among these is occupied by the four spirit-kings—viz., *Indra* (q.v.), god of the firmament; *Yama*, god of death and the infernal regions; *Yamântaka*, or S'iva, as revenger in his most formidable shape; and *Vais'ravana*, god of wealth. The worship of these saints and gods consists chiefly in the reciting of prayers, and sacred texts, and the intonation of hymns, accompanied with a kind of music, which is a chaos of the most inharmonious and deafening sounds of horns, trumpets, and drums of various descriptions. During this worship, which takes place three times a day, the clergy, summoned by the tolling of a little bell, are seated in two or more rows, according to their rank; and on special holidays, the temples and altars are decorated with symbolical figures, while offerings of tea, flour, milk, butter, and others of a similar nature, are made by the worshippers; animal sacrifices or offerings entailing injury to life being forbidden, as in the Buddhistic faith. Lamaism recognizes especially three great festivals. The *Log gSsar*, or festival of the new year, in Feb., marks the commencement of the season of spring, or the victory of light and warmth over darkness and cold. The Lamaists, like the Buddhists, celebrate it in commemoration of the victory obtained by the Buddha S'âkyamuni, over the six heretic teachers. It lasts 15 days, and consists of a series of feasts, dances, illuminations, and other manifestations of joy; it is, in short, the Tibetan carnival. The second festival, probably the oldest festival of the Buddhistic Church, is held in commemoration of the conception or incarnation of the Buddha, and marks the commencement of summer. The third is the *water-feast*, in Aug. and Sep., marking the commencement of autumn. Baptism and confirmation are the two principal sacraments of Lamaism. The former is administered on the third or tenth day after birth; the latter, generally when the child can walk and speak. The marriage ceremony is to Tibetans not a religious, but a civil act; nevertheless, the Lamas know how to turn it to the best advantage, as it is from them that the bridegroom and bride have to learn the auspicious day when it should be performed; nor do they fail to complete the act with prayers and rites, which must be responded to with handsome presents. A similar observation applies to the funeral ceremonies of the Tibetans. Properly speaking, there are none requiring the assistance of the clergy, for Lamaism does not allow the interment of the dead. Persons distinguished by rank, learning, or piety, are burned after their death; but the general mode of disposing of dead bodies in Tibet, as in Mongolia, is that of exposing them in the open air, to be devoured by birds and beasts of prey; yet the Lama must be present at the moment of

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death, to superintend the proper separation of body and soul, to calm the departed spirit, and to enable him to be reborn in a happy existence. He must determine the auspicious day and hour when, and the auspicious place where, the corpse is to be exposed. The most lucrative part of the business, however, is the masses which he has to perform, until the soul is released from Yama, the infernal judge, and ready to re-enter into its new existence; the doctrine of metempsychosis being the same in this religion as in Buddhism.

One of the most interesting features of Lamaism is the organization of its hierarchy. Its summit is occupied by two Lama popes, one called *Dalai-lama*, i.e., Ocean-priest, or priest as wide as the ocean—he resides at Potala, near H'lassa; the other bearing the titles *Tesho-lama*, *Bogdo-lama*, etc., and officially called *panchhen Rin po chhe*, literally, 'the right reverend great teacher-jewel' (i.e., precious teacher); he resides in the convent at bKra Shiss Lhun po, near gShiss Ka rTse. In theory, both popes have the same rank and authority, in spiritual as well as in temporal matters; but as the Dalai-lama possesses a much larger territory than the other, he is in reality much more powerful. Next in rank are the *Khutuktus*, who may be compared to the Rom. Cath. cardinals and archbishops. The third degree is that of the *Khubilghans* or *Hobilghans*—which Mongol name is more frequently given to them than the Tibetan title *Bjang chhub*—a translation of the Sanskrit *Bodhisattwa*. Their number is very great. These three degrees represent the clergy that claims to be the incarnation of the Buddhistic saints. The Dalai-lama and the Pan-chhen were in their former lives the two chief disciples of the great Lamaist reformer bTsong kha pa, who was an incarnation of the *Bodhisattwa Amitâbha*, or, as some will have it, of *Manjus'ri* and *Vajrapân'i*, and who is reputed to have founded, A.D. 1355 or 57, the present system of the Lama hierarchy. The *Khutuktus* were in their prior existences other Buddhistic saints of very great renown; and the *Khubilghans* are those reborn hosts of saintly patrons whom the temples and convents of Lamaism possess in boundless numbers. Till the end of last century, the clergy of these various classes determined the choice of the children into whose bodies the souls of their departed members had migrated. At present, however, it seems that the emperor of China exercises a paramount influence on the discovery of those transmigrations—in other words, on the filling up of clerical posts—and there can be no doubt that his influence is supreme in the case of determining the election of the two highest functionaries of this theocracy. In order to ascertain the re-birth of a departed Lama, various means are relied upon. Sometimes the deceased had, before his death, confidentially mentioned to his friends where and in which family he would re-appear,

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or his will contained intimations to this effect. In most instances, however, the sacred books and the official astrologers are consulted on the subject; and if the Dalai-lama dies, it is the duty of the Pan-chhen to interpret the traditions and oracles; whereas, if the latter dies, the Dalai-lama renders him the same service. The proclamation of so great an event, however, as the metempsychosis of a Dalai-lama or Pan-chhen is preceded by a close examination of the child that claims to be in possession of the soul of either of these personages. The reborn arch-saint, usually a boy four or five years old, is questioned as to his previous career; books, garments, and other articles, used and not used by the deceased, are placed before him, to point out those which belonged to him in his former life. But however satisfactory his answers be, they do not yet suffice. Various little bells, required at the daily devotions of the Lama, are put before the boy, to select that which he did use when he was the Dalai-lama or Pan-chhen. 'But where is my own favorite bell?' the child exclaims, after having searched in vain; and this question is perfectly justified; for, to test the veracity of the reborn saint, this particular bell had been withheld from him. Now, however, there can be no doubt as to the Dalai-lama or Pan-chhen being bodily before them: the believers fall on their knees, and the Lamas who successfully performed all these frauds join them in announcing the momentous fact.

Besides these three classes of the higher clergy—representing the incarnate existence of departed saints, and chosen, therefore, without regard to merit, among the children of privileged families—Lamaism possesses a lower clergy, which, having no claim to incarnate holiness, recruits its ranks on the principle of merit and theological proficiency. It has four orders: the pupil or novice, who enters the order generally in his seventh or ninth year; the assistant priest; the religious mendicant; and the teacher, or abbot. To these may be added two academical or theological degrees, also two dignities, conferred by the sovereign Lamas on those doctors who have distinguished themselves by extraordinary sanctity or learning. All the members of these orders must make the vow of celibacy, and by far the greater number of them live in convents. A Lamaist convent, *dGon pa*, consists of a temple, which forms its centre, and of a number of buildings connected with the temple, and appropriated to the meeting-rooms, the library, refectory, dwellings, and other spiritual and worldly wants of the monks. At the head of the convent is a Khubilghan, or an abbot, the latter being elected by the chapter, and appointed by the Dalai-lama, or the provincial Khubilghan. In addition to these orders of monks and convents, Lamaism has likewise its nuns and nunneries.

The Lamaist bible bears the name of *bKa' gjur* (pro-

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nounced *Kanjur*)—i.e., 'translation of the words,' *scil.*, of the Buddha. It contains not less than 1,083 works, which in some editions fill 102 to 108 vols. folio. It consists of the following sections: 1. *Dulba* (Skr. *Vinaya*), or discipline; 2. *Shcr phjin* (Skr. *Prajnâpâramitâ*), or philosophy and metaphysics; 3. *Phal chhen* (Skr. *Budbhavata Sangha*), or the doctrine of the Buddhas, their incarnations, etc.; 4. *dKon brTsegss* (Skr. *Ratnakût'a*), or the collection of precious things; 5. *mDo ssDe* (Skr. *Sûtra*), or the collection of *Sûtras*; 6. *Mjang 'dass* (Skr. *Nirvâna*), or the liberation from worldly pains; 7. *rGjud* (Skr. *Tantras*), or incantations, etc. Besides this mass of works, there is a very voluminous collection, the *bss Tan 'gjur*, or the translation of the doctrine, 225 vols. in folio; but it does not seem to possess canonical authority.

The oldest history of Lamaism is shrouded in darkness. For its growth and development under the Mongol and Manju dynasties, see *TIBET*.—The best work on Lamaism is *Die Lamaische Hierarchie und Kirche, von Karl Friedrich Koeppen* (Berlin 1859). See also Hue, *Souvenirs d'un Voyage dans la Tartarie, le Tibet et la Chine* (Paris 1852); and Karl Ritter's *Erdkunde* (vol. IV.); Rockhill, *The Life of Buddha, and the Early History of his Order* (1884); Waddell, *The Buddhism of Tibet* (1895).

LAMAR, *lâ-mâr'*, or LAMAR Y CORTEZAR, JOSÉ: Spanish-American general: b. Cuenca, Ecuador, 1778; d. San José, Costa Rica, 1830, Oct. 11. He went to Spain in his youth, and entering the army there fought against the French at Saragossa. He was ordered to Peru in 1815, and was governor of Callao Castle at the time of its surrender, 1821, Sep. 21. He then joined the revolutionists and in 1824 became marshal. He was elected president of Peru in 1827, caused the deposition of Sucre, president of Bolivia; provoked a war with Colombia, in which he was defeated, and on 1829, June 29, was deposed by his own officers and exiled.

LAMAR, LUCIUS QUINTUS CINCINNATUS: American jurist: b. Eatonton, Putnam co., Ga., 1825, Sep. 1; d. Macon, Ga., 1893, Jan. 23. He was graduated from Emory College (Oxford, Ga.), studied law at Macon, was admitted to the bar in 1847; removed in 1849 to Oxford, Miss., was there professor of mathematics in the University of Mississippi (1850-2), in 1852-5 practised at Covington, Ga., was elected to the Georgia legislature in 1853, and having returned in 1855 to Mississippi, was there elected representative in congress in 1857 and 1859. In 1860, he resigned his seat in congress; drafted Mississippi's ordinance of secession; and was a member of the state convention that passed it 1861, Jan. 9. Chosen lieutenant-colonel of the first Confederate regiment organized in Mississippi, he resigned from military service in 1862, Oct., and in 1863-4 was in

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Europe, whither he had gone as commissioner to Russia, though he did not proceed to his post. After the war he held the chairs of ethics and metaphysics (1866-7) and of law (1867-70) in the University of Mississippi; was a representative in congress (1873-7) and a United States senator (1877-85); and secretary of the interior (1885-8). From 1888 he was an associate justice of the United States Supreme Court. On Apr. 27, 1874, he pronounced before the house a eulogy on Charles Sumner, highly praised for its eloquence and generally for its liberal tone, but so displeasing in that respect to many of his constituency that they endeavored to defeat his re-election. His strong opposition to the debasement or inflation of the national currency caused the Mississippi legislature formally to direct him to renounce either his views or his seat in the senate, both of which he declined to do. He was re-elected to the senate by an increased majority. His oration at the dedication of the monument to John C. Calhoun at Charleston, S. C. (1887), was one of the best of his public addresses. Consult the study by Mayes, including Lamar's speeches (1896).

LAMAR, lâ-mâr', MIRABEAU BUONAPARTE: American politician, second president of the republic of Texas: b. Louisville, Ga., 1798, Aug. 16; d. Richmond, Texas, 1859, Dec. 19. After being employed a number of years in mercantile business and farming, he established in 1828 the *Columbus Inquirer*, a journal devoted to the defense of state rights, and was actively engaged in politics until his removal in 1835 to Texas. Arriving there at the outbreak of the revolution, he at once sided with the party in favor of independence, and participated in the battle of San Jacinto, to the successful issue of which the charge of the cavalry under his command greatly contributed. He was soon after called into the cabinet as attorney-general, a position which he subsequently exchanged for that of secretary of war. In 1836, he was elected the first vice-president of Texas, having for some months previous held the rank of major-general in the army. In 1838, he was elected president, in which office he remained until 1841. Upon the breaking out of war between Mexico and the United States in 1846, he joined Gen. Taylor at Matamoras, and fought at the battle of Monterey. He subsequently stationed himself with an armed force at Laredo, where for two years he was engaged in constant conflicts with the Comanches, whose depredations on the frontier he greatly curtailed. The last public position which he held was that of United States minister to Nicaragua and Costa Rica, from which he had but lately returned when he died. He published *Verse Memorials* (1857).

LAMAR, WILLIAM BAILEY: American politician: b. Jefferson co., Fla., 1853, June 12. He was educated at the University of Georgia and was graduated from the

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Lebanon Law School, Tenn., in 1875. He was admitted to the bar in that year, practised in Tupelo, Miss., 1875-6, and then returning to Florida was clerk of the circuit court of his native county 1877-81, and county judge 1883-6. He entered the Florida legislature in 1886, was attorney-general of his state 1888-1902, and became a member of congress from the 3d Florida district in 1903.

LAMARCK, *lâ-mâr'k'*, JEAN BAPTISTE PIERRE ANTOINE DE MONET, Chevalier DE: distinguished French naturalist: 1744, Aug. 1—1829, Dec. 20; b. of noble family at Barentin, Picardy. He was intended for the priesthood, but preferred the army. An accidental injury, which placed his life in danger, put a stop to this career, and he became a banker's clerk. His first scientific pursuit was that of meteorology, from which he turned to botany, and attempted to introduce a new system of classification, which he called the Analytical System, but which found little acceptance. In 1778, he published his *Flore Française* (3 vols.), afterwards the basis of the work of Decandolle. He was appointed botanist to the king, and tutor to the son of Buffon, with whom he visited foreign countries. After a considerable portion of his life had been given to botany, Lamarck turned to zoology, and 1793 was made prof. of the nat. hist. of the lower classes of animals in the *Jardin des Plantes*. He rendered very important services to this branch of science. His greatest work is *Histoire des Animaux sans Vertèbres* (7 vols., Paris 1815-22; 2d ed. by Deshayes and Milne-Edwards, Paris 1835, etc.). In *Philosophie Zoologique* (2 vols. Paris 1809), and some other works, he expounded speculative views, some of which, in new shapes, and as handled by recent naturalists, have profoundly influenced modern science. Lamarck was one of the first to set forth the theory of the 'Variation of Species,' which was revived by Darwin, and forms such an important element in his theory (see DARWINIAN THEORY). Lamarck was blind in his latter years as a result of small-pox.

LA MARMORA, *lâ-mâr'mo-râ*, ALFONSO FERRERO, Marquis DE: 1804, Nov. 17—1878, Jan.: Italian general and statesman. In 1816 he entered the military acad., which he left 1823 with the grade of lieut. in the artillery. He was speedily promoted to be adjt.-major, and directed his special attention to the improvement of regimental gymnastics. In 1831, having obtained his captaincy, he set out on a tour of inspection of the great military establishments of Europe and the East. In 1845, he became major, and for his distinguished conduct in the national war of 1848, was decorated with the medal of valor. In 1849, he entered the cabinet as minister of war, withdrawing 1855, to assume command of the Sardinian troops in the Crimea, and at the close of the war was invested with the order of the Bath, and

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the grand cross of the Legion of Honor, and re-entered the ministry in his former capacity. He was active in the war of 1859, by which Lombardy was acquired by Italy; in 1861 was appointed commander-in-chief of the Italian army, and in 1864 prime minister. In the campaign against Austria 1866, he lost the battle of Custoza. Latterly he was intrusted with several diplomatic missions.

LAMARTINE, *lâ-mâr-tên'*, ALPHONSE MARIE LOUIS DE PRAT DE: 1790, Oct. 21—1869, Mar. 1; b. Mâcon: French historian, poet, and statesman. In his *Memoirs of my Youth*, he has given us a touching account of the hardships of his family during the Reign of Terror. He was educated principally at the college of the Pères de la Foi, at Belly. On leaving college, he travelled in Italy. After the fall of Napoleon, he entered the army, which, however, he soon quitted, revisiting Italy in 1818. In 1820, appeared his *Méditations Poétiques*. The success of this work helped to open for him a diplomatic career. He was appointed *attaché* to the French embassy at Naples, and on his way thither married, at Chambery, a beautiful and accomplished English lady, Miss Birch, whom he had met the year before in the valleys of Savoy. In 1823, appeared his *Nouvelles Méditations*, and in 1824 he became sec. of the legation at Florence. An unlucky expression which Lamartine had used, descriptive of the Italians, in his *Dernier Chant de Childe Harold* (1825), led to a duel between him and Col. Pepé. Though Lamartine was wounded, the result was not serious. In 1829, appeared the collection of *Harmonies Poétiques et Religieuses*. In the same year he was elected a member of the French Acad. After the revolution of 1830, having failed to procure a seat in the chamber of deputies, he set out 1832 to travel in the East. The death of his only daughter threw a gloom over this period of his life. Receiving news, when at Jerusalem, of his election by the constituency of Bergues, he returned to Paris. Though he soon became a noted speaker in the chamber, he still vigorously pursued his literary studies. In 1835, he published an account of his eastern travels. The *History of the Girondins*, which originally came out in journals, was, 1847, published complete in 8 vols. It had unquestionably much influence in bringing about the great events of the following year. When the revolution took place 1848, Feb., Lamartine became a member of the provisional govt., and minister of foreign affairs, and exercised great influence over the first movements of the new republic. Ten departments elected him as their representative in the constituent assembly; he was also chosen one of the five members of the executive commission, and for some months had immense popularity; while his spirited and patriotic conduct, in crushing the mere anarchic insurrections of Apr. 16 and May 15 prevented great evils. Yet this was one of the principal

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causes of his downfall; the crowd became enraged, the assembly hostile, and the supreme power passed for a brief period into the hands of Cavaignac (q.v.). Though Lamartine was nominated for the presidency, but few votes were recorded in his favor; and the *coup d'état* 1851, Dec. 2, sent him back to private life. From that time he gave himself almost wholly to literary pursuits. His *History of the Revolution of 1848* had appeared 1849. It was followed 1851-2, by *History of the Restoration of Monarchy in France*; 1854, by *History of Turkey*; by the *History of Russia* 1855; *Le Conseiller du Peuple* (1849-50); etc. He also contributed largely to several journals. In 1860, he undertook the publication of a complete ed. (41 vols.) of his works, revised and corrected by himself. He finished this labor 1866. In 1867, a pension was granted him by the government. His *Memoirs* appeared in 1871. Consult the biographies by Pelletan (1869), Janin (1869), Domville (1888), and Deschanel (1893).

LAMASERY, n. *lâ'ma-sér-î*: in Thibet and Mongolia, religious society or congregation presided over by a lama (q.v.).

LAMASOOL, *lām'a-sôl*, or LAMB'S-WOOL: old English beverage, composed of ale and the pulp of roasted apples, with sugar and spices. The name is from the ancient British *La maes abhal*, the day of apples, because this beverage was drunk at a feast on the apple-gathering in autumn.

LAMB, n. *lām* [Icel. and AS. *lamb*; Sw. and Ger. *lamm*, a lamb: Esthon. *lamba*; Fin. *lampaan*, a lamb]: the young of the sheep; also a slang term used in the stock exchange to denote a person who has been deceived into making losing investments. V. to bring forth young, as a sheep. LAMB'ING, imp. LAMBED, pp. *lāmd*. LAMB'KIN, n. *-kīn*, a little lamb. LAMB-LIKE, gentle; innocent. LAMB'SKINS, n. plu. skins of lambs dressed with the fleece on, and often variously colored. LAMB OF GOD, a title of the Saviour. TUP-LAMB, *tūp-* or *tūp-*, a male lamb. EWE-LAMB, a female lamb. *Note*.—The *castrated tup* is a *wether* or *hogget*; the *weaned she-lamb* is a *ewe-hogget*; the *hogget* is called a *shearling* after its first shearing; a *female sheep* after its first lamb is a *ewe*.

LAMB, Lady CAROLINE. See MELBOURNE, WILLIAM LAMB.

LAMB, *lām*, CHARLES: English writer: 1775, Feb. 10—1834, Dec. 27; b. in Crown Office Row, Inner Temple, London, where his father, John Lamb, described as Lovel in the Elian essay on *The Old Benchers*, was clerk and servant to the bencher, Samuel Salt. In 1782, he entered Christ's Hospital, popularly known as the Blue Coat School, described in two of Lamb's essays, where he remained until 1789. Here he formed the friendship with

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Coleridge, which continued until the latter's death five months before Lamb's. In 1791, Lamb received an appointment in the South-Sea House, described in the first of *The Essays of Elia*, and in 1792, he entered the accountant's office of the East India House, where he remained in faithful service until his retirement on a generous pension in 1825. In 1796, occurred an event that affected the whole subsequent course of his life. His older sister Mary in an attack of madness stabbed her mother to the heart. Mary Lamb was confined for a time in an asylum and on her release returned to Charles, who pledged himself to be responsible for her future actions. The lifelong devotion of Lamb to his sister is in striking contrast to the indifference of the elder brother John. Lamb's failure to marry was not, however, wholly due to this claim, as the recent discovery of a letter to the actress Miss Fanny Kelly, containing a proposal of marriage, clearly proves. Partly as a result of Mary Lamb's affliction the Lamb's occupied a number of different homes in London and the suburbs, the last residence being at Edmonton, where the brother and sister lie buried. Mary Lamb died 1847, May 20. Lamb was blessed with a host of friends, with whom he kept up a voluminous correspondence, in which may be found the germs of many of his essays. As a letter writer Lamb ranks very high. Although Lamb often complained of the encroachment on his spare leisure by his friends and acquaintances, he never denied himself to any applicant, especially if the latter were unworthy in the eyes of the world. To those in distress he was always ready with comfort or material assistance, both of which were rendered with a careful shrinking from publicity. In spite of his generosity Lamb was a good manager, and from his salary accumulated a considerable sum for the future support of his sister. As reference is often made to Lamb's intemperance, apparently his only serious fault, it should be noted that he lived at a time when this weakness was not judged as severely as it is now, that he was easily affected by alcohol and that the circumstances of his life exposed him to frequent temptation. It cannot be denied that Lamb often drank to excess, but it is quite beside the mark to apply the statements of *The Autobiography of a Drunkard* to the author's own case. The cause of Lamb's death was erysipelas, resulting from a fall.

Lamb's first appearance in book form was in a volume of poems by Coleridge (1796), to which he contributed four sonnets. Other poems were added in the second edition. In 1798, he published *A Tale of Rosamund Gray* and *Old Blind Margaret*, and in company with his friend, Charles Lloyd, a volume of *Blank Verse*. In 1802, followed *John Woodvil*, a drama in the Elizabethan style, which was caustically reviewed by Jeffrey in the *Edinburgh Review*. His one acted play, *Mr. H.*, a farce

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(1806), was unsuccessful, being performed only once in London, though it was occasionally presented in this country. *Tales from Shakespear*, in collaboration with his sister, appeared in 1807, and in the following year *Specimens of English Dramatic Poets; The Adventures of Ulysses*; and *Mrs. Leicester's School*, the last, which is dated 1809, being largely Mary Lamb's work. In 1818, the *Collected Works* were published in two vols. Two years later Lamb began the publication of *The Essays of Elia*, upon which his fame chiefly rests. The first of these essays, *The South-Sea House*, appeared in the recently established *London Magazine* for August, 1820, and the first series was published in 1823. It was followed in 1833 by a second series, which includes the *Popular Falacies*. In spite of the interest that these essays had aroused on their publication in periodical form, neither volume appeared in a second edition until after the author's death. They were wholly ignored by most of the reviews and their popularity seems to have been started by the publication in 1837 of Talfourd's *Letters of Charles Lamb, with a Sketch of his Life*, which was followed in 1848 by the *Final Memorials*. Lamb's essays are so intimately connected with his own experiences that a key such as is furnished by these works seems necessary to their full appreciation.

By all modern critics Lamb is recognized as the most charming and original English essayist of the 19th c. In the qualities of grace, quaintness, and a certain tenderness of humor, 'a smile on the lip, and a tear in the eye,' the *Essays of Elia* are unique; the author is reflected in them with all his whims, his wit, his poetic instinct, his charity, and his odd ways. 'It is the man, Charles Lamb, that constitutes the enduring charm of his written words.' Lamb occupies a very high place also as a literary critic. The notes to the *Specimens* and many detached essays, notably those on Hogarth and the acting of Shakespeare's plays, constitute a body of critical work that is unsurpassed for insight and sympathy. Lamb displayed a rare aptitude for detecting the fine qualities of a poet. To a marked degree he is the critic of appreciation. With books as with men, he always strove to find the good. Only occasionally does he allow his personal prejudice to obscure his critical vision, as in his failure to recognize the genius of Goethe, Byron, and Shelley. See Ainger, *Charles Lamb* (1888); Lucas, *The Life of Charles Lamb* (2 vols. 1905). The most complete edition of the work, superseding Ainger's, is Lucas' (7 vols., including the letters). Of the many separate editions of *The Essays of Elia*, the most satisfactory is *The Temple*.

LAMB, JOHN: 1735, Jan. 1—1800, May 31; b. New York: soldier. He was associated with his father as optician and manufacturer of mathematical instruments; took part in Montgomery's expedition against Quebec

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and the chief military movements in N. Y. in the early portion of the revolutionary war; was col. of artillery under Gen. Knox; and served with credit to the close of the war. After the war he became a member of the N. Y. legislature, and collector of customs at New York.

LAMB, MARTHA JOANNA READE (NASH): 1829, Aug. 13—1893, Jan. 2; b. Plainfield, Mass. She received a superior English education and became an accomplished linguist; was married to Charles A. Lamb 1852; was a founder of the Home of the Friendless and Half-orphan Asylum, and sec. of the sanitary commission fair in Chicago 1863; settled in New York and engaged in literary work 1866; and became editor of the *Magazine of American History* 1883. She also published numerous juvenile and historical works, notably *History of the City of New York*, 2 vols. (1866-81); *The Homes of America* (1879); *Wall Street in History* (1883); *The Christmas Owl* (1881); *Snow and Sunshine* (1882); etc. She was a member of many historical societies in Europe and America.

LAMB, WILLIAM, Lord MELBOURNE. See MELBOURNE.

LAMBALLE, *lǒng-bâl'*, MARIE THÉRÈSE LOUISE DE SAVOIE-CARIGNAN, Princess DE: victim of the French Revolution: 1749, Sep. 8—1792, Sep. 3; b. Turin; daughter of Prince Louis Victor Amadeus of Carignan. She was very beautiful and amiable, and was married, 1767, to Louis Alexander Joseph Stanislaus de Bourbon, Prince of Lamballe, who soon died, a victim of debauchery. The princess became the intimate friend and chosen companion of Marie Antoinette. At the time of the attempted flight of the king and queen, she sought refuge in England, but returned to them 1792, Feb. After the events of Aug. 10 she received permission to share the captivity of the queen, but was soon separately immured in the prison of La Force, Sep. 3 was brought before the tribunal, and commanded to swear that she loved liberty and equality, and hated the king, the queen, and royalty. 'The first oath,' she replied, 'I will swear, but the rest I cannot: my heart rebels against it.' Many of those who stood by were anxious that she should escape, but she did not hear the advices which they addressed to her. 'Let madame go!' said the president at last; and at this signal of death, by being delivered to the fury of the populace, two men conducted her to the door, where she received a stroke of a sabre on the back of her head, when blood spouted up, and her long hair fell down. On receiving a second stroke, she fell, and the mob of murderers tore her body to pieces, placed her head and heart upon pikes, and paraded them before the windows of the Temple, where the royal family were confined.

LAMBAYEQUE, *lâm-bî-â'kâ*: town of Peru, in the dept. of Libertad, near the mouth of the river Lambayeque, 425 m. n.w. from Lima. It is about 5 m. from

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the sea; but has some trade, though its roadstead is very bad, and fully a m. from the shore. Lambayeque has a church and several chapels. It has manufactures of cotton fabrics. Pop. 9,000.

LAMBDOIDAL, a. *läm-doyd'äl*, or LAMB'DOID, a. *-doyd* [from Gr. letter (Λ) lambda, and *eidos*, shape]: having the form of the Greek letter Λ ; in *anat.*, applied to one of the cranial sutures.

LAMBEAUX, *läm-bō'*: a cross, in heraldry; formed in the upper like a cross pattée, but with the lower limb not widened, but terminating in a label of three points, 'having,' according to Sylvanus Morgan, 'a great deal of mystery in relation to the top, whereon the first-born Son of God did suffer, sending out three streams from his hands, feet, and sides.

LAMBENT, a. *läm'bënt* [L. *lamben'tem*, licking]: playing about like flames; touching lightly; gliding over.

LAMBERT, *lam'bért*, ALEXANDER: American pianist: b. Warsaw, Poland, 1862, Nov. 1. He studied in early life with his father, and on the advice of Rubinstein was sent to the conservatory at Vienna, where he graduated in 1880. In 1881, he gave a series of concerts in New York, which he repeated the next season through Germany and Russia. After studying for a while under Liszt he returned (1884) to the United States and in 1888 became director of the New York College of Music, a position which he still holds. He is author of many compositions, but is best known as a teacher. He has written *Systematic Course of Studies* (1892).

LAMBERT, JOHANN HEINRICH: 1728, Aug. 29—1777, Sep. 25; b. Mühlhausen, Upper Alsace: philosopher and mathematician. He was son of a poor tailor; but his talents and application to study having gained him friends, he obtained a good education, and made remarkable progress in mathematics, philosophy, and oriental languages. He obtained a situation as clerk in an office, and gradually rose, till Frederick the Great, 1764, summoned him to Berlin, and made him a member both of the Council of Architecture and the Acad. of Sciences. He died at Berlin, leaving the renown of the greatest analyst in mathematics, logic, and metaphysics that the 18th c. had produced. He was the first to lay a scientific basis for the measurement of the intensity of light, in his *Photometria* (Augsb. 1760), and he discovered the theory of the speaking-tube. In philosophy, and particularly in analytical logic, he sought to establish an accurate system by bringing mathematics to bear on these subjects, in his *Neues Organon, oder Gedanken über die Erforschung und Beziehung des Wahren* (2 vols. Leip. 1764). Of his other works, we may mention his *Kosmologische Briefe über die Einrichtung des Welt-haus* (Augsb. 1761), and his correspondence with Kant.

LAMBERT—LAMBERTVILLE.

LAMBERT, *lăm'bért*, JOHN: English parliamentary general: 1619, Sep. 7—1692; b. Kirkby-Malhamdale, Yorkshire. On the outbreak of the civil war he became a captain under Fairfax. He fought at Marston Moor, at Naseby, in Scotland, and at Worcester, but did not acquire importance till after the death of the great Protector, when he became the head of the cabal of discontented officers who overthrew the feeble administration of Richard Cromwell. Lambert was now deemed the leader of the Fifth Monarchy or extreme republican party; he suppressed, with considerable vigor, the royalist insurrection in Cheshire, 1659, Aug.; and two months afterward, dismissing the remnant of the Rump Parliament, virtually governed the country with his officers under the title of the 'Committee of Safety.' For a brief period, his position was considered so important that Charles II. was advised to make terms with him by marrying his daughter. The counterplot of Monk, however, frustrated all his designs; and Apr. 22 he was taken prisoner by a Col. Ingoldsby, tried 1662, and banished to the isle of Guernsey, where he died.

LAMBERT, LOUIS A., LL.D.: American Roman Catholic clergyman: b. Charleroi, Pa., 1835, Apr. 13. He was educated at St. Vincent's College, Pa., and the archdiocesan seminary, St. Louis, and was ordained to the priesthood in 1859. He was chaplain in an Illinois regiment during the civil war, was pastor at Cairo, Ill., 1863-9, and subsequently at Seneca Falls and Waterloo, N. Y.; founded the *Catholic Times* in 1874, and was its editor till 1880, and has been editor-in-chief of the *New York Freeman's Journal* since 1894. He has published *Thesaurus Biblicus*; *Notes on Ingersoll*; *The Christian Father*; etc.

LAMBERTON, JOHN PORTER, A.M.: American editor and author: b. Philadelphia, 1839, Oct. 22. He was graduated from the University of Virginia in 1858, and after teaching, 1859-80, became an assistant in the library of the University of Pennsylvania. He was associate editor of the American Supplement to the *Encyclopædia Britannica* 1881-90, reviser to Webster's Dictionary 1891-5, and has edited *Historic Characters and Famous Events* (12 vols. 1894-6); *Literature of All Ages* (10 vols. 1897-9); *Literature of the 19th Century* (1900); etc.

LAMBERTVILLE, *lăm'bért-vīl*: city in Hunterdon co., N. J., on the Delaware river and the Belvidere div. of the Pennsylvania railroad; 14 m. above Trenton, 44 m. from Philadelphia, 71 m. from New York. It has excellent water power for its manufactures, which comprise rubber, iron foundry products, cotton, paper, rope and twine, flour, lumber, and railroad cars. It contains a public library, graded public schools, churches, banks, etc. Named after Gov. John Lambert (1748-1823), the

LAMBETH ARTICLES—LAME.

city was first incorporated in 1849, and is governed under a charter granted in 1874. Pop. (1910) 5,000.

LAMBETH ARTICLES: Calvinistic symbol, intended as an appendix to the 39 articles of the Anglican Church; adopted by a conference called by the Abp. of Canterbury at Lambeth, and approved by him 1595, Nov. 20. A discussion on predestination had arisen at Cambridge Univ.—Prof. Cartwright and Dr. Whitaker, Regius prof., with others, favoring the high Calvinistic view which some as strongly opposed. The Calvinist party, led by Whitaker, drew up articles which they submitted to Abp. Whitgift, who summoned for consultation some of the bishops, with Tyndall, dean of Ely, and other learned men, including the Cambridge divines. The result was the Lambeth Articles, nine in number, the same submitted by Whitaker, though slightly softened. Queen Elizabeth, offended at such a step taken without her permission, severely censured the abp. and ordered the suppression of the articles. In 1604, Dr. Reynolds presented the Lambeth Articles at the Hampton Court Conference (q.v.), requesting the addition of them to the 39 articles. The Lambeth Articles are of value only as a theological curiosity, but their adoption is of great interest as a historical land-mark showing the strength of Calvinism in the Anglican Church of that day. The following extracts show their tenor: '1. God from eternity predestinated certain persons unto life, and reprobated certain persons unto death.' '2. The moving cause of predestination to life is not the foresight of faith, . . . but the alone will of God's good pleasure.' '3. The predestined are a predetermined and certain number, which can neither be lessened nor increased.' '7. Saving grace is not allowed, is not imparted, is not granted to all men, by which they may be saved if they will.' '8. . . . all men are not drawn by the Father that they may come to His Son.' '9. It is not in the will or power of every man to be saved.'—For once, at least, the queen's arbitrary interference, which so often damaged the church in England, seems to have wrought for saving it from too strict a regulation of the eternal Divine government, which, however well-meant, involved a denial of God's grace revealed in Scripture.

LAMBREQUIN, *lăm'bër-kĭn*: term used in heraldry in three senses: 1. The mantling attached to the helmet, and represented as depending over the shield (see **MANTLING**); 2. A wreath (q.v.); 3. The point of a label (see **LABEL**).—The word designates also a short curtain or decorated draping depending from a window cornice, or from a mantel.

LAMB'S LETTUCE. See **CORN SALAD**.

LAME, a. *lām* [Dan. *lam*, weak, palsied: Icel. *lami*, enfeebled, impaired; *lama*, to bruise, to weaken: Ger. *lahm*, lame]: disabled in a limb, especially a leg; imper-

LAMELLA—LAMELLICORNES.

fect; not satisfactory, as a reason or excuse: V. to make lame; to cripple or disable, especially in the legs. LA-MING, imp. LAMED, pp. *lāmd*. LAME'LY, ad. -*lī*, in a lame manner; like a cripple. LAMENESS, n. *lām'nēs*, state of being lame; an impaired or weakened state of a limb. LAMISH, a. -*īsh*, rather lame. LAME DUCK, a slang term, applied to a member of the stock exchange who has failed to meet his engagements.

LAMELLA, n. *lā-mē'lā*, LAMEL'LÆ, n. plu. -*lē* [L. and It. *lamella*; F. *lamelle*, a small plate of metal—from L. *lamīna*, a plate, a leaf]: thin plates or scales, as those composing certain shells or parts of fungi, or which are appended to the corolla of certain plants; in *bot.*, the gills of an agaric. LAMEL'LAR, a. -*lēr*, consisting of or disposed in thin plates or scales. LAM'ELLARLY, ad. -*lī*. LAMELLATE, a. *lām'ēl-lāt*, or LAM'ELLATED, a. composed of very thin plates or scales; foliated.

LAMELLIBRANCHIATE, a. *lām'ēl-lī-brāng'kī-āt* [L. *lamella*, a small plate of metal; Gr. *brangchia*, gills]: having gills in symmetrical layers, as the bivalve mollusks. LAM'ELLIBRANCHIA'TA, n. plu. -*brāng-kī-ā'tā*, class of acephalous mollusks, all of which have bivalve shells (see BIVALVES), and which respire by gills in the form of vascular plates of membrane attached to the inner surface of the mantel. Oysters, cockles, and mussels are familiar examples. The *adductor* muscle, which closes the shell, is single in some, double in the greater number. More important differences exist in the powers of locomotion possessed by some, and denied to others. Thus, oysters are fixed to one spot by one of the valves of the shell; but most of the lamelibranchiate have the power of moving by swimming, leaping, or burrowing in sand, sometimes in more than one of these ways, being provided for this purpose with a fleshy muscular organ called the *foot*. Some, as mussels, when they have found a suitable place, fix themselves there by a *Byssus* (q.v.). The mouth of the lamelibranchiate is jawless and toothless, and all seem to depend for their food on the currents of water continually brought by the ciliary action into the mouth. They all seem more or less sensible to light, and numerous small red spots on the edge of the mantle of some are supposed to be eyes. They have organs of hearing, and labial tentacles, which are supposed to exercise the sense of smell. See PALEONTOLOGY.

LAMELLICORNES, *la-mēl-lī-kawr'nēs*: very numerous family of coleopterous insects, section *Pentamera*, containing the largest of the beetles, as well as many species remarkable for peculiar conformations of the head and thorax. The three last joints of the antennæ are flattened into lamellæ, disposed sometimes like leaves of a fan, sometimes like teeth of a comb. Many of the lamellicornes feed on decaying animal or vegetable matter, but some on leaves or flowers; the latter are gener-

LAMELLIFEROUS—LAMENNAIS.

ally of brilliant metallic colors; the former, black or brown. The larvæ are soft, cylindrical, with six small legs, and the body always curved. Dung-beetles, stag-beetles, cock-chafers, etc., belong to this family.

LAMELLIFEROUS, a. *lăm'ěl-îf'ër-ūs* [L. *lamella*, a small plate of metal; *fero*, I bear]: having a foliated structure.

LAMELLIFORM, a. *lăm-ěl'î-fawrm* [L. *lamella*, a small plate of metal; *forma*, shape]: having the form of a scale.

LAMELLIROSTRAL, a. *lăm'ěl-î-rös'träl* [L. *lamella*, a small plate of metal; *rostrum*, a beak]: having the margins of the beak furnished with plates, as in the duck and goose. LAMELLIROS'TRES, in the system of Cuvier, large group of web-footed birds (*Palmipedes*), distinguished by a thick bill having tooth-like *lamellæ* at its edges, apparently more for the purpose of straining water from the food than of masticating or comminuting it. The *Anatidæ* and *Mergidæ* (ducks, swans, geese, goosanders, and mergansers) constitute the group.

LAMENNAIS, *lä-mā-nā'*, HUGUES FÉLICITÉ ROBERT DE: celebrated French politico-religious writer: 1782, June 6—1854, Feb. 27; b. St. Malo; of a family engaged in the shipping trade. With the exception of some instruction in Latin from his elder brother, Lamennais was, owing to the revolutionary troubles, almost entirely self-taught. His early turn of thought was strongly religious, as well as literary; and resisting all his father's efforts to fix him in commercial life, he received an appointment as teacher of mathematics in the college of his native town, 1807. His first work, published in the next year, *On the State of the Church in France during the 18th Century*, is in a strain of high orthodoxy against the materialistic philosophy of the 18th c. which still held influence in literature. A few years later—having taken the clerical tonsure—Lamennais produced, with his brother, a treatise *On the Tradition of the Church on the Institution of Bishops*, which arose out of the conflict of Napoleon with the Holy See as to the affairs of the church in France. During the Hundred Days, he fled to England, where he was received by the celebrated Abbé Caron; and on his return to France, he entered the seminary of St. Sulpice, where he received priest's orders 1816. A year afterward, he published his most celebrated work on the side of orthodoxy, *An Essay on Indifference in Religion*, a work of exceeding acuteness, and of great learning and brilliancy. The celebrity which this work won for Lamennais led to a design on the part of Pope Leo XII. to promote him to the cardinalate—an honor which Lamennais is said to have refused. Lamennais's political views, from the first moment of the Restoration, had been liberal. Nevertheless, he joined himself to a powerful and active section of the most

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distinguished members of the royalist and church party --Chateaubriand, De Bonald, Frayssinous, and others, whose organ was a journal, the *Conservateur*, and afterward the *Defenseur*, and the *Drapeau Blanc*; but Lamennais rapidly outstripped the views of most of his colleagues. He was fined 1824 for a work *On the Relations of Religion and Politics*. After the revolution of 1830, while he adopted in its fullest sense the doctrine of the sovereignty of the people, he continued a zealous adherent of the faith of the church; and, with a number of ardent young friends, all of whom subsequently rose to distinction in their various lines—Montalembert, Lacordaire, Gerbet, and others—he established a journal, *L'Avenir*, aiming to reconcile liberty and religion. The doctrines of this journal on the separation of church and state and on many other popular topics, gave grave offense to the ecclesiastical authorities. They were censured by Pope Gregory XVI. 1832; and Lamennais, in obedience to the papal sentence, discontinued his journal, and professed his future submission to authority; but from this date his opinions underwent a rapid change, and in a work which he published 1834, and which obtained an immediate and unprecedented popularity in France, *Paroles d'un Croyant*, proclaimed his complete and irreconcilable rupture with the church of which he had long been the champion. The work was immediately condemned at Rome; but it passed in France through innumerable editions, and was translated into all the languages of Europe; and the author's reply to the papal condemnation was in a still more pointedly aggressive work, 1836, *Affaires de Rome*. With his characteristic impetuosity, he now threw himself into the arms of the opposite party. His successive publications, *The Book of the People* (1837), *The Country and the Government* (1840), *On Religion* (1841), *The Guide of the First Age* (1844), *A Voice from Prison* (1846), were but so many new utterances of extreme democratic principles. The revolution in his religious sentiments was equally decisive and complete; he ceased to be not merely a Romanist, but even a believer. In his last illness, he declined all ministrations of the church, and at his death, he gave directions that his interment should be without funeral rites. He also directed, by his will, that certain papers which he left ready for press should be published without alteration; and on the refusal of his niece to surrender these papers, a suit-at-law was instituted, which terminated in an order for the surrender of the papers; and his *Posthumous Works* were published accordingly 1855-59. The most elaborate work of Lamennais's latter period is his *Esquisse d'une Philosophie* (4 vols. 1840-46).

LAMENT, v. lă-měnt' [F. *lamente*, to bewail—from L. *lamentāri*, to lament, or bewail: L. *lamentum*, a mournful cry: It. *lamentare*]: to utter a mournful cry; to grieve; to weep or wail; to bewail; to mourn for: N.

LAMENTATIONS OF JEREMIAH—LAMINA.

sorrow audibly expressed; an expression of sorrow; lamentation. LAMENT'ING, imp.: N. a mourning; lamentation. LAMENT'ED, pp. a. bewailed; mourned for. LAMENTATION, n. *lām'ěn-tā'shŭn* [F.—L.]: sorrow or grief audibly expressed; outcry. LAMENTABLE, a. *lām'ěn-tā-bl* [F.—L.]: to be lamented; mournful; expressing sorrow; pitiful. LAM'ENTABLY, ad. *-blŭ*, with expressions or tokens of sorrow; so as to cause sorrow; pitifully. LAMENT'INGLY, ad. *-lŭ*.—SYN. of 'lament, v.': to deplore; mourn; complain; murmur; repine; regret.

LAMENTATIONS OF JEREMIAH (*Megillath Echa*; lxx. *Thrēnoi*): one of the canonical books of the Old Testament, containing laments over the desolation of the land, the exile of the people, the destruction of the first temple, the fall of the kingdom of Judah, and the writer's own woes. These laments, five in number, are closely connected in their subject matter; but diversity of opinion exists concerning their artistic relation to each other. Some, as De Wette, Ewald, and Keil, have tried to show that they are really parts of one poem; others, as Eichhorn and Bertholdt, that they were originally quite independent and isolated elegies; while a third party, as Lowth and Davidson, hold that there is a certain pervading harmony of sentiment and idea, indicating, probably, that they were composed by the poet-prophet under the same condition of religious feeling. The structure of the laments is very artificial. Most critics are satisfied, from internal evidence, that the tradition which makes Jeremiah their author is worthy of credence, and that they were all written by him shortly after the destruction of Jerusalem.

LA METTRIE, J. O. DE: b. 1709; d. 1751: a French physician who expounded a materialistic philosophy which brought him into such disrepute as to compel his leaving the country. He finally was welcomed at the court of Frederick II. at Berlin, with whom he remained until his death.

LAMIA, n. *lā'mĭ-ā* [L. supposed to be the feminine form of *Lamus*, King of the Læstrygones]: a kind of fiend in some ancient mythology, under the form of a beautiful woman, prototype of the modern vampire: a witch; a hag.

LAMINA, n. *lām'ĭ-nā*, LAM'INÆ, n. plu. *-nē* [L. *lamĭnā*, a plate, a leaf]: a thin plate or scale; a thin layer or coat lying over another; in *bot.*, the blade of a leaf; the broad part of a sepal or petal. LAM'INAR, a. *-nēr*, consisting of, or resembling, thin plates or scales. LAM'INATE, v. *-nāt* [mid. L. *laminātus*, laminated]: to form into thin plates: ADJ. formed of thin plates disposed one over another; plated. LAM'INATING, imp. LAM'INATED, pp.: ADJ. consisting of plates or layers disposed one over another; applied to strata splitting up into thin layers. LAM'INABLE, a. *-nā-bl*, capable of being

LAMINITIS—LAMMERGEIR.

beaten or rolled into plates. LAM'INA'TION, n. -nā'shŭn, state of being laminated; condition which allows of cleavage in one direction only; natural arrangement of rocks of a large proportion of the earth's strata in thin layers or laminæ. Shale deposits exhibit this structure very plainly, being frequently easily separable into the thin laminæ in which they were originally deposited. Shale is the fine sediment that settles at the bottom of tranquil or slightly moving water. The laminæ indicate interruption in the supply of the materials, which may have been occasioned by successive tides, by frequent or periodical floods, or by the carrying medium having access to a supply of different material, passing, e.g., from mud to sand, and back again to mud. The laminæ of the brick-clay deposits are separated, in many places, by the finest sprinkling of sand, almost invisible in the vertical sections. The layers are occasionally obvious, from their being of different shades of color, often produced by the bleaching of the layers when they were deposited; but frequently the various laminæ of a bed are so united, and the bed so homogeneous, that except when the face is exposed to weathering, the laminated structure is not visible. This condition appears to have resulted from the shortness of the interruptions in the deposit not permitting the solidification of any of the layers until all was deposited, when the whole set cohered as a single bed. LAMINATED PLATES, wrought-iron or rolled steel plates in which the several layers are imperfectly united. They are very apt to blister when used for boiler plates. LAMINARIAN, a. lām'ī-nā'rī-ān, pertaining to sea-weeds of the genus LAM'INA'RIA, -rī-ā; pertaining to that belt or zone of marine plant-life which begins at low-water mark, and extends to a depth of 40 to 90 ft. (see TANGLE). LAM'INARITES, n. plu. -nār-ītz, in *geol.*, broad-leaved fossil algæ. LAM'INIF'EROUS, a. -nāf'ēr-ūs [L. *fero*, I bear]: having a structure consisting of plates or layers.

LAMINITIS. See FOUNDER.

LAMMAS, n. lām'mās [AS. *hlafmæsse*, the loaf mass or feast—from *hlaf*, a loaf; *mæsse*, a mass—*lit.*, the loaf mass]: offering of the first-fruits of the harvest on Aug. 1—so named because a loaf of bread was offered: the first day of August, called also LAMMAS-DAY or LAMMAS-TIDE, one of the cross quarter-days, or half-quarter days, in England, being the feast of St. Peter ad Vincula. In Scotland, it is the practice with farmers to pay the half year's rent due at Whitsunday on Lammas-day.

LAMMERGEIR, or LAMMERGEYER, n. lām'ēr-gīr [Ger. *lammergeier*—from *lamm*, a lamb; *geier*, a vulture], (*Gypaëtus barbatus*): large bird of prey, called also BEARDED VULTURE, BEARDED GRIFFIN, and GIER-EAGLE. It is the only known species of a genus which forms a connecting link between vultures and eagles, though com-

LAMMERMOORS—LAMONT.

monly ranked among the *Vulturidæ*, to which it approaches most nearly. The full-grown lammergeir is of a shining brownish black on the upper parts, with a white stripe along the shaft of each feather; the head is whitish, with black stripes at the eyes; the neck and under-part of the body are rusty yellow. It is 4 ft. high when sitting; nearly 5 ft. long; and 9 to 10 ft. in expanse of wing. It is very bold and rapacious, swooping down on hares, lambs, young goats, chamois, etc., and sometimes carrying off children. It lives on animals newly killed, eating carrion only when pressed by necessity. It was once common in the Alps, but is now rare. It is found also in the Pyrenees, and in the mountains of Asia, S. America, and n. Africa, and soars high above the loftiest peaks.

LAMMERMOORS, *lām-cr-môrz'*: range of low hills in Scotland, running e.n.e. for one-half of their length on the boundary-line between E. Lothian and Berwickshire, the other half lying in the s.e. corner of E. Lothian and forming, where it meets the German Ocean, a bold, rocky, and dangerous coast. The Lammermoors send off several minor ranges southward into Berwickshire. The highest hills are Lammer Law (1,728 ft.) and Spartleton (1,534 ft.).

LAMNA, n. *lām'nă*, plu. LAMNÆ [L. *lamna*, a thin plate; or Gr. *lamnē*, a large sea-fish]: group of sharks having thin, sharp, plate-like teeth, sigmoidally curved and not serrated: it includes the mackerel shark or green-back shark, and the *man-eater* of American coasts. LAM'NIDÆ, family of sharks, including *Lamna* and *Carcharodon*.

LAMON, *lā-mōn'*, BAY OF: a landlocked bay on the eastern (Pacific) coast of Luzon, Philippines, dividing the southeastern peninsula from the main part of the island. The island of Alabat and smaller islands make an inner bay on the south. The bay is bounded by the provinces of Infanta, Laguna, and Tayabas, on the south and west, and by the provinces of Tayabas and Ambos Camarines (Norte) on the south and east. On the north-west coast of the bay is the port of Lampón, Infanta, which was important in the latter part of the 16th c. and the 17th c. as the harbor of the Spanish galleons between Manila and New Spain, it being thought a safer way of communication than the straits of San Bernardino.

LAMONT, DANIEL SCOTT: American politician: b. Cortlandville, N. Y., 1851, Feb. 9; d. Millbrook, N. Y., 1905, July 23. He was educated at Union College, entered journalism at Albany, became a political correspondent, in 1883-9 was private secretary to Grover Cleveland, was later in business, and in 1894-7 was secretary of war in Cleveland's second administration. In 1897 he was elected vice-president of the Northern Pacific Railway Company.

LA MONTAIGNE—LAMP.

LA MONTAIGNE, *lâ mǒn-tān'*, F. *lâ mōng-tān'*, JOHANNES: b. France: physician. He emigrated to New Amsterdam a short time prior to the arrival of Director Wilhelm Kieft (1638, Mar. 28), and was appointed by the director his councilor. When Kieft determined to make war on the Indians, La Montaigne joined Dominie Bogardus in warning him against the scheme; but the director was immovable, and many Indians at Pavonia and Corlaer's Hook were massacred in their sleep by Kieft's orders 1643, Feb. 25. In 1644, La Montaigne was one of three commanders of the expedition appointed to exterminate the Canarsee Indians on Long Island, and witnessed the flaying alive of one of two prisoners taken to Fort Amsterdam. In 1645, May, he was one of the signers of the treaty with the Indians, and 1652 after Director Stuyvesant had established a municipal government, he was appointed teacher of the first school.

LAMORICIÈRE, *lâ-mo-re-se-är'*, CHRISTOPHE LÉON LOUIS JUCHAULT DE: French general: 1806, Feb. 5—1865, Sep.; b. Nantes. He studied at the Ecole Polytechnique, and after the revolution of 1830, went to Algeria as lieut. of engineers. In 1833, he became chief of the battalion of Zouaves; 1835, lieut.col.; 1837, col. He particularly distinguished himself at the siege of Constantine. In 1843, he was appointed gen. of division; in the following year, commander of the Legion of Honor; and 1845, interim-gov. of Algeria. To him belongs the glory of concluding the war in Africa, where he had made no fewer than 18 campaigns, by forcing Abd-el-Kader to surrender 1847. On the outbreak of the revolution 1848, Feb., he nearly lost his life in endeavoring to proclaim the regency of the Duchess of Orleans. In 1848, June, he commanded the attack on the barricades, and quelled the anarchic tumults of the Socialists. He was war-minister during the govt. of General Cavaignac, to whose republican party he afterward attached himself in the legislative chamber; but being a very decided opponent of the schemes of Louis Napoleon, he was arrested on the occasion of the *coup d'état* of 1851, Dec. 2, and at first imprisoned in Ham, but afterward conveyed out of France and set at liberty. During his exile in Germany, Belgium, and England, the great soldier became *devout*, as his countrymen phrase it; and when the Italian war of independence threatened the safety of the pope, Lamoricière proceeded to Rome 1860, and was appointed by Pius IX. commander of the papal troops. He was compelled to surrender with his whole force to the Sardinian general, Cialdini, at Ancona.

LA MOTTE FOUQUÉ'. See FOUQUÉ.

LAMP, n. *lāmp* [F. *lampe*—from L. and Gr. *lampas*, a torch—from Gr. *lampō*, I shine]: an article for containing oil and a wick to give light; any contrivance for

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giving light. LAMP'LIGHT, n. -*līt*, the light given by a lamp. LAMP'LIGHTER, n. -*līt-ēr*, the person employed to light the public lamps. LAMP'IC, a. -*īk*, of or from a lamp; denoting the acid called also aldehydic acid. LAMP-SHELL, a bivalve, deep-water shell-fish, so called from its shape. SAFETY-LAMP (see that title).—Lamps in the most primitive ages were probably skulls of animals, in which fat was burned; and certain sea-shells formed admirable lamps for those to whom they were attainable. To this day, there may occasionally be seen suspended in the cottages of Zetland, shells of the 'roaring buckie' (*Fusus antiquus*: see FUSUS), perhaps the most ancient kind of lamp now in use.

When pottery and metal began to be used, the principle of these natural lamps was long retained, as seen in ancient Egyptian, Greek, and Roman lamps (fig. 1), and in the stone cups and boxes of northern nations. The invention of lamps has been attributed to the Egyptians, but it is far more probable that they received it from the older civilization of India. Herodotus



Fig. 1.

(ii. c. 62) reminds us of the Chinese feast of lanterns, by speaking of the feast of lamps at Saïs, in Egypt. Such lamps as that in fig. 1 were called *lychna* by the Greeks, and *lucernæ* by the Romans, and various modifications of the form are frequently found in the ruins of Greek and Roman cities; considerable numbers have been obtained from the excavations of Tarsus and of Pompeii and Herculaneum. The principle in all is the same. At first, these *lucernæ* were made of unglazed pottery, and only with one wick-hole; but better material and more elaborate forms were introduced, and their light-giving power was increased by their being made to hold several wicks, from two to twelve. The wick in this lamp was generally made of flax-tow, sometimes, however, of rushes and other vegetable fibres.

Among the northern nations of antiquity, lamps were in use, but the difference of climate necessitated a different kind of lamp. The limpid oils of the present day were unknown to our Celtic and Saxon forefathers; besides, the cold winters would have solidified them, and they would not have been drawn up by the wick, if arranged as in the old Roman and Greek *lucernæ*. The solid fat of various animals was their chief illuminating material, except on the sea-coast, where seal and whale oil occasionally helped them. Small, open stone pots,

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afterward exchanged for metal, were used, and being partly filled with grease, a wick was thrust down through the middle, and being lighted, consumed the fat as it melted. Stone cups of this kind are occasionally dug up in Scotland and elsewhere: in principle, they are the same as the padelle, used in Italian illuminations, and the old grease-pots, which formed the foot-lights of theatres not many years since, and which are still occasionally seen in traveling-shows at country fairs. The Esquimaux form square boxes of soap-stone, and use them in the same way.

No great improvement took place in the construction of lamps until the beginning of the 19th century. Taste had been shown in the designs, but the principle remained the same; a wick sucking up oil from the reservoir of the lamp to supply itself during the combustion, and nothing more, if we except the improvement effected by the invention of M. Argand 1784; see ARGAND. In 1803, M. Carcel, another Frenchman, made an excellent improvement on the lamp by applying clock-work, which acts by raising the oil through tubes in connection with the wick, so that the wick is kept soaked. If properly managed, this is perhaps the best of all oil-lamps, as it will keep a well sustained and brilliant light for seven or eight hours, and the light rather increases than otherwise as the lamp burns and becomes warmer, thereby rendering the oil more limpid. But the Carcel lamp has two disadvantages; it is expensive, and is easily disarranged, therefore it has never become common.

The French moderator lamp is much simpler, and appears to overcome the difficulties of the case. The body of this lamp consists of a cylinder or barrel, the lower part of which contains the store of oil. On the top of the oil rests a piston, which is constantly pressed down by a spiral spring, situated between it and the top of the barrel. Through the piston is inserted a small tube, which passes up to the burner at the top; and the pressure of the spring on the piston causes a constant stream of oil to rise through the tube and feed the wick. What is not consumed flows over the burner, and back into the barrel above the piston. It is above the piston also that fresh oil is introduced. When the piston has reached the bottom, it is wound up again by a rack and pinion, and a vacuum being thus formed, the oil above it is forced to the under side through a valve kind of contrivance around its edge.

It is obvious that in this machine the flow of oil will be greatest when the piston has been newly wound up, and the spring is at its greatest tension. This inequality is regulated, or *moderated*—hence the name of the lamp—by an extremely ingenious contrivance, which narrows the passage for the oil when the pressure is strongest.

The introduction of mineral oils—known under the

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various names of paraffine oil, petroleum, kerosene, naphtha, shale oil, etc.—has in a great measure superseded the use of animal and vegetable oils for lighting purposes. The great recommendation of mineral oils is their cheapness. One great difficulty with them at first was that, without careful preparation, they were apt to give off inflammable vapors at a low temperature, which gave rise to dangerous explosions. This has been obviated by processes of rectification which make riddance of the lighter and more volatile ingredients. An oil that gives off an inflammable vapor at a temperature under 120° F. cannot be considered safe. Paraffine oil from Boghead coal will not form an explosive mixture under 140° F. Law now deals with this matter by making it illegal to store or issue oil forming an inflammable mixture under a certain number of degrees of temperature. Another difficulty was to make the oil burn without smoke. The kind of lamp found to effect this purpose best was introduced into Great Britain from Germany about 1856, and, with minor improvements, the form is still adhered to. The body of the lamp is a globular-shaped reservoir of glass or stoneware for the oil, mounted on a foot or pedestal; into this a brass wick-holder is screwed, the wick being raised or lowered by means of a rack and pinion. The lamp now in common use has a dome-shaped cap surrounding the wick-tube, and having a slit running across it, through which the flame issues. A long glass chimney rests on a ledge or gallery around the base of the cap; and by perforations in the brass an air-chamber is formed below. The chimney causes a strong draught through this chamber, and the cap or dome deflects the current of air, and makes it impinge against the flame as it passes through the slit, thus producing perfect combustion and a white, brilliant light without smoke. The demand for these lamps has become so great that the manufacture and sale of them forms an extensive business.

Camphene was the trade name of a burning fluid composed of oil of turpentine, purified by being distilled over quick-lime. This fluid was burned in lamps provided with the same class of burners as that described for burning fluid. The highly explosive nature of these dangerous compounds rendered them unpopular for domestic use, and they were soon displaced by the safer and cheaper kerosene oil, which came into general use about 1850. This was first called coal-oil, and in some localities mineral oil, while in others it was known as petroleum oil. Many hundreds of lamps and burners have been invented to use this cheap illuminant. In all successful kerosene burners a glass chimney is necessary. Many attempts have been made to produce a kerosene burner that would afford a clear, brilliant, steady, smokeless flame, without a chimney, but so far no good, practical lamp has been put on the market that success-

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1—10. EARLY ENGLISH AND AMERICAN COLONIAL LAMPS: 1. Horologic Lamp, 1600. 2. Old Dutch Lamp, 1640. 3. Iron Slot Lamp, 1745. 4. Old English Lamp, dated 1708. 5. Tin Newburyport (Mass.) Betty, 1724. 6. Tin Lard-oil Lamp, 1830. 7. Portsmouth (N. H.) Betty, Tin, 1760. 8. Old English Bull's Eye Lamp, 1770. 9. Tin Lard-oil Lamp, 1840. 10. Old English Lamp, 1720.

11—15. EARLY AMERICAN GLASS LAMP: 11. Camphene Lamp, 1845. 12. Camphene Lamp, 1850. 13. Whale-oil Lamp, 1830. 14. Camphene Lamp, 1848. 15. Whale-oil Lamp, 1760.

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fully accomplishes this much desired result. A lamp was made and introduced in 1869 that burned a vapor of naphtha without a chimney. While the flame from this device was white and brilliant, the light was flickering, and when moved about emitted annoying smoke. The highly explosive nature of the fluid burned made its common use unsafe, so that the vapor lamp never became popular. What is known as the German student lamp, supplied with an improved Argand burner, and the so-called Rochester lamp, employing another modification of the Argand burner, are the best and most successful kerosene lamps so far introduced. There are hundreds, if not thousands, of different kerosene oil burners attached to an almost endless variety of lamps now on the market. These embrace hand lamps, table lamps, piano lamps, and a variety of library and parlor lamps that are remarkably rich in ornamentation and graceful in form and shape, but in the construction designed to assist the combustion of the oil in producing the illumination the same general principles are involved, and with the exception of the smaller hand lamps the original Argand burner principle is adhered to, with slight modifications and improvements. In the small hand lamps a perforated hood-shaped cap surrounds the wick, making a dome-like chamber through which the air drawn from the outside is deflected into the flame, thus supplying the needed oxygen. The flat ribbon wick is used in most of the smaller lamps, the wick being moved up and down by a spur-wheel as before described.

Safety Lamps are lamps so constructed that the danger from the foul explosive air of mines, especially deep coal mines, may be lessened or prevented, by so protecting the flame of the miner's lamp that it will not come in direct contact with the mixed carburetted hydrogen and atmospheric air, which is often present in such quantities as to create an element of great danger. The first safety lamps were called 'Steel-Mills,' and were devices in which small steel wheels, with roughened edges, were rapidly revolved against a flint, securely held by a powerful spring. The sparks thus produced afforded an intermittent light which was sufficient to illuminate the more dangerous parts of the deep mines. But as this lamp necessitated the employment of a boy to revolve the wheel while the miner was engaged in his work, it proved too expensive for economic use. In 1813, Dr. Canny in England, introduced the first true safety miner's lamp. In his invention he produced a lamp in which the external air was admitted to the burner through a chamber containing water, while the flame was protected by a glass bulb, the product of combustion escaping through perforations in a flat support on which the glass bulb rested. This contrivance was so cumbersome, and so liable to breakage, that it never came into general use. In 1815, George Stephenson and Sir

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Humphry Davy, contrived a safety lamp that, with slight modifications, has continued in use up to the present time. The air to support combustion was admitted to the flame through small openings in the bottom of the lamp, while the flame was protected by a glass, upright cylinder, the top of which was covered with a wire gauze cap. Several forms introducing slight changes from the original Davy lamp have been made. The lamp in which the flame is protected by a wire gauze cylinder in the place of a glass one was a later invention of Sir Humphry Davy. Mackworth's safety lamp was an improvement over the Canny lamp, and introduced features common to that and the Davy lamp. A water chamber was provided through which the external air passed before reaching the flame. Immediately surrounding the flame was a thick, glass cylinder and above that a fine wire gauze cylinder, making a continuous protection about the flame. Outside of this was an additional wire gauze cylinder added as a means of protection against breakage. Lamps for jewelers, chemists and laboratory use are in reality miniature furnaces, and are generally provided with wide wick supports in which are large cotton wicks. Alcohol is the most common fluid used for generating heat in these lamps. Painter's lamps are contrivances in which naphtha is burned under pressure, the resulting heat being employed in the removing of old paint from surfaces which it is desired to repaint. Hand lanterns are simply lamps of various forms, surrounded by glass globes or cylinders to protect the flame from the wind. Ancient lanterns were provided with transparent protectors made of horn scraped thin to permit the light to be reflected through. The word lantern is a combination of lant-horn, and was employed to express a light which was protected with a transparent horn. Another form of early lantern, now designated by collectors as the 'Guy Fawkes lantern' was of tin, perforated with small punctures through which the light shone. Early hall, or as they were called entry lanterns, were often massive and elegant ground glass globes, ornate and beautiful to a marked degree. Either candles or oil were used as illuminant. They were suspended by chains from the ceiling, and a glass smoke protector was provided in those of more elaborate make.

LAMP, ARC. See ELECTRICAL ILLUMINATION.

LAMP, INCANDESCENT. See ELECTRICAL ILLUMINATION.

LAMP, PERPETUAL: a lamp kept perpetually burning in synagogues. It is of various kinds, but usually a glass vessel containing a wick burning in olive oil, which is suspended in front of the Ark; a niche or receptacle for the scrolls of the law and at the rear of the building facing the entrance. It occupies a conspicuous place, just like the candlestick in the tabernacle and temple be-

LAMP—LAMPEDUSA.

fore the Ark of the Covenant, and has come down to the synagogue from the Temple (Ex. xxvii: 20; Lev. xxiv: 2). The tradition is that the lamp is never allowed to go out. It is held by the rabbis to be a symbol of spiritual light, or the light of God's presence; as the Law, which Israel is to maintain forever; as life, happiness, etc.

LAMP, SABBATH: a special lamp used on Friday night among the Jews, particularly in Europe and the East, and in many households in the United States. The custom is very ancient, going back to early Talmudic times and giving rise to many discussions as to the kind of wick and oil to be employed, and being considered an important duty of the housewife, or in her absence, of the man of the house, to discharge. Candles are also permitted—the number of lights being two or seven; the former number being derived from the two terms 'remember' and 'observe,' with which the two versions of the Sabbath commandment begin (Ex. xx: 8, and Deut. v: 12), and the latter is of later origin and probably has its source in the importance assigned by the Cabalists to the number seven. It is lighted before sunset on Friday with a brief benediction. In the middle ages a hanging lamp was used only for this purpose in some households and treasured as an heirloom for generations. The lamp varies in shape and material.

LAMPASS, n. *lām'pās* [F. *lampas*—from L. *lampas*, a lamp]: a fleshy swelling on the roof of a horse's mouth, said to be so called as formerly removed by burning.

LAMP-BLACK: fine soot produced by burning resin, turpentine, pitch, oil, and other matters, in such a manner that large volumes of smoke are formed and condensed in properly arranged receptacles. Lamp-black is the coloring matter of black and slate-colored paints. Large quantities are made in Germany by burning the refuse resin and fragments of fir and pine trees. The combustion is carried on slowly, and the dense smoke passes up a long flue, at the top of which is a large hood made of coarse woolen cloth. In this hood the carbon is deposited rapidly at the rate of 20 to 30 lbs. an hour, which is collected by lowering the cloth hood, and shaking it out. In Great Britain, a similar process is adopted; but large quantities of an inferior kind are collected also from the flues of coke-ovens; and a superior kind, known as *bone-black*, is obtained from the flues of kilns in which bones are calcined for manure. By mixing lamp-black in various proportions with white-lead, every gradation of color, from jet black to slate and gray, can be easily produced.

LAMPEDUSA, *lām-pā-dō'sâ* (anc. *Pelagia*): small uninhabited island in the Mediterranean Sea, about midway between Malta and the coast of Tunis. It belongs to Italy, having been formerly a dependency of Sicily.

LAMPMAN—LAMPREY.

It is about seven m. in length, and in most places not quite one m. in breadth, its circuit being about 13 m. The w. part of the island is covered with dwarf olives; and these and other shrubs supply great quantities of firewood, both to Tripoli and Malta. Great numbers of wild goats inhabit the island. Lampedusa was at one time inhabited. Near it are the two islets Lampione and Linosa.

LAMPMAN, ARCHIBALD: Canadian poet; b. Morpht, Ont., 1861, Nov. 17; d. Ottawa, Ont., 1899, Feb. 10. He graduated from Trinity University, Toronto, 1882; entered the Ottawa Civil Service 1883. Published works include: *Among the Millet and other Poems* (1888); *Lyrics on Earth* (1896); *Alcyone* (1899); *Collected Poems* (1900).

LAMPOON, n. *lăm-pôn'* [OF. *lamponner*, to dally or play the fool with, to foist, to fib]: personal satire in writing; written censure: V. to make fun of a person; to assail with personal satire; to satirize. LAMPOON'ING, imp. LAMPOONED', pp. *-pônđ'*. LAMPOON'ER, n. *-ér*, one who writes lampoons. LAMPOON'RY, n. *-rĭ*, written personal abuse or satire. *Note.*—LAMPOON may also be derived from F. *lampon*, originally a drinking-song, from the interjected exclamation *lampons!* 'let us drink!' in singing those songs, from F. *lamper*, to drink—SYN. of 'lampoon, n.': censure; abuse; satire; reviling;—of 'lampoon, v.': to revile; abuse; libel; slander; defame; calumniate.

LAMPRECHT, KARL: German historian; b. Jessen, near Wittenberg, 1856, Feb. 25. He was educated at Göttingen, Leipsic, and Munich, and in 1885 became professor at Bonn; in 1890 at Marburg; and since 1892 has occupied a similar office at Leipsic. In 1905 he represented Germany at the Congress of Science held at St. Louis. He founded in 1882 the *Wesldeutsche Zeitschrift für Geschichte und Kunst*. His writings include: *Beiträge zur Geschichte des französischen Wirtschaftslebens im elften Jahrhundert* (1878); *Die römische Frage von König Pippin bis auf Kaiser Ludwig den Frommen* (1889); *Zur jüngsten deutschen Vergangenheit* (1901); etc.

LAMPREY, n. *lăm'prĭ* [F. *lamproie*; mid. L. and It. *lampreda*—from L. *lambĕrĕ*, to lick; *petra*, a rock—*lit.*, a lick of rocks], (*Petromyzon*): genus of cartilaginous fishes, dermopterous and having a circular mouth formed for sucking (*cyclostomous*). They are of eel-like form, and have no scales. The skeleton is very soft and imperfect. The tongue acts as a piston in the sucking mouth, which is armed with numerous hard teeth, or tooth-like tubercles. There are seven roundish gill-orifices on each side; the German name is *Neun-Augen* (Nine-eyes). Lampreys have the power of drawing in as well as of expelling water through the gill-orifices, and

LAMPRIS—LAMPSON.

thus respiration is carried on even when they are firmly attached to some object by the sucking mouth. Lampreys often attach themselves very firmly to stones, and seem to rest with the body floating in the water; they live by sucking the blood of fishes, the skins of which their teeth readily pierce, and which are unable to shake them off. They eat also any soft animal matter. The species are numerous, and are widely distributed in the seas of different parts of the world. Some are periodical visitants of fresh waters, as the COMMON LAMPREY (*P. marinus*), found on shores and in rivers. It sometimes attains a length of more than three ft., and is often two ft. long. It ascends rivers in the latter part of spring or beginning of summer, for spawning. It was formerly in the highest esteem for the table, and it is an old custom for the city of Gloucester, England, to present a lamprey pie annually to the sovereign. Worcester also is famous for its lamprey pies and potted lampreys. In Scotland, a strong prejudice exists against the lamprey. Their flesh is difficult of digestion; and Henry I. is said to have died from indulgence in this, his favorite dish.—The lamprey of N. America, though very similar, was formerly classed as a distinct species (*P. Americanus*): it is now understood that the three (or at least two of the three) species common in Europe are the usual species in America.—A smaller species, the RIVER LAMPREY (*P. fluviatilis*), often called the LAMPERN, is very abundant in some rivers of England at certain seasons of the year. It is seldom more than 15 or 18 in. long, blue above, silvery white beneath. It is used for pies, like the common lamprey. A little blood thrown into water where lampreys are supposed to be, soon attracts them. They are caught by baskets and other traps, like eels. They are very tenacious of life, living for days in a damp place, out of the water.

LAM'PRIS. See OPAH.

LAMP'SHELL (*Terebratula*): genus of brachiopodous mollusks (see BRACHIOPODA), having a delicate shell, of which one of the valves is larger and more convex than the other, prolonged backward into a kind of beak pierced by a hole or fissure. Internally, there is a delicate bony framework, of two branches, attached to the dorsal valve, by which the *arms* (see BRACHIOPODA) are supported. This is called the *loop*, and often by shell-collectors the *carriage-spring*: it is well seen in many fossil *Terebratulæ*. The recent species are numerous, and very widely distributed from the polar to the tropical seas; fossil species are extremely numerous.

LAMPSON, *lămp'son*, Sir CURTIS MIRANDA: 1806, Sep. 21—1885, Mar. 13; b. Vermont: capitalist. He removed to England 1830, was naturalized 1848, engaged in mercantile business in London, became a director and vice-pres. of the Atlantic Telegraph Company 1856, and on

LAMP'TON—LANARKSHIRE.

the successful laying of the great cable was created a baronet. He subsequently became deputy governor of the Hudson Bay Company and a trustee of the Peabody fund for the relief of the poor of London.

LAMP'TON, WILLIAM JAMES, A.M.: American journalist; b. Lawrence co., Ohio. He was educated in public and private schools and at the Ohio Wesleyan University and Marietta College; edited a newspaper in Kentucky (1887-8); was reporter for the Cincinnati *Times*, writer for the Steubenville *Herald* and the Louisville *Courier-Journal*, editor of the *Merchant Traveler*, Cincinnati, and has been on the staff of the *Critic* and the *Evening Star*, Washington, and of the *Detroit Free Press*. He has also been a special writer for the *New York Sun* and the *New York Herald*. He has published *Yawps and Other Things*.

LAM'SON-SCRIBNER, FRANK, B.S.: American botanist; b. Cambridgeport, Mass., 1851, April 19. He was graduated at the Maine State College of Agriculture in 1873; served two years as clerk to the secretary of the Maine State Board of Agriculture; and was an officer of Girard College (1876-84). In 1887 he was made chief of the Section of Vegetable Pathology in the United States Department of Agriculture, and from 1888 to 1894 was professor of botany in the University of Tennessee, and director of the agricultural experiment station there 1890-4. From 1902-4 he was chief of the Insular Bureau of Agriculture, Philippine Islands. In 1889 he received from the French minister of agriculture the cross of the Chevalier du Mérite Agricole. Among his writings published in the proceedings of various bodies, and in government reports, are: *Weeds of Maine* (1869); *Ornamental and Useful Plants of Maine* (1874); *Agricultural Grasses of Central Montana* (1883); *Revision of the North American Melicæ* (1885); *Grasses of Mountain Meadows and Deer Parks* (1889); *Diseases of Plants* (1885-6-7); and papers on *Grasses as Land and Soil Binders*, and on *Grasses and Forage Plants* (1894-1900). He has also published *The True Grass*, translated from *Die natürlichen Pflanzenfamilien* (1890).

LANA, n. *lâ'na* [the native name]: kind of close-grained, tough wood, from the *Gempa Americana*, tree of the cinchona family, native of British Guiana. The fruit called genipop, yields a pigment called lana-dye, used by the natives to stain their skins.

LANARKITE, n. *lân'ark-īt*: a mineral consisting of sulphate and carbonate of lead, occurring either massive or in long, slender, right-rhombic prisms, of a greenish-white or gray color—first found at Leadhills in Lanarkshire.

LANARKSHIRE, *lân'ark-shër*, or CLYDESDALE, *klidz'däl*: inland county of Scotland; w. of the shires of Edin-

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burgh, Linlithgow, and Peebles; length 52 m., width 34 m., 889 sq.m., or 568,868 acres. This county is subdivided into upper, middle, and lower wards. The first comprises more than one-half the county, and consists in a great measure of hills and moorish ground; the second contains about 160,000 acres, much of which is unprofitable; the third, which contains the city of Glasgow, is nearly all cultivated, though very little of the soil, aside from that bordering on the Clyde, is of first quality. The principal hills are the Lowthers, which rise in Green Hill to 2,403 ft.; Tintock is 2,350 ft. high. In the upper ward is the village of Leadhills, 1,323 ft. above sea-level. This county has great mineral wealth. The coal raised amounts annually to 10,000,000 tons, and the ironstone to 757,000 tons. The cotton, flax, and woolen manufactures are very extensive, and constitute one of the most important sources of wealth in the country. The county is watered principally by the Clyde (q.v.) and its affluents. Lanarkshire was famous for its orchards as early as the time of the Venerable Bede, but they have decreased; and the ground is more profitably employed in producing gooseberries, vegetables, etc., for the Glasgow market. The climate of Lanarkshire is moist, and in many of the lower districts mild and genial, but often cold and boisterous in the high grounds. Pop. 1,339,300.

LANATE, a. *lā'nāt*, or LANATED, a. *lā-nā'tēd* [L. *lanātus*, furnished with wool, woolly—from *lana*, wool]: woolly; covered with curly hair like wool.

LANCASHIRE, *lānk'a-shēr*, or COUNTY OF LANCASTER: county of England, second (after York) in area, and first in population (followed by Middlesex). It is bounded e. by Yorkshire, w. by the Irish Sea, n. by Cumberland and Westmoreland, s. by Cheshire; 1,207,926 statute acres, or 1,905 sq.m. Pop. 4,437,400. Three-fourths of the total area is arable ground, mainly used for grazing purposes, cows being kept for the milk supply of cities, and sheep for food. An outlying portion of the county, called Furness, whose greatest length is 25 m., greatest breadth 16 m., is separated from the main portion by Morecambe Bay. The larger division is intersected in the n. and e. by branches of the hill system which runs southward through the counties of York and Derby, while Furness has on its e. border the Cumbrian range. Toward the coast on the w. the surface is flat, particularly in the larger division, with a curving outline and large stretches of sand, over which in various places the sea seems to be extending. The chief rivers are the Mersey, Ribble, Lune, Wyre, Leven, and Duddon, all entering the Irish Sea by estuaries more or less important—Morecambe Bay being the chief indentation. The climate is moist, but mild, the soil being peaty in upland districts, but a fertile loam mostly in the flats.

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Oats and potatoes are general crops; wheat grows well in the s. division. Coal is the chief mineral product (the coal-field being estimated at 400 sq.m.); lead and copper occur, and iron is plentiful in Furness. The whole surface is covered with a network of canals and railways connecting the principal manufacturing and commercial centres. Lancashire is famous for immense cotton manufactories. The other textile manufactories are likewise of considerable importance. Manufacture of all kinds of machinery is extensive, and ship-building, sail-making, and kindred trades flourish. The district of Furness presents many attractions to the tourist. On its n.e. border stretches the beautiful lake Windermere, westward from which is Eastwaite Water; and further w., Coniston Lake, and the 'Old Man of Coniston,' with a height of 2,633 ft. In the peninsula between the rivers Duddon and Leven is Furness Abbey, a noble ruin, the effect of which is enhanced by the picturesque beauty of the scenery in the vicinity. The abbey was founded 1127 by Stephen, Earl of Mortagne or Mortoil, afterward king of England. The church is 287 ft. long, the nave 70 ft. broad. In the township of Whalley, in the e. of Lancashire is a very old church, and in the churchyard are three crosses, apparently of Saxon origin. In the vicinity are the ruins of an abbey of about the same age as Furness. Near Whalley is the Rom. Cath. college of Stonyhurst. The only islands are off the s. extremity of Furness.

LANCASTER: town, and several villages combined in Worcester co., Massachusetts, on the Nashua river, and the Boston & Maine railroad; 18 m. n. of Worcester. Here is the State Industrial School, a public library, numerous churches, high school, and manufactures of soap, brick, cotton goods, pumps, carriages, etc.; also large dairy and other farming interests. The town was first settled in 1651 by John Prescott, and it was here in 1676, that the Indians laid the place in ruins and killed 40 of the inhabitants. The town owns the waterworks. Pop. (1900) 2,478; (1910) 2,464.

LANCASTER: town and county-seat of Coos co., New Hampshire, on the Israel river, 126 m. n. of Concord. The town is on the Boston & Maine and the Maine Central railroads; and is a popular summer resort and residential section for New York and Boston people, being situated in an attractive part of the White Mountain region. It has manufactories of drugs, chemicals, lumber, woodwork, and machinery. The town owns and controls the waterworks. Pop. (1910) 3,054.

LANCASTER: village in Erie co., New York, on the New York Central & H. R., the Lehigh Valley, the Delaware & L. and Erie railroads; 10 m. e. of Buffalo. An important manufacturing centre containing iron-works, brass foundries, machine shops, glass-works, flouring-mills, brickyards, knife-works, and other industries.

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The waterworks plant is owned by the village. Pop. (1910) 4,364.

LANCASTER, *länk'as-tér*: city and county-seat of Fairfield co., Ohio, on the Hocking river and canal, 32 m. s.e. of Columbus, 116 m. e.n.e. of Cincinnati; on the Toledo, the Cincinnati and Muskingum Valley, and other railroads. Lancaster is the centre of a productive district, has fine public buildings, including the county court-house, city hall, state industrial school for boys, Crawfis Institute, Columbia Commercial School, public graded schools, churches, banks, etc.; has municipal waterworks and gas plants, electric lighting and street railroad systems. Lancaster manufactures farming implements, foundry products, glass, flour, etc., and has railroad shops. It was first settled in 1800 by Ebenezer Zane, and is governed by a mayor and a city council of seven members elected every two years. The city owns the waterworks and gas plants. Senator John Sherman and Gen. W. T. Sherman were born here. Pop. (1900) 8,990; (1910) 13,093.

LANC'ASTER: city and county-seat of Lancaster co., Pennsylvania; on Conestoga creek and the Pennsylvania, the Philadelphia & R., and other railroads; 36 m. e.s.e. of Harrisburg, 42 m. s.w. of Reading, 68 m. w. of Philadelphia. It is in a rich and beautiful section, excelling all other parts of the state in the production of wheat and tobacco, and is the center of the most productive limestone region in the state, if not in the country. The city is laid out regularly, with streets crossing at right angles, well paved or macadamized, and traversed by electric street railroads; is lighted by gas and electricity, and is supplied with water from Conestoga creek, through a costly system of works. Recent statistics give Lancaster 738 manufacturing establishments, using a capital of \$10,803,464, employing 9,349 hands, paying in wages \$3,323,748, and yielding products valued at \$16,370,281. The manufacture of tobacco, cigars and cigarettes used a capital of \$1,063,230, employed 1,765 hands, paid \$692,322 in wages, and \$951,782 for materials, and yielded products of an aggregate value of \$2,557,787. It also produced about 25,000 barrels of lager beer annually. Other notable manufactures were watches, bentwood, glue, rope, pottery, machinery, boilers, engines, fan-blowers, brass goods, belting, leather, furniture, edge-tools, flour, fertilizers, tanners' machinery, and organs. The public buildings comprise an attractive co. house in the Grecian style, city hall, Masonic hall, Odd Fellows' hall, opera house, the county, Lancaster General and St. Joseph's hospitals, the Stevens and Childrens' homes, the public, mechanics', and other libraries, and numerous handsome churches. Besides the public graded schools, and denominational schools, Lancaster is the seat of Franklin and Marshall College (q.v.) with which is affiliated the Theological Seminary of the Reformed

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Church in the United States, and in the suburb of Millersville is the First Pennsylvania State Normal School. Conestoga and Long are attractive parks. Lancaster was settled by Mennonites (q.v.) in 1718, and until 1730 was called Hickory Town. It became a borough in 1742. Congress met here for a short time in 1777, and Lancaster was the state capital 1799-1812. The city charter dates from 1818. It is governed by a mayor elected every two years, and by a select council of 9 members and a common council of 27 members elected annually. Here was the birthplace of General John Fulton Reynolds and a monument has been erected to his memory. The municipality spends upward of \$250,000 yearly in maintaining the public service. Pop. (1900) 41,459; (1910) 47,227.

LANC'ASTER: municipal and parliamentary borough and seaport of England, cap. of Lancashire, picturesquely situated on an eminence on the left bank of the Lune near its mouth, and 230 m. n.n.w. of London. The ancient castle, which overlooks the town, is now used as a co. jail and court-house. The houses are of the freestone quarried in the vicinity, and though the streets are narrow, the town is neat and well built. The Lune is here crossed by a bridge of five arches, and by an aqueduct carrying the Lancaster canal. The town contains numerous scientific, benevolent, and educational institutions. There is some trade in coal and limestone. The chief manufactures are furniture, cotton, silk, tablebaize, American leather, cloth, and cast-iron work. Pop. 40,300.

LANC'ASTER, DUCHY OF: duchy and county palatine (see PALATINE) of England, created by royal charter, in which respect it differs from Durham and Chester. Edward III., on the death of Henry, Duke of Lancaster, conferred the duchy on John of Gaunt and his heirs forever. (See JOHN OF GAUNT.) Henry IV., and, during the Wars of the Roses, Edward IV., both endeavored so to settle the duchy that it should descend to the heirs of their body apart from the crown, and continue with them in the event of their losing the latter. The result of these several attempts has been the preservation of the duchy as a separate possession in order and government, but united in point of inheritance. The revenues of the duchy form no part of those hereditary revenues in lieu of which the Civil List (q.v.) was granted. The net proceeds are paid over to the privy purse, and wholly exempted from parliamentary control, except that the annual account for receipt and expenditure is presented. The county palatine forms only a portion of the duchy, which includes considerable estates not within the county palatine. There is a chancellor of the duchy (i.e., of the part of it which does not lie within the county), and of the county palatine, which two offices are generally united. The duchy court of Lanc-

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aster, held at Westminster, presided over by the chancellor of the duchy, or his deputy, exercises jurisdiction in all matters of equity relating to the lands of the duchy. The administration of justice has been assimilated to that of the rest of England. The office of chancellor is a political appointment, which it is the practice to confer on a statesman of eminence, frequently a member of the cabinet, who is expected to devote his time to such larger questions occupying the attention of government as do not fall within other departments. The emoluments of the office are about £2,000 per annum. By 17 and 18 Vict. c. 12, the chancellor of the duchy, with the two lords justices of the court of appeal, form the palatinate court of appeal.

LANCASTER, Sir JAMES: first English navigator who commanded a fleet bound for the E. Indies. He sailed from Plymouth 1591, Apr. 10. In 1600, the newly constituted *East India Company* intrusted him with their first expedition. Lancaster having, in the course of his voyages, collected a number of valuable documents in support of the existence of a n.w. passage, the government, acting on his advice, sent out an expedition to attempt to discover it. They discovered a strait in 74° n. lat., named by Baffin in honor of Lancaster, *Lancaster Sound*. Lancaster was created a baronet for his services, and died in 1620. The history of his voyages has been preserved by Hakluyt and Purchas.

LANCASTER, JOSEPH: English educator, the founder of the educational system bearing his name; b. London 1778, Nov. 25; d. New York 1838, Oct. 23. In 1798 he opened a school for children in Southwark, which he conducted on the Madras system, previously made known by Dr. Bell. (See BELL, ANDREW.) The principal features of the system were the teaching of the younger pupils by the more advanced students, called monitors, and an elaborate system of mechanical drill, by means of which these young teachers taught large numbers at the same time. He soon found powerful support, and was able to erect a school-house, which in 1805 was attended by 1,000 children. The number of his patrons and the amount of subscriptions continuing to increase, he founded a normal school for training teachers in his system. He made extensive tours through Great Britain and Ireland, and in 1811 had founded 95 schools, attended by 30,000 children. He was reckless and improvident in his habits; became bankrupt, and emigrated to America in 1818, where he at first received some support, but ultimately fell into poverty. His family subsequently removed to Mexico, where his system was very popular, and where his grandchildren, bearing the name Lancaster-Jones, became prominent politically.

LANCASTER, WILLIAM JOSEPH COSENS, 'HARRY COLLINGWOOD': English civil engineer and author; b. Wey-

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mouth 1851, May 23. He entered the British navy as a midshipman, but on account of defective eyesight resigned, and became a civil engineer, in that capacity visiting different parts of the world. Under the pseudonym 'Harry Collingwood,' he is known to juvenile readers in England and America as the author of the popular nautical romances: *The Secret of the Sands* (1878); *Under the Meteor Flag* (1884); *The Pirate Island* (1884); *The Congo Rovers* (1885), a story of the Slave Squadron; *The Missing Merchantman* (1888); *The Cruise of the Esmeralda* (1894); *An Ocean Chase* (1898); *The Castaways* (1899); etc.

LANC'ASTER SOUND: western inlet of Baffin's Bay, lat. 74° n., and from 80° to 87° w. long. Though this opening into the polar ocean was discovered by Baffin himself, as early as 1616, yet it was virtually neglected for more than 200 years. At length Parry, 1819, penetrated through it into Barrow's Strait, and, beyond it, to the North Georgian Islands.

LANCE, n. *lāns* [F. *lance*—from It. *lancia*—from L. *lancĕā*, a lance: F. *lancer*, to dart: comp. Gael. *lann*, a blade, a sword]: a long shaft of wood with a spear-head; differing from *spear* or *javelin* in that it was intended not to be thrown, but to be thrust at the enemy by force of hand, and with the impetus acquired by speed, and thus was most effective in the hands of a mounted soldier. Hence the lance was the favorite arm with knights for beginning a combat; it was of tough ash, of considerable length, weighted at the end, and held not far from the hilt. See **TOURNAMENT**. In modern warfare, the lance is a long rod of tough ash, with an iron point, and usually a colored flag near it. It is the offensive arm of **LANCERS**. **LANCE,** v. to pierce with a lance; to open with a lancet. **LANCING,** imp. *lān'sing*: N. the act of one who uses a lancet. **LANCED,** pp. *lānst*. **LAN'CER,** n. *-sēr*, one who carries a lance, as a soldier; one of that class of cavalry soldiers who are armed with lances: see **CAVALRY**. The type and perfection of lancers are the Russian Cossacks, whose long lances enable them to combat with enemies at a distance at which they themselves take little harm. The lancers were brought into European notice by Napoleon, who greatly relied on some Polish regiments. After the peace of 1815, the arm was adopted in the English service, but it is thought by many that the British lancer has a weapon too short to enable him to charge an infantry square with any chance of success. **LAN'CEOLAR,** a. *-sē-ō-lēr*, tapering toward the end. **LAN'CEOLATE,** a. *-lāt*, or **LAN'CEOLATED,** a. *-lā-tēd* [mid. L. *lancĕōlātus*, furnished with a spike—from L. *lancĕā*, a light spear]: tapering toward the extremity; shaped like the head of a spear. **LAN'CIFORM,** a. *-sī-fawrm* [L. *forma*, shape]: lance-shaped. **LANCE-CORPORAL,** a soldier from the ranks

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doing the duties of a corporal with temporary rank as such—so named from *lance*, the old name of a foot-soldier, from his carrying a lance or pike. LANCE-WOOD, wood valuable for its great strength and elasticity; produced by the small tree *Guatteria virgata* (natural ord. *Anonaceæ*). Another species, *G. laurifolia*, yields the less used White Lance-wood. Lance-wood is of great value to coach-builders, by whom it is used for shafts and carriage-poles. The part used is the main trunk of the tree, which is very straight, and rarely more than nine in. in diameter with the bark on. It comes in small quantities from the W. Indies, chiefly from Jamaica.

LANCE, n. *läns* [L. *lanx*, or *lancem*, a dish]: the dish or plate of a balance.

LANCE, THE HOLY: in the Greek Church, the knife with which at the Eucharist the priest pierces the bread, in commemoration of the piercing of the side of the Lord Jesus on the cross by a Roman spear.—In ecclesiastical legend, a lance made from the nails with which Christ was fastened to the cross; later identified with the spear that pierced his side; said to have been presented by King Rudolph of Burgundy to King Henry I. of Germany; it was brought to Prague, and Innocent VI. established a festival in honor of it, 1354. Another legendary lance was discovered by Empress Helena, and was in Jerusalem, then in Antioch, Constantinople, Venice, France, Constantinople again.

LANCEGAY, n. *läns'gā* [OF. *lance-zagaye*—from *lance*, a lance; *zagaye*, a light pike used by Moorish horsemen: Sp. *azagaya*, a dart]: in *OE.*, a kind of lance or spear.

LANCELET, n. *läns'lēt*, or LANCELOT, n. *läns'löt* [mid. L. *lancēolātus*, furnished with a spike (see LANCE)], (*Amphioxus*, or *Branchiostoma*): genus of Dermopterous fishes (q.v.), of very remarkable organization, far lower than that of any other vertebrate animals, connecting cartilaginous fishes both with mollusks and with annelids. A few species are known, all small; one (*A. lanceolatus*), the first discovered (1774) is a native of the coasts of Europe. The lancelet is found also in N. and S. America, Australia, and Borneo. It inhabits banks of sand, and when dug up, buries itself again in the sand with wonderful activity. It is at the utmost scarcely more than two in. in length, very much compressed, tapering to a point at each extremity, the head not notably distinct from the body. It is silvery white and semi-transparent; the skin destitute of scales. A low dorsal fin extends the whole length of the back. The skeleton is merely rudimentary, the spine being represented by a fibrous sheath, containing a great number of transverse membranous plates. There is no vestige of a skull, or any enlargement of the spinal cord into a brain; nor is the lancelet furnished with organs of sight

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or of hearing. The mouth is situated beneath that part of the body which may be regarded as the head; and is surrounded by a cartilaginous ring, in several pieces, each of which gives off a prolongation to support *cirri*, or short filaments. The mouth communicates with a wide and long cavity, which contains the organs of respiration, and from the other extremity of which the alimentary canal proceeds. The lancelet does not eat or swallow, but simply imbibes its food, with the water which supplies air for respiration. The intestine is slender and almost straight; but there is a very long cœcum. The walls of the respiratory cavity and the intestine are covered internally with vibratile cilia. The blood is colorless. Instead of a heart, there are several elongated blood-vessels, which contract successively; and at the commencement of each of the vessels connected with the organs of respiration there is a little contractile bulb. The muscular system accords with that of the higher fishes.—The very anomalous structure of the lancelet has led to the supposition that this genus may represent a family or order formerly more numerous, but belonging rather to past geologic periods than to the present.

LAN'CELOT OF THE LAKE: one of the heroes of the legendary story of King Arthur and the Round Table. See ARTHUR.

LANCET, n. *lăn'sět* [F. *lancette*, dim. of *lance*, a lance]: a small, sharp, two-edged knife, used by surgeons to open veins, tumors, etc. LANCET-WINDOW, narrow window, with acutely-pointed arch head; much used in England and Scotland during the early pointed period of Gothic architecture. It was retained in Scotland much later than in England. Frequently several lancet-windows are grouped together.

LANCINATE, v. *lăn'si-nāt* [L. *lancinātus*, torn or rent to pieces]: to tear; to lacerate. LAN'CINATING, imp.: ADJ. piercing, or seeming to pierce, with a sudden shooting pain. LAN'CINATED, pp. LAN'CINA'TION, n. *-nā'shŭn*, a tearing; laceration.

LAND, n. *lānd* [AS., Ger., and Icel. *land*, land—akin to W. *glan*; Cornish, *gland*, shore, bank of a river]: the dry, solid portion of the earth; a district, region, or country; soil; earth; ground which any one possesses; real estate: V. to set on shore from a vessel; to go on shore from a ship; to debark. LAND'ING, imp.: ADJ. connected with or pertaining to the process of unloading anything from a vessel, etc.: N. the act of going or setting on shore from a vessel; a place for going or setting on shore, either for passengers or goods. LAND'ED, pp.: ADJ. having an estate in land; consisting in real estate or land. LAND'ER, n. one who makes a landing; in *mining*, one at the head of the shaft who receives the ore. LAND'LESS, a. without real estate or land. LAND-

LAND.

WARD, ad. *lānd'wērd*, toward the land or country; in a direction from the sea. LAND-BREEZE, the wind blowing from the land. LAND-CARRIAGE, transportation by land. LAND-CRAB, a crab which lives much on the land. LAND-FALL, the first land discovered after a voyage. LAND-FLOOD, an inundation caused by the spread of water from a heavy rainfall. LAND-FORCE, a body of soldiers operating on land. LAND-JOBBER, one who makes it his business to buy and sell land. LANDLADY, a woman who has tenants holding from her; the mistress of an inn or lodging-house. LANDLORD, the master of a house; the proprietor of houses or lands; one who keeps an inn or tavern. LANDHOLDER, or LANDOWNER, a proprietor of land. LAND-LOCK, v. *lānd'lōk*, to inclose or encompass with land. LAND'LOCKING, imp. LAND'LOCKED, pp. *-lōkt*: ADJ. shut in or inclosed by land. LAND-LUBBER, n. *-lūb'ér*, or LAND-LOPER, *-lō'pēr* [probably Dut. *landlooper*, land-runner—from *land*, land, and *loopen*, to run]: one who has no settled habitation; among *seamen*, applied in ridicule or contempt to persons who pass their lives on land. LANDMARK, any fixed object to designate the boundary of land, or the limits of a farm or town; any prominent object on land which serves as a guide to seamen. LAND-MEASURE, a measure by which the superficial contents of a portion of land, as a field or a farm, may be ascertained. LAND-RAIL, *-rāl*, a bird, one of the rail family, frequenting grass and corn fields; the corn-crake. It is not included in the definition of 'Game,' yet is protected in Britain by the game laws. LAND'SLIP, portion of a hill or mountain which slides down. LANDS'MAN, or LAND'MAN, one who lives on land, as opposed to a seaman; on *ship-board*, a sailor who has never been at sea before. LAND-STEWARD, a person intrusted with the care of a landed estate. LAND-SURVEYING, the art of determining the boundaries and superficial extent of a portion of land, as a farm or an estate. LAND-TAX, tax laid on land or buildings. LAND-WAITER, *-wā'tér*, or LANDING-WAITER, an officer of the customs who attends on the landing of goods. LANDED PROPRIETOR, an owner of real estate or land. LANDING-NET, a net used by anglers for landing large fish when caught by the line. LANDING-PLACE, a place for the landing of persons or goods from a vessel; a landing. TO LAND A FISH, among *anglers*, to bring a fish to land by skilful management, or by means of a landing-net. LAND OF THE LEAL [Scot. *leal*, loyal, faithful]: a pathetic Scotch song in which the phrase signifies the blessed abode of the true-hearted and faithful; heaven. LAND OF CAKES, applied to Scotland, as famous for its oatmeal-cakes. LAND OF PROMISE, Palestine or Canaan, as promised by God to Abraham and his seed.—SYN. of 'land, n.': country; ground; mold; region.

LAND, n. *lānd* [Gael. *lann*, a house, a tenement]: in *Scot.*, a building containing different sets of tenements

LAND—LAND BANKS.

or dwellings, one above the other, under a common roof, each tier of dwellings being called a *flat*, and each separate dwelling in a *flat*, entering from a common stair, being called a *house*. LAND'ING, n. the broad, level part of a staircase.

LAND, TITLES TO. See TITLE.

LANDAMMAN, n. *lānd'ām-ān* [Ger. *landamtmann*—from *land*, land; *amtmann*, bailiff]: in *Switzerland*, the chief magistrate of a canton.

LANDAU, n. *lān-dō'* [*Landau*, a town in Bavaria]: a light carriage whose top may be opened and thrown back.

LANDAU, *lān'dow*: town and fortress of Bavaria, dist. of Rhenish Pfalz, in a beautiful region on the Queich, which fills its fosse with water; 20 m. n.w. of Carlsruhe. Here are important manufactures of tobacco. Landau has been the scene of important events during every great war since the 15th c. In the Thirty Years' War, it was taken eight times by Swedes, Spaniards, Imperialists, and French. In 1684, it was fortified by Vauban, and was considered impregnable until taken, 1702, by the imperialists under the Markgraf Ludwig of Baden. Pop. 15,820.

LAND BANKS, MASSACHUSETTS: early in the 18th c. Massachusetts paper currency had driven abroad nearly all her coin, broken her credit, and demoralized her business; and the failure of the Quebec expedition in 1711 carried the embarrassment to a climax. Encouraged by the success of the South Sea scheme in England, some Boston merchants induced the General Court to make the bills of credit of the province legal tender for debts of seven years previous and three years subsequent. Besides this, a number of notable men, including Peter Faneuil, devised the scheme of a bank whose resources should rest on real estate mortgages, to make loans of its own notes; to encourage subscriptions, it was proposed that Harvard College should have \$1,000 a year out of the proceeds. Gov. Dudley opposed it strongly; his son, the attorney-general, memorialized the General Court against it; and the latter forbade them even to print their scheme till they had laid it before the court, which then refused to incorporate it. To ward it off and produce the same result, at Dudley's suggestion a public bank was founded, with a capital of \$250,000 provided by the General Court, to lend bills of credit for five years at 5 per cent., one-fifth to be repaid each year, the whole secured on real estate mortgages. In 1739, with the bad state of the finances increased by the still worse state created by the paper money of Rhode Island, and silver rated at 27 to 1, the project of a land bank was again brought forward. Several hundred persons were to form it; notes were to be issued up to \$750,000, the security being a mortgage on each partner's real

LAND-CRAB

estate in proportion to his holding, or sureties also possessed of sufficient estate, and each partner paying 3 per cent. on the loans made him, in bills or in kind, at a rate fixed by the directors. The house of representatives was largely favorable; but Gov. Belcher denounced it as tending to fraud, disturbance of order, and confusion of business, and he set aside the election of the speaker and nearly half the council for connection with the bank, besides displacing many office-holders. Despite this, the company began operations, expecting that the notes would circulate readily. They were mistaken: not over \$300,000 were issued. But in 1741, parliament not only extended to the colonies an act forbidding the issue of bills not payable in coin at the end of the term, but made the directors liable to the holders of the bills for their face with interest. As a large part of them had been issued at a discount, the partners (though many had little to lose) were threatened with ruin, and parliament had to permit relief measures. One of these partners, who lost all his property, was the father of Samuel Adams.

LAND'-CRAB: popular name of all those species of crab (q.v.) which in a mature state are not aquatic. They are now erected into a family or tribe, and divided into several genera. The species are numerous, and all inhabitants of warm countries. They much resemble the common crabs of the shores, and are remarkable as animals breathing by gills, and yet not aquatic, some of them inhabiting very dry places, where they burrow in the sand or earth; but such presence of moisture is absolutely necessary to them as to prevent the desiccation of their gills. Many, and probably all of them, deposit their spawn in water, for which purpose some annually migrate from considerable distances to the sea; but there is reason to suppose that some deposit their spawn in fresh water. The BLACK CRAB, or MOUNTAIN CRAB (*Gecarcinus ruricola*), of the W. Indies, usually resides in woods and on hills at a distance of at least one m., often two or three m. from the sea, which, however, it regularly visits in April and May, when immense numbers may be seen journeying together, moving straight on, unless obstacles quite insuperable impede their progress. Like most of the other species, this land-crab is active chiefly during the night; and except in rainy weather, it seldom leaves its burrow by day. It feeds mostly on vegetable food. When in season, it is highly esteemed for the table, as are some of the other land-crabs; and its spawn or roe, which before being deposited forms a bunch as large as a hen's egg, is accounted a delicacy.—A land-crab of Ceylon (*Ocypode*) makes such troublesome burrows in the dry soil of the equestrian promenade at Colombo, that men are kept in regular employment to fill them up.—The grass lands of some

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parts of India swarm with small land-crabs, which feed on the grass, or on green stalks of rice.

LAND-DAMN, v. *lānd-dām'* [Gael. *lann*, the penis, a sword; *damh*, an ox]: in *OE.*, to scourge with a dried bull's penis; to chastise with contumely.

LANDED ESTATES' COURT. See INCUMBERED ESTATES' COURTS.

LANDED MEN, JURY OF, in Scotch Law: jury the majority of whom are landed proprietors. Such a jury a landed proprietor may demand when tried for a criminal offense.

LANDED PROP'ERTY: not a legal, but a popular phrase, to denote property which consists of freehold estates in land, or, in Scotland, heritable estates. Landed property includes houses and all things called corporeal, also some incorporated rights connected with land.—For the various ways in which this important kind of property is held, and the formalities attending its transfer, see ALLODIUM; FEE; FREEHOLD; COPYHOLD; FEOFFMENT; DEED; FEU; SASINE; CHARTER; CONVEYANCE; CONVEYANCING; SALE; TITLE; etc.

LANDER, *lān'dēr*, FREDERIC WEST: 1822, Dec. 17—1862, Mar. 2; b. Salem, Mass.: soldier. He studied civil engineering in the Norwich Milit. Acad., Vt.; conducted two expeditions across the continent at great peril to survey a route for a railroad to the Pacific, and was the only survivor of the second: surveyed and constructed the great overland wagon-route; was appointed brig.gen. 1861, May, and distinguished himself in the early Va. campaigns, dying of congestion of the brain at Paw Paw, Va., while preparing an attack on the Confederates.—His wife, JEAN MARGARET DAVENPORT, actress: b. Wolverhampton, Eng., 1829, May 3; d. 1903, Aug. 3; made her first appearance on the stage 1837, came to the United States 1838, returned to Europe 1842, revisited the United States 1849, married Gen. Lander 1860, Oct. 12; made her home in Mass. after the war, and appeared as an actress in several leading American cities, and as a dramatic reader.

LANDER, LOUISA: sculptor: b. Salem, Mass., 1826, Sep. 1; sister of Gen. Frederic West Lander. She began her art career by modelling likenesses of members of her family and executing cameo heads; went to Rome 1855 and studied sculpture with Thomas Crawford; and has since produced in marble several portrait busts and statues and statuettes of *To-Day*, *Galatea*, *Virginia Dare* (q.v.), *Undine*, *Virginia*, *Evangeline*, *Elizabeth*, *the Exile of Siberia*, *Ceres Mourning for Proserpine*, *A Sylph Alighting*, and *A Captive Pioneer*.

LANDER, *lān'dēr*, RICHARD: discoverer of the mouth of the Niger: 1804—1834, Feb. 6; b. Cornwall, England. He became a printer; but in 1825 went as a servant with Capt. Clapperton to Africa, and accompanied him from

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the Bay of Benin to Sókoto. There Clapperton died; and Lander, returning to England, published a journal containing an account of the expedition, giving proof of such qualifications, that the British govt. intrusted to him the prosecution of further researches concerning the course of the Niger. In 1830, he and his brother, John Lander, succeeded in proving that the Quorra, or Niger, falls by many mouths into the Bight of Benin. The brothers were, however, seized by the negroes, and sold to a slave-dealer, but being brought to Cape Formosa, were redeemed by the master of a Liverpool ship. They returned to England 1830, June, and published *Journal of an Expedition to Explore the Course and Termination of the Niger* (3 vols. Lond. 1832). In 1832, they undertook a new expedition to the Niger in an iron steam boat, and bought a small island as a British trading-station. In 1833, Richard Lander, with a few companions, made a trading excursion in the delta of the Niger; but they were assailed by the natives, and Lander received a wound, of which he died, at Fernando Po.—John Lander (1807-1839, Nov. 16; bro. of Richard) was better educated; he was rewarded with an appointment in the Customs; but died from the effects of the African climate.

LANDES, *lõngd*: maritime dept. of France, one of the largest and most thinly peopled in the country: bounded by the Bay of Biscay; 3,585 sq.m. The chief river is the Adour. The railway from Bordeaux to Bayonne passes n. to s. through the whole length of the province. Of the entire area of the dept. 51,100 acres are in vineyards, and about 10,000,000 gallons of wine are produced annually. The dept. is divided into three arrondissements, Mont-de-Marsan, St. Sever, and Dax. Cap., Mont-de-Marsan. Pop. (1901) 291,586.

LANDES, n. plu. *lãngdz* [F. *landes*, heaths—from Ger. *land*, land (see LAND 1)]: extensive areas of sand-drift which stretch southward along the Bay of Biscay, from the mouth of the Gironde, and inward toward Bordeaux, between the Gironde and the Pyrenees. Few districts in Europe are more desolate and unproductive. The part nearest the sea is more so than that further inland on the rivers Adour and Midouze. The soil is in general sandy, sometimes marshy, mostly covered with nothing better than heath and dwarf shrubs, except where large plantations of fir and cork trees were made 1789, by direction of the minister Necker. Only a few more fertile spots yield crops of rye, maize, and millet. The inhabitants, who are called *Parrens*, live in scattered villages of wretched huts, in the e. part of the Landes: they are of Gascon race, very poor and rude, but active, good-natured, and hospitable. They usually walk on stilts in the marshy and sandy grounds. They keep bees, swine, and sheep, and also live by fishing and hunting; and have begun to derive much advantage from the planta-

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tions of trees in which they find occupation in charcoal-burning, cork-cutting, and collecting turpentine, resin, and pitch. They also manufacture *sabots*, or wooden shoes. The sheep of the Landes are of a wretched breed, with coarse wool.

LANDGRAVE, n. *lānd'grāv* [F. *landgrave*; Ger. *landgraf*—from *land*, land; *graf*, earl: Dut. *landgraaf*]: a German nobleman; formerly the title of certain reigning princes of Germany. LAND'GRAVINE, n. *-grāvīn* [Dut. *landgravin*]: the wife of a landgrave. See GRAF.

LAND LEAGUE, IRISH: an outgrowth of the Home Rule League, organized 1879, Oct., under the presidency of Charles Stewart Parnell (q.v.), for the expressed purpose of securing to land tenants in Ireland a reduction in their rents, a general refusal to pay rent if no reductions were made, and an entire change in the land-laws applicable to Ireland, by which peasant proprietors would be substituted for absentee landlords. The Land League was organized in a year of remarkable suffering in Ireland, caused by a failure of the crops; and this fact was used to demonstrate the justice of granting Irish farmers relief in the way of reduced rentals. In the agitation that spread over the country, a number of landlords unfortunately were killed; and without attempting to ascertain the particular causes of the crimes, the govt. at once assumed that they comprised a part of the preconceived plan of the Land League, and hastened to pass the celebrated Coercion Act. The operations of this law so intensified the agitation that 1881 the govt. passed a conciliatory act, known as the 'Land Act of 1881,' designed to secure to Irish tenants fixity of tenure, free sale, and fair rents: under this act tenants were empowered to apply to land courts for a revision of their rents when deemed oppressive, and the amounts of rents then fixed were to be known as judicial rents; and tenants were further empowered to make application to have their leases declared void. In all cases appeals were permitted from the land courts presided over by sub-commissioners to the chief land commissioner. Between the passage of the act and 1885, July 31, there were 122,599 applications to have fair rents fixed in court, 118,909 were disposed of, while 84,074 applications were fixed out of court. During the same time 1,500 applications to have leases declared void were made, of which 145 were granted. In the meantime many thousands of families were evicted by the constabulary because they either would not or could not pay their rents. The leaders of the Land League actively spread their views through Ireland till arrested and imprisoned, and Parnell personally collected in the United States \$350,000 in aid of the prevailing distress and to expedite the Land League movement. Within two years the Land League was officially declared an illegal organization; its meet-

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ings were proscribed and—when the members persisted in holding them—were broken up by the military and constabulary; and more than 20 Irish members of parliament were imprisoned, under a law applying only to Ireland, for public speaking and newspaper writing. In 1887, the 'Land Act of 1881' was extended to leases expiring within 99 years and to any longer lease if the court was satisfied that it was forced on the tenant. Power was given to the land courts on any proceedings for the recovery of a holding valued at not more than \$250 a year, for non-payment of rent, or any action for debt or damages against the tenant, to stay execution of an ejectment, or of a writ of *feri facias* as against the tenant's interest in the holding, for such time as they thought reasonable: and to order that the arrears and costs, or such sum in satisfaction thereof as might be agreed on between the parties, should be paid by instalments. But, if the landlord offered to accept in full satisfaction of arrears such lesser sum as the court should think reasonable, and the tenant refused, no stay of execution should be granted. In 1888, Parnell introduced into parliament an Arrears of Rent Bill, based on the above act, but proposing to extend its provisions to civil cases for the recovery of rent and the limit of value to \$500: but the house refused his bill a second reading, though its leading provisions with modifications were subsequently embodied in the govt.'s own measure. The government subsequently suppressed the league and all its branches throughout the country. See GLADSTONE, WILLIAM EWART; HOME RULE, IN IRELAND.

LAND-LOCKED SALMON: a salmon which inhabits an inland body of water, and can never go and come to the sea. The term applies in America only to salmon inhabiting certain lakes in eastern Canada and northern New England; and whether these salmon should be regarded as distinct species or merely as representatives of the Atlantic salmon modified to suit their local conditions, is a question upon which ichthyologists are not agreed. It is most convenient to follow the distinctions made by sportsmen, and regard the land-locked salmon as two species, the Sebago salmon and the ouananiche.

LANDLORD AND TENANT: the relation of renter to rentee; not necessarily of land, except as all dwellings or industries must have land for a *locus*, but of any of its material incumbrances. The landlord need not be the owner: he may himself be a lessee or tenant granting occupancy or use to a sub-tenant. It is sufficient that his title is superior to that of the one who holds through him. The difference between the latter's interest and that of the landlord is known as the reversion of the latter; but there is obviously no reversionary interest unless the grant is specifically limited to a less volume than the grantor's, and none unless it is inferior in kind.

LANDLORD AND TENANT.

Historically, the relation originated in the practice of infeudation in the Middle Ages, when all holdings were a chain of vassalships, when even kings did homage for portions of their possessions, and no property was held by any but kings, except as vassal to some overlord. The feudal incidents were abolished by the English statute of *Quia Emptores* in 1290. The modern mercantile relation of lessors and lessees is the creation of statute, judicial decisions, and the specific agreements of written contracts.

The mutual obligations of the contracting parties in law are natural consequences of the relation. The landlord on his part must protect the tenant from any other claim of occupancy; must not evict him or suffer him to be evicted, and if he does either, is liable in damages. He is not, however, under any obligation to protect him against violence, trespass, nuisances, or other unlawful acts of outsiders; nor to furnish habitable buildings, usable implements, or anything whatever of specific quality unless specially agreed on. The doctrine of *caveat emptor* is also extended to *caveat lessor*; he must form his own conclusions and run his own risks. The tenant cannot question or interfere with the landlord's title, even if the latter be worthless: his own is derived from it, and must stand or fall with it. Nor does any length of occupancy enable him to plead the latter in bar of the landlord's right, by the statute of limitations, under common law; but he very generally can by statute after a certain period, though never till the period of his tenancy has expired. Of old the feudal tenant could do at once much more and much less than this: he could not under any circumstances get the landlord's property into his own hands, but by a legal fiction of which the law sanctioned the use (feoffment or common recovery), he could grant to a third party what he did not himself own, so that the third party could retain it; the wrongful grantor, however, forfeited his own estate to the landlord. Statutes long since abolished these fraudulent conveyances.

The tenant must keep the premises in repair; if he lets them go to ruin or deteriorate from non-use he is liable in damages. By common law he must rebuild premises destroyed by fire; most states of the Union abrogate this right, however. The tenant must not commit waste; but he may cut wood for fire, repairs, or fencing, and if he is a tenant at will or for life he has a right to the crops.

Obligations by agreement may of course be almost anything. Stipulation of rent usually forms a part; permission to make improvements not to be removed is most usual, sometimes obligation to make them of certain sorts; and an agreement not to assign the lease without the landlord's permission. The landlord may agree to renew the lease or to pay for improvements, or permit

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removal of fixtures, etc. An agreement to pay a reasonable rent has been held to be implied without being specified in the lease. All such rights and duties extend to the successors to the parties, including assignees.

LANDOIS, *lân-dwâ*, HERMANN: German zoologist: b. Münster, Germany, 1835, Apr. 19. He studied for the priesthood, but in 1859 turned his attention to science, and in 1873 was appointed professor of zoology at the Academy of Münster. He is the author of *Sound and Voice Apparatus of Insects* (1867); *Text-Book of Zoology* (1870); *Text-Book of Botany* (1872); *Voices of Animals* (1875); *Text-Book of Instruction in the Description of Nature*; and other popular works of a like character.

LANDOIS, LEONARD CHRISTIAN CLEMENS: German physiologist: b. Münster, Germany, 1837, Dec. 1. He is a brother of H. Landois (q.v.), and was educated at the University of Greifswald and has been professor of physiology there from 1872. He is widely known as an original investigator and has published: *Le Diagnostique des Maladies des Yeux* (1877); *Manuel d'Ophthalmoscopie* (1878); *Traité complet d'Ophthalmologie* (1886); *Lehrbuch der Physiologie* (10th ed. 1899); etc.

LANDON, *lân'don*, LETITIA ELIZABETH (Mrs. MACLEAN), known by her initials L. E. L.: English poet: 1802, Aug. 14—1839, Oct. 15; b. Chelsea, London; dau. of an army agent. Her childhood was spent in the house of a relative in Hertfordshire. In 1820, her first poems in the *Literary Gazette* attracted considerable attention. On the death of her father, she gave her entire attention to literature, earning both fame and money. She published several volumes of verse, the most widely read and admired of which was the *Improvisatrice*; and three novels, long since forgotten. 1838, June 7, she married George Maclean, gov. of Cape Coast Castle, and was found dead in her new house in autumn of the following year. It is understood that for the alleviation of spasms, with which she was occasionally visited, she was in the habit of taking small doses of prussic acid, and her death, which there is no reason to deem other than accidental, is supposed to have been caused by an overdose. In 1841, Laman Blanchard published her *Life and Literary Remains*, 2 vols. L. E. L. might be called a sort of female Byron, if Byron be thought of chiefly as the writer of the *Corsair* and *Lara*. Her poems are altogether high flown and romantic, but they have a certain musical impulse which is pleasing.

LANDON, MELVILLE DE LANCEY, A.M.: ('ELI PERKINS'): American author: b. Eaton, N. Y., 1839, Sep. 7. He was graduated at Union College in 1861, and soon after joined the Union army, from which he retired in 1864, having reached the rank of major. He became a cotton-planter in Arkansas and Louisiana, traveled in

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Europe, and was for a time secretary of the United States legation at St. Petersburg. His writings have made him known chiefly as a humorist, but have dealt with serious as well as lighter subjects. He has published: *Saratoga in 1901* (1870); *History of the Franco-Prussian War* (1871); *Wit, Humor and Pathos* (1875); *Wit and Humor of the Age* (1880); *Kings of Platform and Pulpit* (1887); *Thirty Years of Wit* (1890); *Eli Perkins on Money—Gold, Silver or Bimetallism* (1895); and other works.

LAN'DOR, A. HENRY SAVAGE: English traveler and painter: b. Florence, Italy. He is a grandson of Walter Savage Landor (q.v.), and has traveled in eastern Asia, America, Australia, and Africa. Among his writings are *Alone with the Hairy Ainu; Corea, or the Land of the Morning Calm; A Journey to the Sacred Mountains of Siao-on-tai-shan; China and the Allies* (1901); *Across Coveted Lands* (1902); *The Gems of the East* (1904); *Tibet and Nepal* (1905); etc.

LANDOR, *län'dér*, WALTER SAVAGE: 1775, Jan. 30—1864, Sep. 17; b. Ipsley Court, Warwickshire, England; son of Walter Landor and Elizabeth Savage. He was educated at Rugby, and at Trinity College, Oxford, quitting the univ. without a degree. He succeeded to the family estates on the death of his father. In 1808, he raised a body of men at his own expense, and joined the Spanish patriots under Blake. He was made a col. in the service of Spain, but resigned his commission on the restoration of King Ferdinand. In 1811, he married Miss Julia Thuillier of Bath. After his marriage, he resided first at Tours, then at Florence, where he bought an estate. He became known first as the author of *Count Julian*, which was followed by a poem called *Gebir*. In 1820, appeared *Idyllia Heroica* (in Latin), and 1824-29, *Imaginary Conversations of Literary Men and Statesmen* (5 vols.). Landor was a thorough classical scholar, and his Greek and Roman characters speak as we should expect the ancient heroes to have spoken. He is greater as a prose writer than as a poet; but, according to Emerson, who visited him 1833, nature meant him rather for action than for literature. 'He has,' says Emerson, 'an English appetite for action and heroes.' He was master of a terse, strong, and often noble style. In 1836, he published *Letters of a Conservative*; in the same year, a *Satire on Satirists, and Admonition to Detractors*; in 1837, *The Pentameron and Pentologue*; in 1847, *The Hellenics*; in 1848, *Imaginary Conversations of King Carlo Alberto and the Duchess Belgioso on the Affairs and Prospects of Italy*; in 1851, *Popery, British and Foreign*; in 1853, *Last Fruit off an Old Tree*; in 1854, *Letters of an American*. He died at Florence, Sep., 1864. His *Life and Works* were published, 8 vols., 1876, the life being by John Foster. See also Colvin's *Landor* (1881).

LANDRETH—LANDSCAPE.

LAN'DRETH, BURNET: American agriculturist: b. Philadelphia, 1842, Dec. 30. He was educated at the Polytechnic College, Philadelphia; was captain of infantry during the civil war, serving in the Army of the Potomac, and since the war period has devoted himself to the promotion of higher agricultural and allied interests in many important fields of service. He was chief of the Bureau of Agriculture at the Centennial Exhibition, director-in-chief of the American Exhibition in London, and is a member of many American scientific societies; also holds honorary membership in similar bodies in European countries, in India, and in Japan; and is Chevalier and Officier du Mérite Agricole de France. He founded and is president of the Association of Centenary Firms of the United States, and is head of the seed-house of D. Landreth & Sons, established in 1784 in Philadelphia. He has published several works on agricultural subjects.

LANDRY, AUGUSTE CHARLES PHILIPPE ROBERT: Canadian author and statesman: b. Quebec, 1846, Jan. 15. He was graduated from Laval University in 1866; then took a course in agricultural science at the College of Sainte Anne, and devoted himself to farming. He served for several years in the militia, rising to the rank of lieutenant-colonel. In politics he is allied with the Conservatives; he was a member of the Quebec Assembly 1875-6; was elected to the Canadian House of Commons in 1878, where he served till 1887, when he was defeated at the general election; in 1892, he was called to the senate. He became president of the Quebec Exhibition Company in 1894, is a member of several agricultural societies, and was elected president of the Council of Agriculture in 1896. He has written *Traité populaire d'Agriculture théorique et pratique* (1878); *L'Eglise et l'Etat* (1883); and numerous papers on political and scientific subjects.

LANDRY'S PARALYSIS: fortunately this is a rare disease, attacking as a rule young men and usually fatal in a few days or weeks. It begins suddenly with fever, followed almost immediately by paralysis, beginning in the legs and rapidly progressing upward until it embraces the trunk, the muscles of the upper extremities, and those of speech and swallowing. The cause of the disease is not known, though in its sudden onset and rapid progression it acts like an acute infectious disease, and no method of treatment has been devised which affords any hope of success in arresting the course of the disease.

LANDSCAPE, n. *lānd'skāp* [Dut. *landschap*; Ger. *landschaft*, a province or district: AS. *land*, land; *sceapan*, to shape or form: AS. *-scipe*, Dut. *-schap*=Eng. *ship*]: such a portion of country as the eye can view at a single glance; a delineation of the land; a picture representing rural scenery. .

LANDSCAPE-GARDENING.

LANDSCAPE-GARDENING: the art of laying out grounds in order to beauty and pleasure; fairly reckoned among the fine arts. Its happiest results are obtained, where the mere purpose of pleasing is not too much obtruded, but is seen in harmony with some other design. Much of what is known as landscape-gardening would more properly be called *decorative gardening*, as the word landscape involves a considerable range or distance of natural perspective unattainable in a limited garden area.

Where the general aspect of a country is wild, and has been little modified by cultivation, inclosures, and other works of man, those scenes are felt to be most pleasing which show man's progress and triumph. Thus, when pleasure-grounds first began to be laid out, they exhibited only geometric forms; and alleys, avenues, and parterres did not seem artificial enough to give delight, without buildings of various kinds, terraces, mounds, artificial hills, lakes, and streams, close-clipped hedges, and trees or shrubs trimmed by *topiarian* art into fantastic shapes, such as figures of animals, vases, and the like. The art of the *topiarius* or *pleacher*—dating from the Augustan age in Rome—is not now in repute. In districts where the general scene exhibits a succession of rectangular fields, and where everything shows subservience to utility, a greater irregularity gives pleasure, and the eye loves to rest on any portion of the landscape which presents the original beauties of nature. The landscape-gardener, however, must not attempt an exact imitation of nature, or to reduce everything to a state of primitive wildness. Like the painter, he must exhibit nature idealized. The introduction of water demands unusual artistic skill for its success; the mere landscape-gardener's lake or cascade is too obviously artificial. Where water is within view, it is a chief object of the landscape-gardener to arrange everything so that the view of it may be enjoyed from the windows of the mansion, or from the principal walks. Much care is given to the disposal of wood, in masses, groups, and single trees. Belts and clumps, much in vogue in the latter part of the 18th c., are now comparatively seldom planted.

The style of landscape-gardening in which regular forms prevail is called the *Geometric*; and the opposite style, from having been extensively practiced first in England, in which country, indeed, it may be said to have originated, is known as the *English*. On the continent of Europe, a pleasure-ground laid out with winding and irregular walks, and scattered trees or groups of trees and shrubs, is called an *English garden*; but many of the continental English gardens are rather caricatures of the true English style than illustrations of it. The taste of the present age rejects or admits very sparingly the grottoes, temples, statues, monuments, fountains,

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jets-d'eau, etc., with which it was once the fashion to fill pleasure-grounds. In the laying out of grounds, whether on a large or small scale, it is of great importance that the trees and shrubs be well chosen, and the different kinds well grouped.

LANDSEER, *lānd'sēr*, Sir EDWIN, R.A.: English painter: 1802, Mar. 7—1873, Oct. 1; b. London; son of John L., eminent engraver. He was carefully trained by his father, who used to take him when a child to Hampstead Heath, and accustom him to sketch animals from life. The first work of Landseer's that brought him prominently before the public was *Dogs Fighting*, exhibited 1819. It was succeeded by *Dogs of St. Gothard* (1819), the popularity of which was very great. The scene of several of his finest pictures is in the Highlands of Scotland. For more than 30 years, every London exhibition has witnessed his success. In 1827 he was elected a R.A., and in 1850 he was knighted. Among his most celebrated achievements are: *The Return from Deer-stalking*, *The Illicit Whisky-still*, *High Life, Low Life*, *Poachers Deer-stalking*, *Bolton Abbey in the Olden Time*, *The Drover's Departure*, *Return from Hawking*, *The Old Shepherd's Chief Mourner*, *Dignity and Impudence*, *Peace, War*, *Stag at Bay*, *The Drive—Shooting Deer on the Pass*, *The Random Shot*, *Night, Morning*, *The Children of the Mist*, *Saved*, *Highland Nurses*, *Deer-stalking*, and *Flood in the Highlands* (1861), and more recently, *Windsor Park*, *Squirrels Cracking Nuts*, and *Man proposes, but God disposes*. Landseer was elected pres. of the Royal Acad. 1866, but declined. Landseer is reckoned the most superb animal-painter of his time.—Landseer had two elder brothers also artists: THOMAS L., one of the best engravers of his time; and CHARLES L. (1799-1879), painter of historical scenes and figure subjects.

LAND'S END. See CORNWALL.

LANDS'FELDT, Countess of. See LOLA MONTEZ.

LANDSHUT, *lānts'hôt*: ancient and picturesque German town, of Upper Bavaria, in a pleasant and fertile district on the Isar, 39 m. n.e. of Munich. Its streets are rich in quaint old gables, and there are numerous towers; that of St. Martin's Church (Gothic, dating from 1450) is 420 English ft. in height. Landshut contains 36 breweries, and has manufactures of woollen cloth, leather, hosiery, and tobacco. In 1826, the univ., removed hither from Ingolstadt 1800, was transferred to Munich. The castle of Trausnitz, long the residence of the Dukes of Bavaria, is supposed to have been originally a Roman station. During the Thirty Years' War, and the War of the Austrian Succession, Landshut was an important fortress, and the scene of many conflicts. It is called sometimes Dreihelm-Stadt, Pop. 21,700.

LANDSLIP—LAND-SNAIL.

LAND'SLIP: large portion of land which from some cause becoming detached from its original position, slides down to a lower level. Landslips are common in volcanic districts, where the trembling of the earth that frequently accompanies the eruption of a volcano is sufficient to split off large portions of mountains, which slide down to the plains below. Water is another great agent in producing landslips. It operates in various ways: the most common is when water insinuates itself into minute cracks, which are widened and deepened by its freezing in winter. When the fissure becomes sufficiently deep, when the ice melts, a landslip is produced. Sometimes, when the strata are very much inclined, and rest on a bed susceptible of absorbing water and thus becoming slippery, the superincumbent mass slides over it to a lower level. This occurred on a large scale in Dorsetshire, England, between Lyme and Axminster 1839, an unusually wet season: a mass of chalk and greensand here slid over the slippery surface of a bed of liassic clay down into the sea. Of a like kind was the slip of the Rossberg, Switzerland, 1806 (see *GOLDAU*); and that which overwhelmed the village of Elm, in Glarus, 1881, Sep., about 200 lives being lost. Landslips of a different kind have been produced in peat-mosses, which becoming by heavy rains thoroughly saturated with water, have burst their natural boundaries, and discharged themselves on a lower level. The most remarkable case of this kind is that of the Solway Moss, which, 1772, owing to rains, spread itself in a deluge of black mud over 400 acres of cultivated fields. In 1880, a most destructive landslip occurred at Naini Tal, an Anglo-Indian health-resort on the slopes of the Himalaya. The town was partly built on a great sloping terrace of shaly deposit overhanging the lake, and this becoming saturated with the heavy autumn rains, it suddenly slipped forward, burying many houses in its debris. Forty Europeans, and 100 to 200 natives, lost their lives.

LAND-SNAIL: an air-breathing terrestrial gasteropod mollusk, or snail of the family *Helicidæ* or some nearly related pulmonate. These mollusks possess a well-developed, usually globose and more or less spiral, horny and brightly colored shell (except in slugs), into which the whole animal may be withdrawn, and which has, usually, a lunate aperture, not closed by an operculum. Four retractile tentacles exist, the upper pair being the larger and possessing eyes at their tips. A distinctly developed so-called 'foot' is present. The aperture by means of which air is admitted to the lung-chamber for the purpose of breathing exists on the right side, under the edge of the shell. The mouth possesses an upper mandible of horny consistence and toothed structure, and, as in other gasteropods, there is a tongue or lingual ribbon bearing many teeth. The food is generally of a vegetable nature, and snails are capable of doing great mis-

LANDSTURM—LAND-SURVEYING.

chief in gardens, but none in the United States is noticeably harmful. The sexes are united in the same individual; but the copulation of two such hermaphrodite individuals is necessary for impregnation, which becomes mutual. The eggs are globular or oval, have coriaceous shells, and are laid singly in damp places, as under leaves, stones, etc.; *Bulimus* is noted for the comparatively large size of its eggs. These eggs and the snails themselves are eaten by birds, turtles, and other enemies, especially in the tropics, where land-snails are more varied, numerous and conspicuous than in temperate regions. Some species, however, live in very cold climates, far to the north or high on mountain ranges. Those of cold climates hibernate in winter, creeping into sheltered places, and closing the aperture with one or more air-tight drum-head-like curtains of hardened mucus. In hot and dry places they protect themselves in midsummer against undue loss of moisture in the same manner.

The family *Helicidæ*, which embraces not only the terrestrial genus *Helix*, but the bush-climbing, long-spined *Bulimus* (q.v.), and several smaller genera, includes thousands of species. Specimens are always most numerous in moist woods and in a limestone region than elsewhere. Many small terrestrial mollusks, properly called land-snails, belong to families other than *Helicidæ*, as the *Orthalicidæ*, *Bulimulidæ*, and *Pupidæ*, the last containing many minute American species, not larger than a pin-head, shaped like a grain of rice, and beautifully chased; *Stenogyridæ*, in which are found the great agate-shells (*Achatina*) and sundry others of the tropics; *Succineadæ*, represented by many small, glassy expanded forms of great beauty; and others, some of which contain shell-less and slug-like forms. Consult: Lovell, *British Edible Mollusks*; Cooke, *Mollusks* (Vol. III., Cambridge Natural History, 1895); Binney and Bland, *Land and Fresh-water Shells of North America*.

LANDSTURM, n. *lānt'stōrm* [Ger. *land*, land, country; *sturm*, storm, alarm]: in *Prussia*, a general levy of the people for war; the last reserve: see LANDWEHR.

LAND'-SURVEYING: art of measuring the area of a portion, small or large, of the earth's surface; an important application of mathematics, involving thorough acquaintance with geometry, trigonometry, and the theory and use of the instruments employed for determination of angles. Fields or portions of ground of small extent are measured easily and with sufficient accuracy by a chain (for distances), and a box-compass or cross-staff (for angles). For larger areas, the use of the surveyor's table is requisite; and for those of still greater extent, in which the greatest accuracy is requisite in the determination of the angles, there is use for the astrolabe, theodolite, sextant, circle, reflector, mi-

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chrometer, etc. The surface to be measured is divided into triangles, which are separately measured and calculated; but when a large extent is included in the measurement, it is not enough to proceed from one triangle to another, in which way an error at the outset may be propagated with continual increase; but a base line, as long as circumstances admit of, must, in the first instance, be accurately measured, upon which, by means of the measurement of angles, all the subsequent calculations are made to depend, and lines subsequently measured are intended only to be corrective of the results obtained by calculation. When the extent of surface is still greater, as when a whole country is to be measured, points here and there are astronomically determined, their meridians are accurately laid down, and a complicated system of triangles is employed to insure accuracy; this is called *Triangulation* (q.v.).

LAND'-TAX: tax imposed on land and houses for revenue, instead of the ancient subsidies, scutages, tiliages, tenths, fifteenths, and such occasional taxes. In England, from a very early period to the middle of the 17th c., parliament had provided for the extraordinary necessities of the govt. chiefly by granting subsidies, raised by an impost on the people in respect of their reputed estates. Landed property was the chief subject of taxation, and was assessed nominally at 4s. in the pound. But this assessment was made in such a way that it did not rise with the value of land, but dwindled away to about 2d. in the pound. The long parliament devised a more efficient plan by fixing the sum to be raised, and then distributing it among counties according to their supposed wealth, leaving them to raise it by a rate. In 1692, a new valuation of lands was made, and it was found that a tax of 1s. per pound of capitalized value would yield half a million. In war, this was raised to 4s. In 1798, the parliament relieved itself of the trouble of every year passing an act, and a general act was passed, permanently fixing the land-tax at 4s. in the pound. This act (38 Geo. III. c. 60) enabled the landlord to redeem the tax, and accordingly, since that time, a great part of it has been redeemed, only about one million being unredeemed. Though the act of 1798 directed the tax to be assessed and collected with impartiality, this provision was not carried out, but the old valuation of 1698 was acted on, and in modern times the greatest possible inequality prevails. The escape of landlords from taxation in England in consequence of the virtual abandonment of the land-tax of 4s. in the pound of capitalized value, a tax which would yield, if now enforced to the letter, abundant revenues, so vastly has the land of England increased in value, has brought on an intense agitation for the taxation of land values. This question is now (1907) an issue between the Liberal and the Conservative parties; and measures for the imposition of

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such a tax are pending in Parliament. In the United States, the land-tax is a designation often mistakenly applied to real estate taxes. The latter are not truly land taxes. They are *ad valorem* taxes on land and improvements taken together as one kind of property, whereas land-taxes are taxes on land alone, irrespective of improvements, and may be either *ad valorem* on the capitalized or selling value, or specific by area.

LAND-TORTOISE: a terrestrial turtle of the family *Testudinidæ*, order *Cryptodira*, a family characterized primarily by the possession of a strong box-like shell, completely ossified when young and covered with horny shields, into which the whole body may be withdrawn and in some forms wholly enclosed. The family also contains aquatic and amphibious forms, but these need not now be considered. American representatives are found in the box-turtles (properly so-called) of the genus *Cistudo*, in which the plastron is connected with the carapace by ligaments and is divided into two movable lobes, the transverse hinge being so perfect that the box can be completely closed after head, legs and tail have been withdrawn. The carapace is high and arched. The common box-tortoise of the United States (*C. carolina*) has become completely terrestrial, and has undergone some interesting structural modifications in consequence, among others a loss of webbing between the toes. It reaches about six inches in length, is highly variable in the arrangement of the blackish and reddish tints of its coloration, and each dorsal shield is nicely sculptured in concentric rings, but these become worn nearly smooth in old age. They wander about the woods, walking with the shell well lifted from the ground, and searching for food most diligently in the evening and early morning and in moderate and moist weather. Their food consists chiefly of snails, slugs, earthworms, crayfish, grubs, and the like, together with fungi and a little green stuff. In winter they hibernate, buried in soil or garden rubbish. They are fond of staying in one limited district, are easily tamed and exhibit some intelligence, but individuals differ much in these respects.

The typical land-tortoises, however, are those of the genus *Testudo*, in which the plastron has no hinged, folding part, and the feet are short and webless. The 40 or more species are scattered throughout the warmer parts of the world, excepting in Australasia. The small, convex, highly sculptured 'Greek' tortoises of Europe and N. Africa, so often kept as garden pets, are familiar representatives. They feed almost wholly upon green grass, leaves and vegetables. The captive made famous in Gilbert White's *Natural History of Selborne* was one of these (*T. iberæ*), and its shell is now preserved in the British National Museum. The gopher tortoise of Florida is a N. American species; and a similar widely

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spread S. American species (*T. tabulata*), which lives mainly on forest fruits, is often two ft. long.

Gigantic Land Tortoises.—Certain terrestrial tortoises of very large size survived until the historic age, and in some cases still exist, on islands in the Indian and Pacific oceans. They are relics of a bygone period, when even larger ones prevailed. Fossil bones in Miocene and Pliocene strata of India, western N. America and other parts of the world, indicate tortoises of that period whose heads alone must in life have been nearly a foot in length, and beside those giants even the largest of the modern species so-called would look small. The presence of such turtles gave their name to the Galapagos group of islands off the coast of Ecuador, where each of the large islands of the archipelago supported a separate species, but all resembled one another in the relative small size of the head and great length of the neck. 'The most peculiar looking are or were *T. ephippium* and *T. abingdoni*, the shell of which is extremely thin, with large lacunæ in the osseous plates. The profile of the shell is saddle-shaped, with the horny shields partly concave and turned upward at the sides. The general color of these and other Galapagos tortoises is black.' Toward the close of the 19th century all that remained of these tortoises were caught and distributed alive to various parks and zoological collections in N. America and Europe, where they will be cared for and will probably continue their race. They eat grass and leaves of succulent plants, as lettuce; their food in the Galapagos having been mainly cactus and a lichen (*Usnea*).

Other giant tortoises inhabited the islands of the Indian Ocean until within the historic period, and a few remain in captivity. In 1898 there was still living in England a specimen of *T. sumeiri*, once existing in thousands on the Seychelles, whose history was known since 1766, when it was already of large size. Other species inhabited Madagascar, where they became extinct prehistorically, Bourbon, Mauritius and Rodriguez. They were utilized as food by the voyagers of the 17th and 18th centuries; were wastefully slaughtered by the European colonists, and carried in shiploads from island to island, until at last none remain but a few captive specimens. Consult: Günther, *Gigantic Land Tortoises* (1877); Gadow, *Amphibia and Reptiles* (1901); Baur, *American Naturalist*, Vol. XXIII. (Dec. 1889).

LANDWEHR, n. *lānt'vār* [Ger. *land*, land, country; *wehr*; defense]: military force in the German and Austrian empires, somewhat corresponding to the militia (q.v.) of Great Britain and the United States; the national guard. It is not always retained under arms. During peace, its members spend most of their time in civil pursuits, and are called out for military service only in times of war or of commotion—care being taken, however, that they are sufficiently exercised. The name

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Landwehr was applied first to the Tyrolese who rose against the French; and 1805 a similar force was raised in the other German provinces of Austria. The Landwehr of Austria-Hungary is now like that of Germany—an army reserve. By far the most elaborate and complete system of land-defense was the Prussian, called into existence 1813, when all Germany rose against Napoleon. As early, indeed, as 1806, or earlier, Marshal Kneesebeck, then major in the Prussian army, had proposed such a thing; but it was not till the opening of the campaign of 1813 that the Prussian Landwehr was organized according to Scharnhorst's plan by a royal edict, Mar. 17. At first, it was designed solely as a land defense, properly so called, and not, what is now the case, as an integral part of the regular army. It was called out in two separate levies, the first comprising all men from 26 to 32 years of age, and the second those from 32 to 39. The older men up to 60 belonged to the *Landsturm*, which was called out only for the defense of house and hearth.

After the second Peace of Paris appeared the *Landwehrordnung* (Landwehr-regulation) of 1815, Apr. 21, according to which the country was divided into 104 districts, each of which had to furnish a battalion of Landwehr. To every battalion of Landwehr was attached a squadron of uhlans; three battalions formed a regt.; two regts. a Landwehr brigade, which with the brigades of cavalry and infantry, was placed under a gen. of division. By the constitution of 1871, Apr., the Prussian obligation to serve in the army was extended to the whole German empire. Every German capable of bearing arms, after serving in the standing army for seven years, has to enter the Landwehr, and remain in it for another five years.

LANE, n. *lān* [Dut. *laen* or *laan*, an alley: Scot. *loan*, an opening between fields left uncultivated: Gael. *lon*, a meadow; Dan. *laane*, a bare place in a field]: a narrow way between hedges; any narrow road or street; a narrow passage.

LANE, *lān*, ANNA EICHBERG KING: American author; b. Geneva, Switzerland, 1856. She is daughter of the late Julius Eichberg (q.v.), a distinguished Boston musician, and received her early education in that city. Her first husband was Tyler Batcheller King, of Boston; in 1898 she was married to John Lane, the publisher, of London and New York. She has written many short stories and poems, among the latter being her national hymn, *To Thee, O Country!* Her prose writings include: *Brown's Retreat*, *Kitwyk*, and *American Wives and English Housekeeping*.

LANE, EDWARD WILLIAM: English Orientalist; b. Hereford 1801, Sep. 17; d. Worthing, Sussex, 1876, Aug. 10. He published *Manners and Customs of the*

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Modern Egyptians (1836), and made one of the most famous translations of the *Arabian Nights* (1838-40). This work was the first translation of consequence into English which was made directly from the Arabic, all previous translations having been made through the French. It contained valuable illustrations and numerous scholarly and indispensable notes. The translations of Burton and Payne were subsequent to it. The world is indebted to him for many valuable works on Egypt, and especially for his *Arabic-English Lexicon* (1863-74), which cost him 20 years of unremitting labor. The succeeding parts came out from 1877 to 1882 under the editorship of S. Lane-Poole, the whole forming a dictionary indispensable to the student of Arabic.

LANE, GEORGE MARTIN: American educator; b. Charlestown, Mass., 1823, Dec. 24; d. Cambridge, Mass., 1897, June 30. He was graduated from Harvard in 1846 and after four years at the universities of Berlin and Göttingen returned to America and became professor of Latin at Harvard in 1851. He held this chair until 1894 when he became professor emeritus. He published *Latin Pronunciation* in 1871, in which he contended for the continental pronunciation of the language as against the English method. He left unfinished a Latin Grammar, completed by Morgan (1898). The famous ballad of *The Lone Fishball* was written by Professor Lane.

LANE, HENRY SMITH: American politician; b. in Montgomery co., Ky., 1811, Feb. 24; d. 1881. He studied law, and was admitted to the bar; removed to Indiana in 1832, and while engaged in his profession became prominent in Whig politics. After serving as state senator (1837), he was twice elected to Congress (1838 and 1840), and in the Mexican war lieutenant-colonel of an Indiana regiment. The dissolution of the Whig party was followed by a preliminary organization which led to the formation of the Republican party, and in this movement Lane was conspicuous, acting with other leaders who planned the first Republican national convention, held in Philadelphia in 1856, and of which he was permanent chairman. A coalition of Republicans with members of the disappearing American party in 1859 elected him to the United States senate, but after a contest he was unseated in favor of his Democratic competitor. He was elected governor of Indiana in 1860, and in the same year became United States senator, serving one term.

LANE, JAMES HENRY: 1814, June 22—1866, July 11; b. Lawrenceburg, Ind.: lawyer. He was admitted to the bar 1840; was commissioned colonel of the Third Ind. Volunteers, raised for the Mexican war 1846; commanded a brigade at the battle of Buena Vista; was colonel of the Fifth Ind. regt. 1847-8; lieutenant-governor of Indiana 1848; and member of Congress 1853-55. In 1855 he

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removed to Kansas, where he became conspicuous in the first free state govt., pres. of the Topeka and Leavenworth constitutional conventions, and major-general of the free state militia. He fought the Missouri invaders, was elected by the free state legislature U. S. senator (1856), but was not seated—his election being held not valid by Congress—and being indicted for treason by the pro-slavery party, he was compelled to flee the territory. On the admission of Kansas into the Union (1861) he was chosen U. S. senator, and was re-elected 1865. During the war he was brigadier-general of volunteers, and in command of a brigade of Kansas soldiers defeated the Confederates in several conflicts. His death was by suicide under temporary aberration of mind occasioned by an attack of paralysis.

LANE, JOSEPH: American soldier and politician; b. Buncombe co., N. C., 1801, Dec. 14; d. Oregon 1881, April 19. In 1816 he went from Henderson co., Ky., to Warwick co., Ind., where he was for some time clerk in a mercantile establishment, and in 1822-46 served in both houses of the state legislature. He resigned from the senate in 1846 to enlist as a private in the Second Ind. Volunteers, was soon commissioned colonel of the regt., and in the same year was promoted brigadier-general. He was wounded at Buena Vista, defeated Santa Anna at Huamantla, and was brevetted major-general, U. S. A., for this service. After the Mexican war he was appointed governor of Oregon territory, was Democratic delegate from Oregon to Congress in 1851-7, defeated the Rogue Indians at Table Rock in 1853, and in 1859-61 was a United States senator. He was nominated for the vice-presidency in 1860 on the unsuccessful Breckenridge ticket.

LANE, Sir RALPH: English administrator in America; b. Northamptonshire, England, about 1530; d. in Ireland 1604. In 1583-4 he held a command in Ireland, in 1585 took the direction of the colony that Raleigh was establishing in Virginia, sailed in that year in the fleet commanded by Sir Richard Grenville, and was left with 107 colonists at Roanoke Island, while the fleet returned to England (Aug. 25). He was thus the first governor of Virginia. The location proved unsuitable, provisions ran low, and there was trouble with hostile Indians. In 1586, June 19, the colony sailed for England in the fleet of Sir Francis Drake. In 1589 Lane was a colonel in Drake's expedition against Portugal, and in 1591 helped to quell a rebellion in Ireland. Letters by him may be read in Hawks' *History of North Carolina* (1857); and in Hale (editor), *Archæologia Americana*, Vol. IV. (1860).

LANE, WILLIAM COOLIDGE: American librarian; b. Newton, Mass., 1859, July 29. He was graduated at Harvard in 1881, and was assistant librarian there from 1887

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to 1893, when he became librarian of the Boston Athenæum, continuing in that position until 1898, since when he has been the librarian of Harvard University. From 1886 to 1900 he served as secretary and treasurer of the publishing board of the American Library Association, and in 1898-9 was president of the association.

LANE-POOLE, STANLEY, M.A., LITT.D.: English archaeologist; b. London 1854, Dec. 18. He is a nephew of E. W. Lane, the Orientalist (q.v.). He was educated at Corpus Christi, Oxford; in 1874-92 was employed in the coin department of the British Museum; was sent by the British government on archaeological missions to Egypt (1883), and Russia (1886); was employed by the Egyptian government in archaeological research at Cairo (1895-7); and in 1898 became professor of Arabic in Trinity College, Dublin. Among his works are: *Social Life in Egypt* (1883); *The Moors in Spain* (1887); *Saracenic Egypt* (1900); *Mediæval India* (1902); *The Story of Cairo* (1902); etc. He also edited many volumes, and prepared the extensive catalogue of the Oriental and Indian coins in the British Museum (1875-92).

LANE THEOLOGICAL SEMINARY: a divinity school founded at Cincinnati, Ohio, 1829. It was opened for students three years after its foundation and its endowment is \$480,929; its income \$18,078; it has five instructors and 20 students. Although it is under the control of the Presbyterian church it receives students from other reformed bodies. No tuition fees are charged, board is low, and there are 39 scholarships, each of the value of \$2,000. The college stands on a lot of 60 acres; there are five professors' houses, and a library containing 23,000 volumes.

LANESSAN, lân-ě-sân, JEAN ANTOINE DE: French naturalist and publicist; b. Saint-André-de-Cubzac, Gironde, 1843, July 13. He entered the health corps of the French marine service, after studying medicine at Bordeaux, and was engaged as surgeon on the coast of Africa and China until the Franco-Prussian war. He was elected to the National Assembly in 1881, and came into notice as a republican journalist. Being interested in colonial matters he was appointed governor-general of Indo-China in 1891; and his writings have done much to promote French colonization. His principal works are: *De Protoplasme végétal* (1876); *La Matière, la Vie et les Etres Vivants* (1879); *L'Expansion Coloniale de la France* (1888); *Principes de Colonisation* (1897).

LANFRANC, lãn'fränk: Abp. of Canterbury; most eminent of the foreign churchmen who rose to distinction in the mediæval Church of England: abt. 1005-1089, May; b. Pavia, of noble family. He was educated partly at Pavia, partly at Bologna, for the profession of the law. For a time he was an advocate at Pavia; but in the hope of greater distinction, he removed to France,

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and founded at Avranches a school of law, which soon became one of the most popular in France. Having been waylaid and almost murdered by robbers during one of his journeys to Rouen, he was carried to the monastery of Bec, where he was treated with much tenderness; and the deep religious impressions there received determined him to abandon the world and become a monk. He was soon (1041) chosen prior of the monastery; and his reputation for piety, as well as the fame for theological learning which he acquired, especially in his controversy on the Eucharist with Berengar, led to his translation 1062 to the more important monastery of St. Stephen, at Caen, recently founded by William, Duke of Normandy. Having had the confidence of that prince for many years, he was selected by him, after the conquest of England, to fill the primatial see of Canterbury, accepting with reluctance 1070. He entered zealously into the policy of his sovereign; and under his spiritual rule the Church of England received as strong an infusion of the Norman element as was forced on the political system of England by the iron hand of the Conqueror. Lanfranc outlived William; and to his influence the historians mainly ascribe the peaceful submission with which that monarch's successor, Rufus, was accepted by the kingdom as well as the comparative moderation of the earlier years of Rufus's reign. The tyranny which has made the name of Rufus odious dates mainly after the death of Lanfranc, which occurred in his 84th year. His chief writings are—Commentaries on the Epistles of St. Paul, the Treatise against Berengar, and Sermons. His letters, however, are very interesting. The first complete ed. of his works is that of D'Achery (fol. Paris 1648). They are found also in the *Bibliotheca Patrum*. See Milman's *Latin Christianity*, III. 438-440, also Dr. Hook's *Lives of the Archbishops of Canterbury*, II. (1861).

LANFREY, *lân-frā*, PIERRE: French historian and publicist; b. Chambéry 1828, Oct. 26; d. Pau, France, 1877, Nov. 15. He was educated in the Jesuit college of his native town and in Paris, and became well known by the publication of works in support of political and religious liberalism. These include: *L'Eglise et les Philosophes au XVIII. Siècle* (1855); *Essai sur la Révolution Française* (1858); *Historie Politique des Papes* (1860); *Lettres d'Everard* (1860), a social novel in epistolary form; *Le Rétablissement de la Pologne*, and *Etudes et Portraits Politiques* (1863). His most important work is a *History of Napoleon I.* (1867-75), which is strongly hostile to Napoleon. It was left incomplete at his death. In 1871 he was elected to the National Assembly by the department of Bouches-du-Rhone, and took his seat with the republican left. He was ambassador at Berne 1871-3, and in 1875 he was elected a life senator.

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LANG, ANDREW, M.A., LL.D., D.LITT.: Scottish author; b. Selkirk 1844, March 31. He was educated at St. Andrews and at Balliol College, Oxford; was elected fellow of Merton, Oxford, in 1868; in 1888 was appointed Gifford lecturer on natural religion at St. Andrews; became a constant contributor to periodical literature; and published an extensive list of volumes on a wide variety of subjects, being recognized as the most versatile of present-day writers. His wide learning appears in his prose renderings of the *Odyssey* (1879; with Butcher), and the *Iliad* (1882; with Myers and Leaf), and *Homer and the Epic* (1893), a defense of the unity of the poems; in his works on comparative mythology and religion, *Custom and Myth* (1884); *Myth, Ritual and Religion* (1887; new ed. 1899); *The Making of Religion* (1898), and *Magic and Religion* (1901); and in his studies of Scottish history, such as *A History of Scotland from the Roman Occupation* (1900 et seq.). Some of the most interesting of his work is to be found in *Letters to Dead Authors* (1886); *Letters on Literature* (1889); *Angling Sketches* (1891); *Essays in Little* (1891); *Adventures Among Books* (1904). He published also collections of *vers de société*, *Ballades in Blue China* (1880), and *Rhymes à la Mode* (1884); and in verse, *Ban et Arrière Ban* (1894), and his most ambitious poem, *Helen of Troy* (1882). Mention should also be made of *Cock-Lane and Common Sense* (1894), a discussion of the spiritualistic question; and the biographies of Lockhart (1896) and Tennyson (1901). Besides these he has written: *Ballads and Lyrics of Old France* (1872); *Ballads and Verses Vain* (1884); *Princess Nobody* (1884); *Books and Bookmen* (1886); *In the Wrong Paradise* (1886); *Mark of Cain* (1886); *Politics of Aristotle* (1886); *Grass of Parnassus* (1888); *Lost Leaders* (1889); *How to Fail in Literature* (1890); *Blue Poetry Book* (1891); *The Library* (1892); *Prince Ricardo of Pantouflia* (1893); *Pickle, the Spy* (1897); *Prince Charles Edward* (1900); *The Mystery of Mary Stuart* (1901); *The Disentanglers* (1902); *The Valet's Tragedy* (1903); *John Knox and the Reformation* (1905); etc.

LANG, BENJAMIN JOHNSON: American musician; b. Salem, Mass., 1837, Dec. 28. He studied music under his father, an organist and piano-forte teacher, and at 15 began work as teacher and organist. In 1855 he went to Germany for further study, which for three years he pursued under the instruction of Liszt, Albert Jaell, and others. Returning to Boston, he at once attained prominence as organist, pianist, teacher, and conductor; became organist of the Handel and Haydn Society in 1859, and conductor of the same in 1895; conductor of the Apollo Club in 1868; and of the Cecilia Society in 1874. In 1869 he made a second visit to Europe, and gave concerts in Berlin and other cities. As a member of the

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concert committee of the Harvard Musical Association he has done much in the interest of musical culture, and through this and other organizations has secured the production of many new works. The introduction of Wagner to the American public was in no small part due to his presentation of that master. While he has accomplished much work as a composer, few of his compositions have been published.

LANG, JOHN MARSHALL, D.D., LL.D.: Scottish Presbyterian clergyman and author; b. Glasford, Lanarkshire, 1834, May 4. After completing his education at Glasgow University he took charge of several churches in succession, but returned to Glasgow in 1873, and was appointed to the Barony Church, where he had previously been installed in 1865, but left it for Edinburgh in 1868. In 1900 he was elected vice-chancellor and principal of Aberdeen University. He is the author of *Gnostic Sects and Heresies* (1873); *Heaven and Home* (1875); *The Last Supper of Our Lord* (1881); *Life: Is it Worth Living?* (1883); *Ancient Religions of Central America* (1882); *The Church and the People* (1893).

LANG, MARGARET RUTHVEN: American composer; b. Boston 1867, Nov. 27. She studied the pianoforte under her father, B. J. Lang (q.v.); the violin under Louis Schmidt in Boston, and (1886-7) with Drechsler and Abel in Munich; composition with Victor Gluth in Munich; and orchestration (1887) under G. W. Chadwick, Boston. Her piano solos, songs, etc., have been received with high appreciation in musical circles; her *Dramatic Overture* has been performed by the Boston Symphony Orchestra, and the Chicago Orchestra has several times given *Witichis*, Theodore Thomas conducting.

LANG, *lång*, WILHELM: German journalist and essayist; b. Tuttlingen 1832, July 16. Among his works are: *Michelangelo Buonarotti as a Poet* (1861); *David Friedrich Strauss* (1874); *Wanderings in Peloponnesus* (1878); *From Suabia: History, Biography, Literature* (in 7 parts, 1885-90), a collection of delightful essays; *The German Party in Würtemberg 1866-91* (1892).

LANG'BRIDGE, FREDERICK, M.A.: English clergyman and author; b. Birmingham 1849, March 17. He was graduated at Oxford University and adopted the profession of private tutor and schoolmaster. He is now rector of St. John's, Limerick. He has published *Gaslight and Stars* (1892); *A Cracked Fiddle* (1892); *Ballads for the Brave* (1890); *Love Has no Pity* (1901); etc.; and many books for young people.

LANG'DELL, CHRISTOPHER COLUMBUS, A.B., A.M., LL.D.: American lawyer; b. New Boston, Hillsborough co., N. H., 1826, May 22; d. Cambridge, Mass., 1906, July 6. He studied at Harvard, was graduated from its law school in 1853, in 1853-70 practiced in New York, in 1870 became professor of jurisprudence in the Har-

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vard law school, and in 1871 dean of the law school faculty. In 1895 he retired. He was an originator of the so-called 'case' system of legal study, and was otherwise prominently identified with the progress of professional education in this country. His publications include: *Selection of Cases on the Law of Contracts* (1870; enlarged ed. 1877); *Cases on Sales* (1872); *Summary of Equity Pleading* (1877; 2d ed. 1883); and *Cases in Equity Pleading* (1878).

LANG'DON, JOHN, LL.D.: American statesman; b. Portsmouth, N. H., 1741, June 25; d. there 1819, Sep. 18. At the outbreak of the Revolutionary war he embarked in the patriotic cause, and in 1775 he was a delegate to the Continental Congress, but resigned office in June, 1776, on becoming navy agent. In 1777, while speaker of the New Hampshire assembly, he pledged a large portion of his property for the purpose of equipping the brigade with which Stark defeated the Hessians at Bennington. Subsequently he was a member and speaker of the state legislature, a member of the Continental Congress, a delegate to the convention which framed the Constitution of the United States, and president of New Hampshire. He was one of the first United States senators from New Hampshire, which office he held until 1801. In politics he acted with Jefferson, who, upon assuming office in 1801, offered him the post of secretary of the navy, which he declined. From 1805 to 1812, with the exception of two years, he was governor of New Hampshire; and in 1812 he was offered by the Republican congressional caucus the nomination for the office of vice-president of the United States, which, on the score of age and infirmities, he declined. The remainder of his life was passed in retirement.

LANGE, *lâng'èh*, JOHANN PETER, D.D.: 1802, Apr. 10—1884, July 8; b. Sonnborn, Prussia: theologian. He was brought up on a farm; showed a great passion for reading; studied at the Düsseldorf Gymnasium 1821-2 and the Univ. of Bonn 1822-25; was asst. minister at Langenberg 1825-6; and Reformed pastor at Wald 1826, Langenberg 1828, and Duisburg 1832. In 1841 he was appointed prof. of theol. in the Univ. of Zurich, and held the office till 1854, when he became prof. of systematic theol. at the Univ. of Bonn. He became counselor of the consistory 1860, and continued his writing and lecturing till within a week of his death. Of his numerous and important works the best known are: *Leben Jesu*, 3 vols. (Heidelberg 1844-47), prepared as a refutation of Strauss's celebrated work: *Die Christliche Dogmatick*, 2 vols. (1849-52); and *Theologisch-homiletisches Bibelwerk* (Bielefeld 1857-76), of which the New Test. was comprised in 16 parts (1857-71) and the Old Test. in 20 (1865-76); the whole being translated, enlarged, and adapted under the editorship of the

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Rev. Philip Schaff, D.D., LL.D., and entitled *Critical, Doctrinal, and Homiletical Commentary on the Holy Scriptures* (New York, begun 1864).

LANGE, *lâng'é*, JULIUS HENRIK: Danish art critic; b. Vordingborg 1838, June 19. After leaving the University of Copenhagen he traveled in Italy, and thereafter devoted himself to study of the history of art. Among his works are: *On Art Values* (1876); *Danish and Foreign Art* (1879); *Gods and Men in Homer* (1881); *Art and Politics* (1885); *Bastien Lepage and Other Painters* (1889); *Thorwaldsen's Representation of the Human Figure* (1893).

LANGÈLAND, *lâng'é-lând* (*long land*): Danish island, at the s. entrance to the Great Belt between Fuhnen and Laaland; 33 m. long, and about 3 m. in average breadth; about 100 sq.m. It consists of a range of low hills, is very fertile in soil, and is well wooded. Grain, peas, butter, and cheese are largely produced. Rudkjöbing, pop. 3,200, on the w. coast, is the only town.—Pop. 18,900.

LANGENBECK, *lâng'en-běk*, BERNARD VON: German physician and surgeon, prof. of surgery in the Univ. of Berlin, director of the Royal Clinical Hospital, and general staff physician of the army: cousin of the famous surgeon Max L. of Göttingen. He was appointed 1847 successor to the great operator, Dieffenbach, in Berlin, and soon acquired equal celebrity, especially for skill and success in the operation for harelip, and in the replacement of noses, eyelids, and lips. He earned great reputation through his execution of the operation of Resection (q.v.), in which the diseased or injured part only of a bone is removed, instead of the whole limb perhaps being amputated. During the late wars in Germany, a great field opened itself for this kind of operation, and hundreds of the wounded who came under the knife of Langenbeck have to thank him for the preservation of their limbs. On account of his eminent services, he was ennobled, and received the highest medical rank in the Prussian army. Langenbeck was eminently tender and sympathetic with his patients. As a teacher he was highly successful, and the Clinical Hospital in Berlin was the resort of patients from all parts of the world. He died 1887, Sep. 30.

LANGEVIN, *lânzh-văn*, Sir HECTOR LOUIS, LL.D.: Canadian statesman; b. Quebec, 1826, Aug. 26. He was called to the bar in 1850, was editor of the *Mélanges Religieux* in 1847, and of the *Courrier du Canada* ten years later, and was appointed Queen's Counsel in 1864. Entering the Canada Assembly he became a member of the executive council, and at the union of the provinces in 1867 was made secretary of state for Canada, was subsequently minister of public works (1869-73); post-master-general (1878); and minister of public works (1879). He retired from public life in 1891.

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LANGÉVIN, JEAN FRANÇOIS PIERRE LA FORCE: French-Canadian Roman Catholic bishop: b. Quebec, 1821, Sept. 22; d. 1892, Jan. 26. He was educated at the Quebec Seminary, was ordained priest in 1844, and consecrated bishop of Ramonski in 1867. In 1870 he founded the College of Ramonski, and in 1886 was appointed assistant to the apostolic throne. Among his publications were: *Histoire du Canada en Tableaux* (1860); *Cours de Pédagogie* (1865).

LANGÉVIN, LOUIS PHILIP ADELARD, D.D.: Canadian Roman Catholic prelate: b. St. Isidore, La Prairie county, Quebec province, 1855, Aug. 23. He was educated at Montreal College; studied theology at the Sulpician Grand Seminary and St. Mary's College, Montreal; was ordained priest in 1882; was appointed professor of moral theology in the Catholic University of Ottawa; and in 1893 became rector of St. Mary's Church of Winnipeg. In 1895 he took office as archbishop of St. Boniface, Manitoba. He founded many parishes, and educational and missionary institutions.

LANGFORD, JOHN ALFRED: English journalist and lecturer: b. Birmingham, 1823, Sept. 12. He has worked on the editorial staff of the Birmingham *Daily Press*, *Daily Gazette* and *Morning News*. He was teacher of English literature in the Birmingham and Midland Institute (1868-74). His publications include poems, essays, local histories, the chief of which are *Prison Books, and Their Authors* (1861); *The Praise of Books* (1880); *A Century of Birmingham Life* (1868); *Staffordshire and Warwickshire, Past and Present* (1874); *A Life for Love, and Other Poems* (1900); etc.

LANGHORNE, JOHN: English poet and translator of Plutarch: b. Kirkby Stephen, Westmoreland, 1735, March; d. Blagdon, 1779, April 1. Having taken orders, he became a curate in Essex in 1761, and rector of Blagdon, Somerset, in 1766. In 1777 he was installed a prebendary of Wells Cathedral. He wrote verses and stories once popular, but he is remembered now only by the translation of Plutarch's Lives which he made with his brother William (1721-72). This work, originally published in 1770, has passed through many editions.

LANGLANDE, *lång'länd*, LANGELANDE, or LONGLAND, WILLIAM: English poet: b. Cleobury Mortimer, about 1332; d. about 1400. Little is known of him except from tradition, according to which he was educated at Oxford, and became a monk of Malvern. The familiarity of the author with the Scriptures and the church fathers indicates that he was an ecclesiastic; several local allusions in the poem, and the fact that its scene is the 'Malverne Hilles,' prove that it was composed on the borders of Wales; and internal evidence fixes its date at about 1362. It narrates the dreams of Piers Ploughman, who, weary of the world, falls asleep beside

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a stream in a vale among the Malvern hills; and while satirizing in vigorous allegorical descriptions the corruptions in church and state, and the vices incident to the various professions of life, and painting the obstacles which resist the amelioration of mankind, presents the simple plowman as the embodiment of virtue and truth, and the representative of the Saviour. Its ancient popularity appears from the large number of manuscript copies still extant, most of them belonging to the latter part of the 14th century. It was a favorite of religious and political reformers, and several imitations of it appeared, the most important of which was *Piers Ploughman's Crede*, written about 1393 by some Wycliffite, assailing the clergy, and especially the monks. In 1550 the *Vision of Piers Ploughman* was printed by the reformers, and so favorably received that three editions were sold within a year. This poem is a remarkable example of a system of verse, derived from the Anglo-Saxons, and marked by a regular alliteration instead of rhyme. There are two classes of manuscripts, which give the text with considerable variations. The best edition both of the *Vision* and the *Crede* is that of Wright (1856, new ed. 1897); and of the *Vision*, that of Skcat (1886). Consult Jusserand, *Piers Plowman: a Contribution to the History of English Mysticism* (1893).

LANGLEY, SAMUEL PIERPONT, D.C.L., PH.D., LL.D.: American astronomer and physicist: b. Roxbury, Boston, 1834, Aug. 22; d. Aiken, S. C., 1906, Feb. 27. He was graduated from a high school, studied architecture and civil engineering, and after a two years' trip abroad became an assistant in the Harvard Observatory in 1865, and later assistant professor of mathematics in the United States Naval Academy, and in 1867 was appointed director of Allegheny Observatory. In 1887 he became secretary of the Smithsonian Institution. He organized in 1881 an expedition to Mount Whitney, Cal., where he was successful in re-establishing the color constant and in extending the invisible solar spectrum. He also devised the bolometer, or thermic balance, a contrivance for detecting minute differences of radiant heat and measuring accurately to less than one ten thousandth of a degree Fahrenheit. His name became generally known through his ineffective experiments in connection with the problem of mechanical flight. A sum of \$5,000 was voted him by Congress for the carrying out of his ideas. The general plan of his airship as tested consisted in the use of the aëroplane as a means of support; but neither this support nor the propulsive power was found adequate. Among his writings are: *The New Astronomy*; *Experiments in Aëro-Dynamics*; and *Internal Work of the Wind*.

LANGLEY, WALTER: English painter; Birmingham, England, 1852. After attending the National School,

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Birmingham, he qualified himself as a lithographer, meanwhile studying in the local school of art. He there gained the national scholarship and studied at South Kensington two years; settled in Newlyn, Cornwall, 1882. He had been awarded a gold medal for painting both at Paris and Chicago. Among his watercolor paintings are: *Among the Missing; Departure of the Fleet; Disaster; After the Storm*. His oil paintings include: *Never Morning Wore to Evening but Some Heart Did Break; Motherless; Broad-Winners; Wandering Musicians; Between the Tides*; etc.

LANG'SAT, or LAN'SEH. See MELIACEÆ.

LANGSTON, JOHN MERCER, LL.D.: educator: b. Louisa Courthouse, Va., 1829, Dec. 14; d. Washington, D. C., 1897, Nov. 15. He was born a slave; was emancipated when 6 years old; graduated at Oberlin College 1849 and at its theological school 1853; studied law and was admitted to the bar in Ohio 1854; practiced law until 1869; and was professor of law in Howard Univ., Washington, 1869-77, and dean of the law faculty and vice-president and acting president of the university during part of that time. In 1871 he was appointed by President Grant a member of the board of health of the District of Columbia; in 1875 was elected its secretary; in 1877-85 was U. S. minister and consul-general to Hayti; and from 1885 till his death was president of the Virginia Normal and Collegiate Institute at Petersburg. In 1888 he was a republican candidate for congress, and though the governor gave the certificate of election to one of his two opponents, Langston claimed to have been elected and gave notice of his intention to contest the seat. Besides many lectures, addresses, and special papers, he published *Freedom and Citizenship* (Washington, 1883). Dr. Langston was an able writer and public speaker.

LANGSYNE, n. and ad. *lång-sîn'* [Scot.]: time long ago; long since. AULD LANGSYNE, *awld*, a famous Scotch song.

LANGTON, *lång'ton*, STEPHEN, Cardinal, Abp. of Canterbury: abt. 1150-1228, July 9; b. probably in Lincoln, or Devonshire: celebrated in the history of the liberties of England. He received his education chiefly in the Univ. of Paris, where he was fellow-student and friend of Innocent III.; and having completed his studies, he rose through successive grades to the office of chancellor of the university. After the elevation of Innocent, Langton, having visited Rome, was named to the cardinalate by the pope; and, on occasion of the disputed election to the see of Canterbury, he was recommended to those electors who had come to Rome on the appeal, and having been elected by them, was consecrated by Innocent himself at Viterbo, 1207, June 27. His appointment, nevertheless, was resisted by King

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John; and for six years Langton was excluded from the see, to which he was admitted only on the adjustment, 1213, of the king's dispute with Innocent through the legate Pandulf: see INNOCENT III. This reconciliation, however, was but temporary. In the conflict of John with his barons, Langton was a warm partisan of the barons, and his name is the first of the subscribing witnesses of Magna Charta. When the pope, acting on the representation of John, and espousing his cause as that of a vassal of the holy see, excommunicated the barons, Langton refused to publish the excommunication, and was in consequence suspended from his functions 1215. He was restored, however, probably, in the following year; and on the accession of Henry III., he was reinstated (1218) in his see of Canterbury, from which time he occupied himself chiefly with church reforms till his death. Langton was a learned and successful writer, but his writings are lost, and the chief trace which he has left in sacred literature is the division of the Bible into chapters, which is ascribed to him. Giraldus Cambrensis (q.v.) dedicated several of his books to Langton. See Wharton's *Anglia Sacra* I., II.; Lingard, II.; Milman's *Latin Christianity*, IV.; and Dr. Hook's *Lives of the Archbishops of Canterbury*, II. (1861).

LANGTRY, *läng'trī*, EMELIE CHARLOTTE LE BRETON: actress: b. Isle of Jersey, 1852: daughter of the Very Rev. William C. Le Breton, dean of Jersey. She married Edward Langtry 1874, became a 'professional beauty' in London, gained the friendship of the Prince of Wales, and made her first appearance on the stage in London as Miss Hardecastle in *She Stoops to Conquer*, 1881, Dec. 15; and in New York as Hester Grazebrooke in *An Unequal Match*, 1882, Nov. 6. She married Hugo de Bathe in 1899, but still pursued a stage career with financial success, although her art was subject to much critical condemnation. In 1903 she starred in America in *The Crossways* written by her and J. H. Manners. In 1906 she again visited the U. S. in vaudeville. In California, 1897, she obtained a divorce from her first husband, who soon after (1897, Oct. 16) died insane.

LANGUAGE, n. *läng'gwāj* [F. *language*—from *langue*, a tongue, language—from L. *lingua*, the tongue]: the expression of ideas by means of words; human speech; style or manner of expression; the speech peculiar to a nation.—SYN.: tongue; speech; dialect; idiom; diction; phraseology; style.

LANGUAGE. See PHILOLOGY.

LAN'GUAGE, DISEASE OF THE FACULTY OF. See LOGOMANIA.

LANGUED, *längd*, or LAMPASSE, *lōng-pās-sā'*, in Heraldry: term applied to an animal whose tongue is of different color from his body; the animal is said to be

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langued of that color. It is understood in England that unless the blazon direct otherwise, all animals are langued gules whose tincture is not gules, and an animal gules is langued azure. This rule does not hold in Scottish Heraldry, where, 'when the tongue, teeth, and claws are of different tinctures from their bodies, they are to be mentioned as armed and langued of such a tincture.'—*Nisbet*. When a beast or bird is represented without teeth or claws, this is expressed in blazon 'sans langue and arms.'

LANGUEDOC, *lǒng-gēh-dok'*: name in the middle ages, and till the French Revolution, for a province in s. France, bounded n. by Auvergne and Lyonnais; e. by the river Rhone; s. by the Mediterranean and the counties of Foix and Roussillon; w. by Gaseony and Guienne. It was traversed through its whole length, n.e. to s.w., by the Cevennes (q.v.). Languedoc is now divided into the depts. of Lozère, Gard, Ardèche, Aude, Hérault, Upper Loire, Tarn, and Upper Garonne. The cap. of Languedoc was Toulouse. The name is derived from that of the southern French dialect, or Provençal, called *langue d'oc*, while the northern was called *langue d'oui* or *langue d'oïl*, because in the former the word *oc* (an abbreviation of the Lat. *hoc*) was used for *yes*, and in the latter *oil* or *oui* (from Lat. *hoc illo*).

LANGUID, a. *lǎng-gwīd* [L. *languīdus*, faint, drooping—from *languēō*, I am faint: It. *languido*]: faint; weary; exhausted; drooping; without animation or activity. LAN'GUIDLY, ad. *-lī*. LAN'GUIDNESS, n. *-nēs*, weakness from exhaustion.—SYN. of 'languid': heavy; slow; feeble; weak; sickly; pining.

LANGUISH, v. *lǎng'gwīsh* [F. *languissant*, languishing—from L. *languesco*, I become faint or languid (see LANGUID)]: to lose strength or animation; to look with softness or tenderness; to pine; to become feeble or spiritless; to grow dull. LAN'GUISHING, imp.: ADJ. losing strength; pining; showing a languid appearance: N. feebleness; loss of strength. LAN'GUISHED, pp. *-gwīsh't*. LAN'GUISHINGLY, ad. *-lī*. LAN'GUISHMENT, n. *-mēnt*, the state of languishing or pining; softness of look with the head reclining to one side.—SYN. of 'languish': to droop; faint; wither; fade.

LANGUOR, n. *lǎng'gwēr* [L. *languor*, faintness—from *languēō*, I am faint: It. *languore*: F. *languueur*]: the condition or feeling induced by exhaustion of strength; faintness; weariness; lassitude. LANGUOROUS, a. *lǎng'gwēr-ūs*, in *OE.*, tedious; melancholy.—SYN. of 'languor': feebleness; weakness; dulness; listlessness.

LANIADÆ, *la-nī'a-dē*: family of birds, generally ranked, as by Cuvier, in the order *Insessores*, sub-order *Dentirostres*, but allied to *Accipitres*. They are the largest and most rapacious of the *Dentirostres*, preying on small birds, quadrupeds, and reptiles, as well as on

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large insects. Many of them have the curious habit of impaling their prey on thorns, after which they pull it in pieces, and devour it at leisure. They have a short, strong, abruptly hooked bill, with a notch or tooth on each side, and sharp claws. The Shrikes (q.v.), or Butcher-birds, are the type of the family; but it is united by numerous links to the family of the *Muscicapidæ*, or Fly-catchers, and the limits of the two families are uncertain.

LANIARD. See LANYARD.

LANIARIES, n. plu. *lăn'î-âr-îz* [L. *lanîarĕ*, to tear or rend]: the long, sharp, pointed teeth placed behind the incisors; the canines. LAN'IARY, a. *-î-âr-î*, lacerating or tearing, as *laniary teeth*. LAN'IAR'IFORM, a. *-âr'î-fawrm* [L. *forma*, shape]: shaped like the canine teeth of carnivorous animals.

LANIER, *la-nĕr'*, CLIFFORD ANDERSON: American author: b. Griffin, Ga., 1844, April 24. He studied at Oglethorpe College, leaving at the end of his sophomore year, desiring to enter the Confederate army, for which, however, he was then too young. In 1862 he volunteered as a Georgia soldier; served in Virginia; was signal officer of a blockade-runner in 1864, and suffered shipwreck. In 1885 he became superintendent of schools at Montgomery, Ala. He has written *Thorn Fruit*, a novel; *The Mate's Race with the Banshees*; *Love and Loyalty at War*, and other stories; *Dialect Poems*, with his brother, Sidney Lanier (in *Poems of the latter*); *Apollo and Keats on Browning*, and *Other Verses* (1902); etc.

LANIER, SIDNEY: 1842, Feb. 3—1881, Sep. 7; b. Macon, Ga. He graduated at Oglethorpe College, Ga., 1860; entered the Confederate army, 1861, Apr.; took part in the seven-days' fight near Richmond; was transferred to the signal service; served in Virginia and North Carolina; and while commanding a blockade-runner was captured, and for five months imprisoned at Point Lookout, Fla. After the war he was principal of the Prattville Acad., Ala.; practiced law with his father in Macon, 1868-72; wrote the words of the cantata for the opening of the Centennial Exhibition 1876; and became a lecturer on English literature in Baltimore 1877. In 1879 he was appointed lecturer on that subject in Johns Hopkins Univ. His publications include *Tiger-Lilies* (1867); *Florida* (1876); *Poems* (1877); *The Boy's Froissart* (1878); *Science of English Verse* (1880); *The Boy's King Arthur* (1880); *The Boy's Mabinogian* (1881); *The Boy's Percy* (1882), and *The English Novel and the Principles of its Development* (1883). His verse is a musical flow of singularly refined and elevated thought.

LANIFEROUS, a. *lăn-îf'ĕr-ŭs* [L. *lanĭfer*, producing wool—from *lāna*, wool; *fero*, I produce]: bearing or

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producing wool. LANIG'EROUS, a. -ĭj'ér-ūs [L. *gero*, I bear]: producing or bearing wool.

LAN'IGAN, GEORGE THOMAS: American journalist and poet: b. Canada, 1845, Dec. 10; d. Philadelphia, 1886, Feb. 5. With Robert Graham, he founded in Montreal the *Free Lance*, a satirical and humorous journal, later published as the *Evening Star*, and afterward in the United States was connected with the New York *World* and other journals. His writings include: *Canadian Ballads* (1864); *Fables Out of the World* (1878), by George Washington Æsop. He will be longest remembered by his *Threnody* (for the Ahkoond of Swat), one of the most successful of humorous poems.

LANK, a. *lāngk* [AS. *hlane*, slender: Dut. *slank*; Ger. *schlank*, slender, pliant: Dut. *lank*, the soft boneless part of the side]: thin; slender; not plump; not full and firm: V. in *OE.*, to become thin; to fall away. LANK'ING, imp. LANKED, pp. *lānkt*. LANK'LY, ad. -lī. LANK'NESS, n. -nēs, or LANK'INESS, n. -ĭ-nēs, leanness; flabbiness. LANKY, a. *lāngk'ī*, tall and thin.

LANKĀ: ancient name of the cap. of Ceylon. In Hindu mythology, it is renowned as the chief city of the giant Rāvana (q.v.), who, by carrying off Sītā, the wife of Rāma, caused the conquest of Ceylon by the latter personage, who is considered an incarnation of the god Vishn'u.

LANKĀVĀTARA: name of one of the chief religious works of the Buddhists. It treats of their religious law, and of some of their more abstruse philosophical problems. See E. Burnouf, etc., and W. Wassiljew, etc., as named under LALITA-VISTARA.

LANKESTER, *lāngk'ēs-tēr*, EDWIN RAY, M.A., LL.D.: an English scientist; b. in London, England, 1847, May 15; was graduated at Christ Church, Oxford; was Linacre professor of human and comparative anatomy at Oxford University, and curator of the museum; was professor of zoology at London University 1874-90; served as secretary of the British Association, and was president of its biological section; founder and president of the Marine Biological University at Plymouth, and became director of the natural history department of the British Museum in 1898. He was editor of the *Quarterly Journal of Microscopical Science*; a frequent contributor to *Nature* and other periodicals, and author of *On Fossil Fishes of the Red Sandstone of Great Britain*; *Comparative Longevity*; *On Earth Worms*; *Degeneration, A Chapter in Darwinism*; *Limulus, an Arachnid* (1881); *Spolia Maris* (1889); *The Advancement of Science* (1889), collected essays; *Okapia* (1902); *Extinct Animals* (1905); etc.

LANMAN, *lān'man*, CHARLES: author: b. Monroe, Mich., 1819, June 14; d. Washington, D. C., 1895, March 4. He received an academical education; engaged in

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journalism 1845-49; was appointed librarian in the war department at Washington 1849; resigned to become Daniel Webster's private secretary 1850; was librarian of the interior department 1855-57, and of the house of representatives 1866; and American secretary of the Japanese legation 1871-82. He was for many years American correspondent of the *Illustrated London News* and the *London Athenæum*; was elected an associate of the National Acad. of Design 1846; and afterward produced and exhibited many landscape paintings; and among numerous publications he completed *Dictionary of Congress* (1858, 62-64, 68-69); *Resources of America*, for the Japanese govt. (1872); *Biographical Annals of the Civil Government of the United States* (1876, 87), and *Leading Men of Japan* (1883).

LANMAN, CHARLES ROCKWELL, PH.D., LL.D.: American Orientalist: b. Norwich, Conn., 1850, July 8. He was graduated at Yale in 1871; studied Greek and Sanskrit there, and from 1873 to 1876 pursued studies in Orientalism at Berlin, Tübingen, and Leipsic, returning in the latter year to accept a fellowship at Johns Hopkins University. Since 1880 he has been professor of Sanskrit at Harvard. He has lectured at many institutions on Oriental subjects; has traveled in India, and from 1879 to 1884 was secretary of the American Philological Association, edited its *Transactions* (Vols. X.-XIV.), and in 1890 became its president. He was corresponding secretary of the American Oriental Society from 1884 to 1894 and 1896, and has served it as vice-president since 1897. His published works include: *Noun-Inflection in the Veda* (1880); a *Sanskrit Reader, with Vocabulary and Notes* (1884-8); *The Beginnings of Hindu Pantheism* (1890); *Rāja-Cekhara's Karpūra-mañjarī*, a translation of a Hindu drama of 900 A.D. (1900); and numerous contributions to Oriental and other journals.

LAN'MAN, JOSEPH: 1811, July 11—1874, Mar. 13; b. Norwich, Conn.: naval officer. He entered the U. S. navy as midshipman 1825, Jan. 1; was promoted passed midshipman 1831, lieutenant 1835, commander 1855, captain 1861, commodore 1862, and rear-admiral 1867; and was retired 1872, May. He commanded the frigate *Minnesota* of the N. Atlantic blockading squadron 1864-5, and the second division of Admiral Porter's squadron in the two attacks on Fort Fisher; and after the war was commandant of the Portsmouth navy-yard and commander of the S. Atlantic squadron.

LANNER, n. *lăn'nēr* [OF. *lanier*—from L. *laniārē*, to tear or rend] (*Falco lannarius*): species of falcon, valued in the days of falconry for flying at the kite. The female only was called a Lanner, in the language of falconry; the male, being smaller, a LAN'NERET.

LANNES, *lân*, JEAN, Duke of MONTEBELLO: Marshal of the French empire: 1769, Apr. 11—1809, May 31; b.

LANOLINE—LANSDOWNE.

Lectoure. He entered the army 1792, and soon rose to high military rank. He rendered Napoleon important service on the 18th Brumaire, and received his highest favor; 1800, June 9, he won the battle of Montebello, whence his title. He bore a principal share in the battle of Marengo, and commanded the left wing at Austerlitz. He served in the campaign against Prussia 1806, commanded the centre at Jena, and distinguished himself at Eylau and Friedland. Being sent to Spain, he defeated General Castaños at Tudela, 1808, Nov. 22, and took Saragossa. In 1809, he again served on the Danube, and commanded the centre at Aspern (May 22), where he had both his legs carried away by a cannon-shot. He was removed to Vienna, and died there, and was interred in the Pantheon, Paris.

LANOLINE, *lăn'o-lēn* or *līn*, or WOOL-FAT: recent substitute for vaseline, on which it is said to be an improvement; extracted from sheep's wool.

LA NOUE, *lâ-nô'*, FRANÇOIS DE (surnamed BRAS-DE-FER): Huguenot soldier: 1531-91, Aug. 4; b. near Nantes; of an ancient Breton family. At the age of 18 he was at the court of Henry II. He became a Protestant, served under the great Condé, gaining from friends and foes the highest admiration for courage, humanity, honor, and purity. In 1567, at the head of 15 cavaliers, he captured Orleans. He won his soubriquet 'Iron-Arm' from the limb that took the place of his left arm shattered by a bullet at the siege of Fontenay 1570. When war between the Huguenots and the Rom. Catholics was plainly inevitable, he resigned his royal commission and took the Huguenot side, acting as gen. of La Rochelle. After the peace he went to aid the Protestants of the Netherlands, took several towns and captured Count Egmont, 1580. Later falling into the hands of the Spaniards, he was imprisoned five years, during which time he wrote *Discours Politiques et Militaires* (1587); this was translated into several languages, and with other writings gives him rank among statesmen. In 1589, he returned to his command in the French army, did brilliant service in many battles and sieges, and died of a wound received at the siege of Lamballe.

LANSDOWNE, *lănz'down*, HENRY CHARLES KEITH FITZ MAURICE, D.C.L., LL.D., fifth Marquis of: British statesman: b. 1845, Jan. 14. He was educated at Eton and Oxford, and entered in politics as a member of the liberal party. He was one of the lords of the treasury (1869-72); under-secretary for war (1872-4); and in 1883, successor of the Marquis of Lorne as governor-general of Canada. His period of office was marked by the completion of the Canadian Pacific railway, a peaceful arbitration of the fishery dispute with the United States, and the crushing of Riel's rebellion. In 1888, he was made viceroy and governor-general of India, in 1895

LANSDOWNE—LANSING.

joined Lord Salisbury's cabinet as secretary for war, and in 1900 was appointed secretary of state for foreign affairs.

LANSDOWNE, HENRY PETTY-FITZMAURICE, third Marquis of: English statesman: 1780, July 2—1863, Jan. 31; b. Lansdowne House, London. His father, William Petty Lansdowne, the celebrated Earl of Shelburne (q.v.), was premier to George III., and received the coronet of a marquis 1784. Lansdowne (then Lord Henry Petty) was a younger son, and was sent to Westminster School, and afterward to Edinburgh, then the school of the young whigs destined for political life. He took his degree at Trinity College, Cambridge, 1801, and when barely of age, entered parliament as M.P. for Calne. He turned his attention to finance; and on Pitt's death, he became, at the age of 25, chancellor of the exchequer, in the administration of Lord Grenville. In 1809, he succeeded his half-brother in the marquissate, became one of the heads of the liberal party in the house of lords, and during a long opposition, consistently advocated those various measures of progress which he lived to see triumphant. When the whigs, after their long exclusion from power, came into office with Earl Grey at their head, Lansdowne became lord pres. of the council, which post he held 1830, Nov.—1841, Sep., with a brief interval; resuming it 1846, after the fall of the Peel ministry, and again filling it until 1852. He then formally bade farewell to office, and resigned the leadership of the house of lords; but consented to hold a seat without office in the Aberdeen cabinet, and again in the first administration of Lord Palmerston. After the death of the Duke of Wellington, he became the patriarch of the upper house, and the personal friend and adviser of the queen. He had a keen relish and a cultivated taste for literature, and was the generous patron of men of letters. He formed a splendid library, and one of the noblest collections of pictures and statuary in the kingdom. He refused a dukedom, and might more than once have been prime minister. He died at Bowood.

LANS'DOWNE, WILLIAM PETTY, first Marquis of. See SHELBURNE, Earl of.

LANS'FORD, PA.: borough in Carbon co., on the Central railroad of New Jersey, 44 miles north of Reading. It is the centre of the anthracite coal fields. It was settled in 1845, and was incorporated in 1876. The government is administered by a burgess elected every three years and a borough council which controls the local administrative offices. Pop. (1910) 8,321.

LANSING, *län'sing*: city in Ingham co., Mich.; cap. of the state; at the confluence of Grand and Cedar rivers, 85 m. w.n.w. of Detroit, 208 m. e.n.e. of Chicago; on the Chicago & G. T., the Lake Shore & M. S., and other railroads. It is the centre of a fertile and populous

LANSING—LANTERN.

district, with abundant supplies of timber and coal. A variety of important manufacturing establishments use the water power of the rivers. The streets are broad and regularly laid out; and numerous bridges span the rivers. The public schools are excellent, and there are good public libraries: the state library contains more than 106,000 vols. Lansing is the seat of the state reform school, school for the blind, and the State Agricultural College endowed by congress with a grant of 240,000 acres of public lands, and opened 1857. The fine State Capitol was built 1872-79 at a cost of \$1,500,000, and the Federal government building cost \$125,000. Lansing also has many fine churches. The leading manufacture is of agricultural implements; carriages and steam-engines also are extensively made, and there are several large flouring mills. The waterworks and electric lighting plants are owned and operated by the municipality. Lansing was settled in 1837, and was made the capital of the state in 1847 when its site practically was still a forest. It was incorporated as a city in 1869, and under its charter of 1897 is governed by a mayor and council elected every two years. Pop. (1910) 31,229.

LAN'SING, JOHN: American jurist: b. Albany, N. Y., 1754, Jan. 30; d. 1829, Dec. 12. He studied law in Albany and New York; was engaged in practice at the beginning of the Revolution, during a period of which he served as military secretary to Gen. Schuyler. In 1784, he was elected to congress, and while a member of that body was elected to the lower house of the New York legislature, where he was chosen speaker in 1786, in which year he also became mayor of Albany. For a short time he represented New York in the Constitutional Convention (1787), which he left because he held that he had been sent to participate in an amendment of the Articles of Confederation, and not in the forming of a new constitution. In 1788, at the New York convention, his opposition to the ratification of the constitution was stoutly maintained. He served on the New York-Vermont boundary commission; in 1790, was appointed a judge of the New York Supreme Court, and became chief justice in 1798. From 1801 to 1814 he was chancellor of the state.

LANSQUENET, n. *lāns'lē-nēt* [F.—from Ger. *lands-knecht*, a foot soldier; Ger. *land*, land, country; *knecht*, knight]: German common soldier, originally one belonging to the infantry; afterward a soldier who gave his services to any one who paid highest. The name became corrupted into lance-knight; a game at cards.

LANTERN, n. *lān'tērñ* [F. *lanterne*—from L. *laterna*, a lantern: as if from AS. *leoht*, light, and *ern*, place]: a transparent case with perforations for a candle or lamp; the upper part of a lighthouse; in *arch.*, any erection, usually ornamental, on the top of a building or

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dome to give light, ventilation, or completeness. Where a lantern is for the purpose of giving light, it is called a *lantern-light*. In Gothic architecture, a *lantern-tower* is frequently placed over the centre of cross churches—the vault being at a considerable height, and the light admitted by windows in the sides. York and Ely cathedrals, and many churches in England, have such lantern-towers. MAGIC-LANTERN, an optical instr. by means of which small figures painted with transparent varnish, variously colored, on slides of glass, are very largely magnified, seen in a darkened room, on a wall or white screen. DARK-LANTERN, a lantern constructed so as to have its light concealed by a slide at pleasure. LANTERN-JAWS, long, lean jaws; a thin visage.

LAN'TERN-FLY (*Fulgora*): genus of homopterous insects; type of a family *Fulgoridæ*, allied to *Cicadidæ*, but having legs more adapted for leaping, and destitute of organs for producing sound. The forehead is remarkably prolonged into an empty vesicular expansion, which assumes in the different species various and very singular forms, sometimes equalling the body of the insect in size. The colors are generally rich. The species are natives of the warmest parts of the world. The name lantern-fly was originally given to *F. laternaria*, a large species, found in Guiana, and of which the inflated projection of the forehead was said to be sometimes most brilliantly luminous; but the evidence is lacking, and naturalists now refuse to believe in the luminosity of any of this genus. A possible explanation is, that the luminosity is sexual, and merely occasional, perhaps limited to particular seasons. Concerning the luminosity of the CHINESE LANTERN-FLY (*F. candelaria*), also there is doubt. The prolongation of the forehead in this species is a comparatively narrow snout.

LAN'THANUM, n. *lăn-thă'nĭ-ŭm*, or LAN'THANUM, n. *-thă-nŭm* [Gr. *lanthănō*, I lie hid]: elementary body, forming a very rare metal which, with *cerium* and *didymium*, occurs as a silicate in the Swedish mineral *cerite*, a hydrated silicate of cerium. See CERIUM. Lanthanium is of little chemical interest, and of no practical value.

LAN'THORN, n. *lăn'thörn*: an obsolete spelling of *lantern*, which took its rise from the popular etymology connecting *ern* with *horn*, of which the sides of a lantern were often formed.

LANUGINOUS, a. *lă-nŭ'jĭ-nŭs*, or LANU'GINOSE, a. *-jĭ-nōs* [L. *lanūgo* or *lanūginem*, wool-like hair, down—from *lana*, wool]: downy or woolly; covered with down, or fine, soft, interlaced hairs. LANUGO, n. *lă-nŭ'gō*, the first and temporary hair of an infant.

LANYARD, or LANIARD, n. *lăn'yérd* [F. *lanière*, a strap, a thong—from L. *lanāriŭs*, woolly, made of wool—from *lāna*, wool]: a short piece of line or rope used

LANZAROTE--LAOCOON.

for fastening something in a ship, or to stretch other more important ropes to their utmost tension; the cord by which a cannon is fired.

LANZAROTE, *lân-sâ-rō'tā*, Sp. *lân-thâ-rō'tā*: one of the Canaries (q.v.).

LANZI, *lân'zē*, LUIGI: 1732, June 14—1810, Mar. 30; b. Monte dell' Olmo, near Macerata: Italian antiquary. He entered the order of the Jesuits, and resided at Rome, and afterward at Florence, where he died. He published at Florence, 1782, *Descrizione della Galleria di Firenze*. His great works, distinguished for profound erudition, are *Saggio di Lingua Etrusca* (3 vols. Rome 1789), in which, contrary to the prevalent opinion among Italian savants, he maintains the influence of Greece upon Etruscan civilization; and *Storia Pittorica d'Italia, etc.* (Florence 1792, and Bassano 1789 and 1806; Eng. trans. by Thomas Roscoe in Bohn's Standard Library, 3 vols. 1847). His posthumous works were published, 2 vols. Florence 1817.

LAOCOON, n. *lā-ōk'ō-ōn*: in classic legend, a priest either of Apollo or Neptune, in Troy, who in vain



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warned his countrymen of the deceit practiced by the Greeks in their pretended offering of the wooden horse to Minerva, and who, for this warning and for marrying contrary to the will of Apollo, was destroyed with his two sons by two enormous serpents which came from the sea. They first fastened on his children, and when he attempted to rescue them, involved him in their coils. This legend is not Homeric, but of later origin. It was a favorite theme of the Greek poets, and is introduced in the *Æneid* of Virgil. It has a peculiar interest as the subject of one of the most famous works of ancient sculpture extant; a group discovered 1506 at

LAODICEA—LAOS.

Rome, in the Sette Sale, on the side of the Esquiline Hill, and purchased by Pope Julius II. for the Vatican. It was carried to Paris, but recovered 1814. The whole treatment of the subject, the anatomical accuracy of the figures, and the representation both of bodily pain, and of passion, have always commanded the highest admiration. According to Pliny, it was the work of the Rhodian artists, Agesander, Polydorus, and Athenodorus, but this is doubtful. Casts of it are in all principal museums of Europe and America.

LAODICEA, *lā-ōd-ī-sē'a*: city of ancient Phrygia, near the river Lycos; named from Laodice, queen of Antiochus Theos, its founder. It was built on the site of an older town, Diospolis. It was annexed to the Roman empire B.C. 133, and became a populous and splendid city. It was destroyed by an earthquake during the reign of Tiberius, but rebuilt by the inhabitants, who were very wealthy. It fell into the hands of the Turks 1255, was again destroyed 1402, and is now a heap of uninteresting ruins, known by the name of Eski-Hissar. Art and science flourished among the ancient Laodiceans, and it was the seat of a famous medical school. The number of Jews living here at the rise of Christianity accounts for its importance in the primitive history of the church. An ecclesiastical council, the first council of Laodicea, held here at some time between 343 and 381, adopted resolutions concerning the canon of the Old and New Testaments, and concerning ecclesiastical discipline. A second council of Laodicea, 476, condemned the Eutychians. It is supposed by some that the Christian church here was founded by the apostle Paul; this is possible; but the belief that Col. iv. 16 proves that an epistle was written to it from Paul, which has been lost, has been shown by Bp. Lightfoot to be without foundation: he identifies 'the epistle from Laodicea' with the canonical epistle to the Ephesians (q.v.).—The extant Latin epistle entitled Epistle to the Laodiceans, purporting to be from Paul, is a modern forgery noticeable for stupidity as a group of disjointed quotations from Paul's genuine epistles.

LAON, *lā-ōng'*: chief town of the dept. of Aisne, France, in a strong position on a steep isolated hill, 80 m. n.e. of Paris. The walls (flanked with towers) with which Laon is surrounded, the noble Gothic cathedral (built 1112-14) on the summit of the hill, and the charming character of the scenery in the vicinity, greatly enhance the appearance of the town. The public library, with 20,000 vols., contains a beautiful statue in marble of Gabrielle d'Estrées. The manufactures are nails, hats, leather, and hosiery. Here, 1814, Mar. 9, 10, Napoleon I. was defeated by the allies. Laon had to surrender to a German force 1870, Sep. 9. Pop. 15,450.

LA'OS. See SHAN STATES.

LAO-TSZE.

LAO-TSZE, *lâ'o-tsêh*, or **LAOU-TSZE**, *lâ'ô-tsêh*: celebrated philosopher of China, founder of a religion as ancient and important as that of Confucius (q.v.); b. (according to Chinese authorities) B.C. 604. His sect is commonly known as the *Taou*, or sect of reason. His family name was *Le*, or Plum, and his youthful name *Urh*, or Ear—given him on account of the size of his ears. His name of honor was *Pe-yang*, his surname *Laou-tsze* ('old child'), or *Laou-keun-tsze* ('old prince'), by which he is generally known. Little authentic is known of the life of L., his followers having subsequently made a myth of his biography. His birth is assigned to the third year of Emperor Ting-wang, of the Chow dynasty, in the state of Tseu, at present known as Hoo-pih and Hoo-nan, 54 years before Confucius. His father, according to the legends of the Taou sect, was 70 years before he married, and his mother 40 years of age when she conceived L. He was the incarnation of a shooting-star, a kind of god on earth, and was 80 years in his mother's womb, so that when he was born his hair was white with age. More trustworthy is the statement that he was a historian and archivist of a king of the Chow dynasty, who loved books, studied rites and history, and went, somewhat after B.C. 600, to the w. parts of China, where he might have become acquainted with the worship of Fuh or Buddha. Confucius was so attracted by his renown, that he went to see him. but the meeting does not appear to have been entirely amicable, for L. reproached the sage with pride, vanity, and ostentation, stating that sages loved obscurity and retreat, studied time and circumstances before they spoke, and made no parade of knowledge and virtue. Confucius, however, highly lauded L. to his followers, and called him a dragon soaring to the clouds of heaven, which nothing could surpass. L. asked Confucius if he had discovered the *Taou* ('path' or 'reason') by which Heaven acts, when Confucius answered that he had searched for it without success. L. replied that the rich sent away their friends with presents, sages theirs with good advice, and that he humbly thought himself a sage. By this he probably meant that all he could offer Confucius was the advice of seeking the Taou. He retired to Han-Kwan, where the magistrates of the place received him, and there he wrote the *Taou-tih-king*, or Book of Reason and Virtue. He died, or, according to other accounts, mounted to heaven on a black buffalo, in the 21st year of the reign of King-wang of the Chow dynasty, B.C. 523, having attained the age of 119 years.

The doctrines of L. differ from those of Confucius, indeed, have a higher scope—the object of the last-named philosopher, or rather statesman, being the practical government of man through a code of morals; that of L., the rendering of man immortal through the contemplation of God, the repression of the passions, and

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the perfect tranquillity of the soul. Hence his doctrine was, that Silence and the Void produced the Taou, the path or reason (or as some think it should be rendered, 'Logos') by which movement was produced: and from these two sprang all beings which contained in themselves the dual principle of male and female. Man was composed of two principles, one material, the other spiritual, from which he emanated, and to which he ought to return by throwing off the shackles of the body, annihilating the material passions, the inclinations of the soul, and pleasures of the body. By this means the soul was to regain its origin—become immortal. This could be effected only by the renunciation of riches, honors, and the ties of life. Up to the period of L., the national worship had been restricted to the *Shang-te*, or 'supreme ruler' of the world, and the *Teen*, or 'heaven.' For these, L. substituted the *Taou* ('path' or 'reason') of the cosmos, not citing, as the Confucianists, the precedents of ancient kings or sages—appealing to the abstract principle, and, in fact, preaching a religion which found an echo in the Chinese breast. The followers of his sect, however, considerably altered his doctrines. The moral code of the Taou sect is excellent, inculcating all the great principles found in other religions of the better class—charity, benevolence, virtue, and the free-will, moral agency, and responsibility of man. But it subsequently became corrupted with strange doctrines and practices. His followers promulgated that they had discovered the drink of immortality, and obtained a host of partisans in the reign of Wan-te of the Han dynasty, A.D. 140, and many of the emperors were addicted to their rites, and some poisoned by the drink of immortality. Alchemy also became another pursuit of the sect; so did divination, the invocation of spirits, and the prediction of the future. The doctors of the sect, called *Teen-sze* ('celestial doctors'), were supposed by these means to become ethereal, and to be caught up to heaven without passing through the intermediate state of death. Such statements, however, were ridiculed by the *Joo-keaou*, or sect of Confucius, the skeptics of China, who openly derided their pretensions. Innumerable gods also were introduced into the worship, which was assimilated to the Buddhist. As now known, Taouism is a conglomerate of base and noxious superstitions, scarcely recognizable as any possible product of the teachings of its reputed founder. Since the 2d c. after Christ, the sect has spread in China, Japan, Cochin-China, Tonquin, and among the Indo-Chinese nations. Monasteries and nunneries belonging to them were founded and flourished. Taouism is now thought by many to have been influenced by, or directly derived from, Indian Brahmanism, which it much resembles, being very un-Chinese in character; so that it is to be regarded as the development of a foreign faith, not a new and native one.—See Stanislas Julien, *Le Livre des*

LAP.

Recompenses (1838), translated by Chalmers; Legge, *Religions of China* (1880); Douglas, *Confucianism and Taoism* (1880); Balfour, *Taoist Texts* (1885). See also some works mentioned under CHINESE EMPIRE.

LAP, n. *lǎp* [Icel. *lapa*, to hang loose: Ger. *lapp*, slack; *lappen*, anything hanging loose: Dut. and Dan. *lap*, a remnant, a patch]: the flap or loose skirt of a garment; the knees and thighs, or the part of the clothes which cover them, in a sitting position, particularly those of a woman; a roll or sliver of cotton for feeding the cards of a spinning-machine; in an engine, the amount by which a slide valve covers the steam port at the termination of the piston stroke. It indicates the amount of cut-off of steam in the cylinder. The term LAP is also applied to a body of lead, tin, brass, or other soft metal employed to hold or support the emery or pumice stone used in the grinding of surfaces of hardened steel, chilled iron, and other substances too hard to be attacked with ordinary tools. The character and shape of the lap depends upon the nature of the work performed. Usually the outline of the lap is made similar to that of the work. Lead is used for the commonest grades of work, tin for better grades, and brass for the finest grades. The term is also applied to the extent to which the plates pass over each other in the making of rivet joints, and to a single turn of a rope or chain around the barrel or drum of a hoisting machine. V. [OE. *lappyn*, to wrap: F. *enveloppeur*, to wrap up]: to bring the lap or flap of a garment round one; to wrap or twist round; to lay one thing partly over another; to be spread or turned over something. LAP'PING, imp.: N. a kind of machine-blanket or wrapping-cloth used by calico-printers; also the polishing and truing up of spindles and circular bearing parts in general, by the use of laps of lead or other material. LAPPED, pp. *lǎpt*. LAPFUL, n. *lǎp'fûl*, as much as the lap can contain. LAPEL, n. *lǎ-pĕl'*, the part of a coat or waistcoat which is turned back, forming the facing. LAPELLED', a. *-pĕld'*, having lapels. LAP'PER, n. *-ĕr*, one who laps. LAPPET, n. *lǎp'ĕt*, a little loose flap; part of a lady's head-dress. LAP CIRCLE, the circle of a lap diagram, the radius of which represents the lap of the valve. If the laps are unequal, the diagram will have two lap circles. LAP'DOG, a small dog of several varieties, fondled by a woman—so named from being fondled on the lap, or from its loose hanging ears; most of these dogs are Spaniels (q.v.), and gentleness of disposition, large ears, and long hair are among their characteristics. The very smallest is the MEXICAN LAPDOG. LAPPING-ENGINE, a doubling machine; an engine for making folds or welds. LAP'STONE, the stone on which a shoemaker beats his leather, while it lies upon his knees or lap. *Note.*—LAPDOG, though popularly referred to the fact of its being so small as to be held on the *lap*, was originally named

LAP—LA PAZ.

from its 'loose hanging ears'; so we speak of rabbits as *lop* or *lap* eared, that is, having hanging ears.

LAP, v. *lǎp* [AS. *lapian*, to lap: Icel. *lapja*, to lap like a dog: F. *lapper*, to lap or lick up: Gr. *laptō*, I lap, I drink greedily: L. *lambĕrĕ*, to lick]: to feed or drink with the tongue; to lick up; to cut or polish with a lap: N. a piece of brass, lead, or other soft metal, or a piece of wood or leather, in the form of a rapid revolving wheel or disk, used in polishing cutlery, or, along with polishing-powder, in polishing gems or cutting glass. LAP'PING, imp. LAPPED, pp. *lǎpt*. LAP'PER, n. *-ĕr*, one who. LAPPIOR, n. *lǎp'ĭ-ōr*, a miner who dresses the refuse ores that are left.

LAPAGERIA, n. *lǎp'ǎ-jĕ'rĭ-ǎ* [after the F. botanist *Lapagerie*]: a genus of beautiful twining undershrubs with flowers somewhat bell-shaped.

LAPAROTOMY, n. *lǎp-ǎ-rōt'ō-mĭ* [Gr. *lǎpǎra*, flank, loins; *tōmĕ*, cutting]: operation of cutting into the abdomen.

LA PAZ, *lâ pâs* (Sp. *lâ pâth*): a department of Bolivia, bounded on the north by Brazil, on the east and south by the departments of Beni, Cochabamba, and Oruro, and on the west by Peru. Its area has never been accurately determined; according to a recent conservative estimate it is 75,742 square miles. Extensive tracts in the northern portion are still unexplored, and the boundary disputes with Brazil and Peru add a large element of uncertainty. Calculations based upon the extreme Bolivian claims give the fabulous area of 275,413 square miles. The department is divided into 9 provinces, as follows: La Paz, Yungas, Larecaja, Muñecas, Campolican, Omasuyos, Pacajes, Sicasca, and Inquisivi. Each provincial capital has a municipal council and is administered by a sub-prefect. The provinces are subdivided into cantons, administered by *corregidores*. The entire department is subject to a prefect, representing the national government. Some of the highest peaks of the Bolivian Andes rise above the great Titicaca basin (itself 13,000 feet above sea-level) in the southern half of this department, which portion has a temperate and moderately salubrious climate (see LA PAZ, the capital, etc.). Chief products are copper, silver, tin, gold, coca, wheat, maize, barley, potatoes; in the torrid lowlands of the north, sugarcane, rice, tobacco, and coffee; and from the forests along the tributaries to the Amazon are obtained rubber and cinchona. Cattle and sheep are bred in large numbers on the upland pastures. The census of 1900 shows the population to be 423,800.

LA PAZ, Bolivia: capital of the department of the same name, and, temporarily, of the republic. It is the metropolis and commercial centre of Bolivia, situated in the Quebrada del Choqueyapu, 650 feet lower than Lake

LA PAZ—LAPEROUSE.

Titicaca (from which the distance by road is about 45 miles) and yet quite 12,250 feet above the level of the sea. The latitude of La Paz is $16^{\circ} 29' 54''$ s., long. $68^{\circ} 29' 38''$ w., and mean annual temperature about 50° F., or somewhat less than that of Paris. The annual range of temperature at La Paz, however, is very different from that at Paris, the summers being less hot, the winters less cold, and the extremes of temperature 19.4° F. to 73.4° F. The clearness of the sky occasions rapid loss of heat by radiation; the nights are therefore much colder than the days. Though the thermometer often falls below freezing-point, plants are rarely frozen, for the reason that the air at this great height is very dry. It is a substantially built but unimpressive city, with ill-paved streets rising at a steep grade from the small river which flows through its midst; it has, however, a beautiful Alameda or promenade, a cathedral, many churches, and some noteworthy public institutions—a museum, library, university, professional schools of various kinds, and courts. Up to 1903 the city remained without railway connections, the nearest stations on existing lines of railway being Oruro, terminus of the line from Antofagasta, and Puno on Lake Titicaca; to the latter point a railway was being constructed. Lines of telegraph connect La Paz with Oruro, Cochabamba, Colquechaca, Puno, and Santa Cruz. According to the census of 1900, the population is 57,000.

LA PAZ: capital of the southern district of the territory of Baja California, Mexico, the capital of the northern district being Ensenada de Todos Santos. It is pleasantly situated between the coast range and the bay, and has commercial dealings principally with San Francisco, Mazatlán, Guaymas, San Blas, and Manzanillo. Pop. 4,737.

LAPEER, *la-pēr'*: city and county-seat of Lapeer co., Michigan, on the Michigan C. and the Grand T. railroads, 60 miles north of Detroit, 45 miles west of Port Huron, and 41 miles south of Bay City. It was first settled in 1836 by A. N. Hart and was incorporated as a city in 1868. The municipal government is administered by a mayor and city council of 8 members elected every two years. The city has four banks, capital \$250,000, and has numerous large factories, stone works, planing mills, and iron foundries. The Michigan Home for the Feeble Minded is located here; also the Lapeer Business College, high school, and various church buildings. Pop. 3,340.

LAPÉROUSE, *lâ-pâ-rôz'*. JEAN-FRANÇOIS GALAUP, Count DE: 1741, Aug. 22—abt. 1788; b. near Albi, Languedoc, now in the dept. of Tarn: French voyager. He attained the rank of capt. in the French navy; and was sent 1782 to destroy the British forts or settlements in Hudson's Bay. In this expedition he showed remarkable

LAPIDARY—LAPIS.

power of contending with difficulties, and accomplished his object, notwithstanding the storminess of the sea and the ice in which it abounded. He signalized himself also by humility towards the occupants of the forts which he destroyed. He was then chosen by the French govt. to command an expedition of discovery, and sailed, 1785, Aug., with two ships, visited the n.w. coast of America, explored the n.e. coasts of Asia, and made important discoveries in that region, though he failed to discover the N. W. Passage. In 1788, Feb., he anchored in Botany Bay, after which all trace of him was lost. The French govt. offered a reward of 10,000 francs for information, and 1791 sent an expedition in search of him, but without success. In 1826, an English capt., Dillon, found on the island of Tucopia a number of things belonging to Lapérouse's ships, obtained from the inhabitants of Mallicollo, one of the New Hebrides. The E. India Company sent Capt. Dillon, and the French govt. sent out an expedition under Dumont d'Urville to investigate all traces of Lapérouse and his fellow-voyagers. Eye-witnesses of the destruction of two French vessels were found; it was fully ascertained that both of Lapérouse's ships had been wrecked in a storm on a coral reef off the coast of Mallicollo, and that all on board had perished. The account of Lapérouse's voyage, prepared from journals sent home by him, was published under the title *Voyage autour du Monde* (4 vols. Paris 1797, with atlas).

LAPIDARY, n. *lăp'î-dér-î* [L. *lapidārīūs*, of or belonging to stone—from *lapis* or *lapīdem*, a stone: It. *lapidario*; F. *lapidaire*]: one who cuts, polishes, or engraves precious stones; a dealer in precious stones: ADJ. pertaining to the art of the lapidary. LAPID'EOUS, a. *-ē-ūs*, stony. LAP'IDES'CENT, a. *-dēs'ēnt*, growing or turning to stone. LAPID'IFY, v. *-î-fî* [L. *faciō*, I make]: to form or convert into stone. LAPID'IFYING, imp. LAPID'IFIED, pp. *-î-fîd*. LAPID'IFICA'TION, n. *-kă'shŭn*, the process by which soft, loose, or incohering substances, organic or inorganic, are converted into stony matter. LAPIDARY INSCRIPTIONS, monumental records, epitaphs, etc., engraved, chiselled, or stamped, on stone, or metal, or clay.

LAPILLUS, n. *lă-pî'l'lŭs*, LAPIL'LI, n. plu. *-lî* [L. *lapillus*, a little stone—from *lapis*, a stone]: small stones, such as are thrown from burning mountains during an eruption, and cooled into rounded drops in falling.

LAPIS, n. *lăp'îs* [L. *lapis*, a stone]: a general term for any kind of stone. LAPIS-LAZULI, n. *-lăz'ŭ-lî* [see LAZULI]: a well-known mineral of an ultramarine or fine azure-blue color of various intensity; consisting chiefly of silica and alumina, with a little sulphuric acid, soda, and lime. Lapis-lazuli is often marked by white spots and bands. It is generally found massive, and is translucent at the edges, with uneven, finely granular frac-

LAPITHÆ—LAPLACE.

ture, but sometimes appears crystallized in rhombic dodecahedrons, its primitive form. It is found in primitive lime-stone and in granite; in Siberia, China, Tibet, Chili, etc. The finest specimens are from Bokhara. The Greeks and Romans called it *Sapphire*. It was more highly esteemed by them as an ornamental stone than it now is. They used it much for engraving, for vases, etc. It is extensively employed in ornamental and mosaic work, and for sumptuous altars and shrines. It is easily wrought, and takes a good polish. The valuable pigment Ultramarine (q.v.) is made from it. It is one of the minerals sometimes called *Azure Stone*.

LAPITHÆ, *lăp'î-thē*: mythical wild race, inhabiting in ancient times the mountains of Thessaly. They derived their name from a mythical ancestor, *Lapithes*, son of Apollo, and brother of Centauros, the equally mythical ancestor of the Centaurs (q.v.). A bloody war is said to have been waged between the kindred races in pre-historic times, which ended in the defeat of the Centaurs, but the Lapithæ were in their turn subdued by Hercules. The contest of Centaurs and Lapithæ was one of the great events in Greek mythology, and a favorite theme of Greek art.

LAPLACE, *lă-plăs'*, PIERRE SIMON, Marquis DE: one of the greatest of mathematicians and astronomers: 1749, Mar. 28—1829, Mar. 5; b. Beaumont-en-Auge, dept. of Calvados, France. He for some time was teacher of mathematics in the military school there, and afterward went to Paris, where, having attracted the notice of D'Alembert, he was appointed prof. in the military school, and admitted a member of the Academy of Sciences. He had by this time mastered the whole range of mathematical science, as then known, and had besides solved several problems, which had defied the attempts of geometers; and it occurred to him to devote his mathematical powers to the service of astronomy, and he accordingly commenced to plan the work which afterward appeared as the *Mécanique Céleste*. In his political life, Laplace presents a sorry picture. He was appointed minister of the interior by Bonaparte, but was, after six weeks, deposed for incapacity. He continued, however, to receive marks of honor from Napoleon, and on the erection of the imperial throne, was made a count. In 1814, he voted for the appointment of the provisional government, for Napoleon's deposition, and the restoration of the Bourbons. After the second restoration, Louis XVIII. made him a peer and a marquis. In the chamber of peers, he showed, as under the revolutionary government, the greatest unfitness for political affairs, and an extreme servility. He died at Paris. Laplace was gifted with wonderful scientific sagacity: this appears especially in his explanations of certain results of mathematical analysis formerly deemed inexplicable, but which he

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showed to be the expression of physical phenomena which had hitherto escaped detection; and subsequent observations generally confirmed Laplace's conclusions. In mathematical astronomy he was second to Newton only. Above all his powers, his wonderful memory was pre-eminent. His *Mécanique Céleste*, and supplements to it (5 vols. Paris 1799-1825—trans. by Nathaniel Bowditch, Boston 1829), are, next to Newton's *Principia*, the greatest of astronomical works. Mrs. Somerville's *Mechanism of the Heavens* is in part a synopsis of the first-named work. His *Exposition du Systeme du Monde* (2 vols. Paris 1796; 6th ed. 1824) is intended for those who cannot follow the difficult demonstrations and calculations in his great work. All Laplace's important investigations were for the purpose of testing the generality of the law of gravitation, and the cause of sundry irregularities in the motions of the planets. His works comprise many able treatises on particular subjects in Astronomy, Pure Mathematics, Probabilities, Mechanics, Heat, and Electricity; most of them being Memoirs communicated to the Acad. of Sciences.

LAPLAND, *läp'land*: n.w. portion of the European continent. The territory still known under this name does not constitute a separate political autonomy, but is included under the dominions of Sweden and Norway, and of Russia. Lapland, or the Land of the Lapps, called by the natives Sameanda, or Somellada, occupies the n. and n.e. portions of the Scandinavian peninsula, and the extreme n.w. districts of the Russian dominion, within the grand-duchy of Finland. Norwegian Lapland is included under the provinces of Norrland and Finmark; Swedish Lapland, under N. and S. Bothnia, and divided into Torneä, Luleä, Piteä, Umeä, Aselä Lappmark; Russian Lapland, under Finland, in the circles of Kemi and Kola. Norwegian Lapland comprises nearly 26,500 sq.m., native pop. 5,000; Swedish Lapland, 50,600 sq.m., pop. 4,000; and Russian Lapland, 11,300 sq.m., pop. 8,800. These numbers refer merely to the true Lapps, in addition to whom are Finns, Swedes, Norwegians, and Russians, settled in various parts of the Lappish territory, whose respective numbers probably bring the pop. of Norwegian Lapland to about 50,000; Swedish Lapland, about 14,000; and Russian Lapland, about 60,000; though the boundaries of these divisions are so loosely defined, and their areas and populations so variously given by different writers, that it is difficult to arrive at an accurate estimate of either. The climate of the Lappish territory is extremely cold for nine months of the year; while the excessive heat of July and August, when in the northernmost parts the sun never sets for several weeks, is separated from the cold seasons by only a short spring and autumn of about two weeks. The general limit of the cereals is 66° n. lat.; but barley can be grown as far n. in Lapland as 70°. The country is cov-

LAPLAND.

ered over a considerable part of its surface with forests, chiefly of birch, pine, fir, and alder, and having an undergrowth of lichens and mosses, which supply abundant food for the herds of reindeer which constitute the principal sources of wealth to the inhabitants. Many elevated tracts are, however, entirely destitute of vegetation, and consequently uninhabitable.

The LAPPS or LAPLANDERS, classed ethnologically in the same family as the Finns, Esthonians, and Livonians, and occupying the most northern parts of the Scandinavian peninsula, are distinguished, in accordance with the nature of their pursuits, as the *Soelappen* and the *Boelappen*, or the Seafaring and Land-tilling Lapps. They were originally all nomadic; but the difficulty of finding sufficient food within the limited space to which the increasing civilization of the neighboring people had gradually restricted them, has compelled some of the tribes to settle near the larger rivers and lakes, where they follow fishing and hunting with considerable success. They show great skill as marksmen, and regularly supply the large annual markets of Vitangi and Kengis with game and skins, which are sent by Torneä to Stockholm, where they find a ready mart. The Lapps, who call themselves the *Sami* or *Sahmelads*, are a physically ill-developed, diminutive race, with small eyes, low forehead, high cheek-bones, pointed chin, and scanty beard. They are, however, neither wanting in mental capacity nor manual dexterity; and in the seminary for Lapp teachers at Trondenaes, in the dist. of Senjen, several of the students have distinguished themselves by extensive acquirements. In the mythical sagas of Scandinavia, the Lapps are represented as an inferior race, distinguished only for craft and treachery, and addicted to practices of sorcery. They are regarded, in accordance with the same authorities, as the original occupiers of the whole of Scandinavia, from the fertile and more southern portions of which they were in ancient times driven forth by the superior, divinely-descended race of Odin, who banished them to the inhospitable regions in which they are now circumscribed. Their tendency to deceit is probably in a great measure to be attributed to the inferior position in which they are kept by the Norwegians, Swedes, and Russians, near whom they live, for they are honest, and strongly attached to their own people and country; and though they are still superstitious and credulous, they are not devoid of religious sentiment. They conform to the Christian faith of their neighbors—the Norwegian Lapps belonging to the Lutheran, and the Russian Lapps to the Greek Church. The Bible has been translated into their own language, which is divided, like that of all nomadic tribes, into numerous dialects, whose many affinities and differences have of late years attracted much attention from Northern and German philologists. The number of the Lapps

LA PLATA—LA PORTE.

probably falls below 20,000 (see above), of whom about half are included in the pop. of Sweden and Norway, and half within the Russian dominions. The reindeer supplies the people with most of the articles of food and clothing which they use. Their dwellings consist either of conically shaped mud-huts, raised on stakes, and almost impervious to light and air, or of hide-covered tents. Towns or villages are unknown. The contempt with which they are regarded by the tall, well-developed Norwegian peasants, hinders all amalgamation between the races, while their peculiar habits, and the tenacity with which they cling to their own customs, tends still more to isolate them from the neighboring nations.

LA PLATA, *lâ plâ'tâ*: Argentine Republic, the new capital of the province of Buenos Ayres. The important question of the location of the capital of the republic was not settled by law until Gen. Julio A. Roca became president. By custom, however, Buenos Ayres was the seat of the national government, and of the provincial government as well. This anomaly was ended during President Roca's first term. Congress passed a law by which the city of Buenos Ayres was declared to be the capital of the republic; the legislature of the province of Buenos Ayres decided to build a new city, which should be the provincial capital. The cornerstone of La Plata was laid on Nov. 19, 1882, in a barren waste a few miles from the village of Ensenada and about 24 miles below Buenos Ayres, on the south shore of the Rio de la Plata. The port of La Plata, built in Ensenada, is in communication with the city by means of a railroad and a canal, which is navigable by seagoing vessels. In less than three years from the date of its foundation the new capital had a population of 30,000, and, in addition to the public buildings, 3,631 brick and stone houses were either completed or in course of construction. It is said that the public buildings alone have cost about \$40,000,000. The city is laid out on the same plan as Washington, D. C., with diagonal avenues $97\frac{1}{2}$ feet wide, streets $58\frac{1}{2}$ feet wide; and 23 public squares. Among the principal buildings are: the Government House, Treasury Department, Capitol, City Hall, Police Department, Provincial Bank, Hypothecary Bank, Bourse, Department of Engineers, Department of Justice, Museum, and Public Library, Astronomical Observatory, Great Central Railway Station, etc. There are several handsome churches, two theatres, and a race-course. Railways connect this port with nearly every province of the republic. Permanent residents in 1901 numbered 35,410, and in addition there is a large floating population.

LA PLATA, RIO DE. See PLATA, RIO DE LA.

LA PORTE, *la pôrt'*: city, cap. of La Porte co., Ind.; on the Chicago & W. M., the Lake Erie & W., and other railroads; 12 m. s. of Lake Michigan, 59 m. e. of Chi-

LAPPENBERG—LAPSE.

cago, 135 m. n. by w. of Indianapolis. It occupies high ground on the border of a rich prairie; is noted for beautiful residences, handsome drives and promenades, and a chain of 7 picturesque lakes, which from their facilities for boating and bathing are a popular summer resort; and contains numerous churches, St. Rose's Academy, several fine public schools, public library, city hall, court house, banks, foundries and machine shops, saw, planing, and flour mills, and agricultural implement factory. Pop. (1910) 10,525.

LAPPENBERG, *lâp'én-běrch*, JOHANN MARTIN: 1794, July 30—1865, Nov. 28; b. Hamburg: German historian. He studied medicine at Edinburgh, but turned to historical and political studies. He resided some time in London, afterward studied law and history in Berlin and Göttingen, and became representative of his native city at the Prussian court 1820. In 1823, he was appointed archivist to the Hamburg senate, and discovered many valuable historic records. In 1850, he represented his native city at the diet of Frankfurt. One of his principal works is *Geschichte von England* (2 vols. Hamb. 1834-37; continuation 3 vols. Hamb. 1853, and Gotha 1855-58, bringing the history to the end of Henry VII.'s reign); the first vol. translated into English by B. Thorpe, with title *A History of England under the Anglo-Saxon Kings* (2 vols. Lond. 1845), and the second, with title *A History of England under the Norman Kings* (1 vol. 1857). He was author of the following works also, remarkable for research: *Urkundliche Geschichte des Ursprungs der deutschen Hansa* (2 vols. Hamburg 1830); *Die Geschichte Helgolands* (Hamburg 1831); also an ed. of Ditmar of Merseburg, and many valuable works relating specially to Hamburg and Bremen.

LAPPER, v. *lâp'ér* [Icel. *hlaup*, curdled milk]: in *Scot.*, to cover so as to clot; to curdle. LAP'PERING, imp. LAP'PERED, pp. -*érd*: ADJ. coagulated, as 'lappered milk.'

LAPPS, n. plu. *lâps*: the inhabitants of Lapland (q.v.).

LAPSE, n. *lâps* [L. *lapsus*, slidden or fallen; *lapsârě*, to slip: F. *laps*; Sp. *lapso*, lapse or course of time]: a gliding; a slight error or mistake; a slip; a falling or passing; omission to present to a benefice in due time, which gives the right to another: V. to pass slowly, silently, or by degrees; to commit a fault by inadvertency or mistake; to slide or fall anew into sin; to fall or pass from one to another by omission or negligence, as property. LAPS'ING, imp. LAPSED, pp. *lâpst*. LAPS'ABLE, a. -*â-bl*, capable of falling or relapsing.

LAPSE, *lâps*, OF A LEGACY: failure to come into effect under law, because of the death of the legatee before the testator; for as a will operates only from the death of the testator, if at that time the legatee be dead, the legacy lapses; i.e., falls into and becomes part of the

LAPSED—LAPWING.

residuary estate. So as to a devise. Also there may in some cases be a lapse while the legatee is alive. See LEGACY.

LAPSED, *läpst* (*Lapsi*): designation in the early centuries of the Christian Church, of those who, overcome by heathen persecution, did not continue faithful in their confession of Christ. Their number was considerable, when, after a long time of peace, the first general persecution under Decius began; but those who saved themselves by flight were reckoned among the lapsed, though their case was not regarded as equally bad with that of those lapsed who sacrificed to idols. The lapsed were at first punished by excommunication, and their reception into the church again was strenuously resisted; but in the 3d c. a milder course was generally adopted. Their treatment was one of the practical questions most earnestly discussed in the early church.

LAPSUS LINGUÆ, *läp'sūs līng'gwē* [L. *lapsus*, slip; *linguæ*, of the tongue]: a slip of the tongue; an inadvertent mistake in the utterance of the proper word or words. LAP'SUS PEN'NÆ, n. *pën'nē*, slip of the pen; a mistake in writing.

LAPWING, n. *läp'wīng* [*lap* or *flap*, and *wing*]: a bird that flaps its wings in a peculiar manner as it flies; the plover—called also the *peewit*. *Note*.—The origin of this word is referred to AS. *hleápan*, to run, to spring; O.H.G. *winchan*, to move from side to side: OE. *lap-winke*, the sense thus being, 'the creature which turns about in running or flight,' which is fairly descriptive of the habit of the male bird.—Lapwing (*Vanellus*) is a genus of birds of family *Charadriadæ* (Plovers, etc.), differing from the plovers chiefly in having a hind-toe, which, however, is small: also, the nasal grooves are prolonged over two-thirds of the beak.—One species, the COMMON LAPWING, CRESTED LAPWING, or PEEWIT (*V. cristatus*), is a well-known British bird, and a native of almost all parts of Europe, and of parts of Asia and Africa—e.g., Bengal, China, Japan. It is found in Iceland and even in Greenland, but it is not a native of N. America. It is not quite as large as a pigeon, and has the head surmounted with a beautiful crest. The head and crest are black; the throat is black in summer, white in winter; the back green, glossed with purple and copper color. The name Peewit (Scottish *Peesweep*) is derived with the French *Dixhuit*, the Swedish *Wipa*, the Danish *Kivit* and *Vibe*, the old English *Wype*, the Greek *Aix*, etc., from the plaintive note; the local Scottish *Teuch-head* (Tufthead), from the crested head. The lapwing is very plentiful in moors, open commons, and marshy tracts, in pairs during the breeding-season; and in winter in flocks, chiefly on the sea-shore. Its artifices to prevent the discovery of its nest are very interesting: the cock attracts attention by his frantic gestures while

LAPWORTH—LAR.

the hen rises silently from the nest, which is little more than a depression in the ground. The complement of eggs is usually four; but if some are taken away, the bird goes on laying, an instinct of which the egg-gatherers take advantage. The eggs are esteemed a great delicacy, and great numbers are sent to the London market, under the name of *Plovers' Eggs*, from the marshy districts of England. The bird itself is highly esteemed for the table.—A pet lapwing in a garden is of great service in preventing increase of worms and slugs.—Some species of lapwing have wattles at the base of the bill.—The TERU-TERO of S. America (*V. Cayanensis*), a species with spurs on the wings, abounds on the Pampas, is noisy on the approach of travellers, like the common lapwing, and its eggs likewise are in esteem as a delicacy.

LAP'WORTH, CHARLES, M.SC., LL.D.: English scientist: b. Faringdon, Berkshire, 1842. He was trained as a schoolmaster at Culham College, taught at Galashiels, Scotland, 1864 to 1875; at St. Andrews, 1875 to 1881, and at Birmingham University. In 1892, he became president of the geological section of the British Association in Edinburgh. He is now professor of geology and physiography in Birmingham University. His great work has been in the field of theory with regard to *rock-fold*, and the investigation of graptolites. Among his works are: *The Geological Distribution of the Rhabdophora* (1880); *Intermediate Text-Book of Geology*.

LAR, n. *lâr*, LARES, n. plu. *lârêz*, L. *lârês*]: domestic or household gods. LARES AND PENATES, *pên-â'têz* (sometimes LARES, MANES, AND PENATES), tutelary spirits, genii, or deities of the ancient Romans; household gods. The derivation of the names is not quite certain, but Lares is generally considered the plural of *lar*, Etruscan word signifying 'lord' or 'hero;' Manes is supposed to mean 'the good or benevolent ones;' and Penates is connected with *penus*, 'innermost part of a house or sanctuary.' The Lares, Manes, and Penates do not appear to have been regarded as essentially different beings, for the names are frequently used either interchangeably or in such conjunction as almost implies identity. Yet some have thought that a distinction is discernible, and have looked upon the Lares as earthly, the Manes as infernal, and the Penates as heavenly protectors—a notion which has probably originated in the fact, that Manes is a general name for the souls of the departed, those who inhabit the under-world; while among the Penates are included such great deities as Jupiter, Juno, Vesta, etc. Hence we may perhaps infer that the Manes were the Lares viewed as departed spirits, and that the Penates embraced not only the Lares, but all spirits, whether daimons or deities, who exercised a 'special providence' over families, cities, etc. Of the Manes we know almost nothing distinctively; an annual festival

L'ARAISH—LARAMIE.

was held in their honor, Feb. 19, called *Feralia* or *Parentalia*. Of the Penates we are in nearly equal ignorance; but of the Lares we have a somewhat detailed account. They were, like the Penates, divided into two classes—*Lares domestici*, and *Lares publici*. The former were the souls of virtuous ancestors set free from the realm of shades by the Acherontic rites, and exalted to the rank of protectors of their descendants. They were, in short, household-gods, and their worship was really a worship of ancestors. The first of the Lares in point of honor was the *Lar familiaris*, the founder of the house, the family Lar, who accompanied it in all its changes of residence. The *Lares publici* had a wider sphere of influence, and received particular names from the places over which they ruled. Thus, we read of *Lares compitales* (the Lares of cross-roads), *Lares vicorum* (the Lares of streets), the *Lares rurales* (the rural Lares), *Lares viales* (the Lares of the highways), *Lares permarini* (the Lares of the sea), and the *Lares cubiculi* (the Lares of the bedchamber). The images of these guardian spirits or deities were placed (at least in large houses) in a small shrine or compartment called *ædiculæ* or *lararia*. They were worshipped every day: whenever a Roman family sat down to meals, a portion of the food was presented to them; but particular honors were paid to them on the Calends, Nones, and Ides of the month; and at festive gatherings, the *lararia* were thrown open, and the images of the household gods were adorned with garlands.

L'ARAISH', or LARACHE'. See EL ARAISH.

LAR'AMIE: a city and cap. of Albany co., Wyo.; on the Big Laramie river and the Union Pacific railroad; 57 m. n.w. of Cheyenne; 7,132 ft. above sea-level. It is in the midst of the fertile Laramie Plains, between the Rocky Mountains and the Black Hills; and is the shipping and trading centre for a large stock-raising and mining region. It is also engaged in manufacturing and besides its mines yielding gold, silver, lead, graphite, antimony, cinnabar, and other minerals, it has limestone quarries, plaster mills, rolling mills, railroad and machine shops, electric lighting and power plants, and municipal waterworks. Laramie is the seat of the University of Wyoming, the state fish hatchery, agricultural experiment station, and the state penitentiary, and contains many churches, public graded schools, public and college libraries, and St. Joseph's Hospital. The assessed property valuation is over \$1,500,000. Laramie was settled in 1867 by employes of the Union Pacific R. R., incorporated in 1869 and received a city charter in 1884. The government is vested in a mayor and council elected biennially. Fifty per cent. of the inhabitants are Americans, 20 per cent. Scandinavian, and 10 per cent. German. Pop. (1910) 8,237.

LARAMIE MOUNTAINS—LARCENY.

LARAMIE MOUNTAINS: eastern and lower divide of the Rocky Mountains, crossing lat. 43°, and bounding Laramie Plains on n.e. and e.; height 7,000 to 8,000 ft. They are connected n.w. with the Big Horn Mountains, and n.e. with the Black Hills 'by low anti-clinals extending across the prairie.' The Laramie Mountains are composed of red syenite with fossiliferous strata, and outcrops of carboniferous triassic, jurassic, cretaceous, and some of lignite tertiary. Coal is found in several places in these mountains. The Platte river and its branches flowing eastward pierce them.

LAR'AMIE PLAINS: elevated plateau in Albany and Carbon cos., Wyo.; bounded n. and n.e. by Laramie Mountains, n.w. by Rattlesnake Hills, s.w. by Medicine Bow Mountains; extreme length 60 m.; about 3,000 sq. m. It is watered by the Big and Little Laramie and Medicine Bow rivers; has a dry climate and alluvial soil; contains iron, coal, and some gold; yields cereals and vegetables, but is best adapted to grazing. It is traversed in the s. by the Union Pacific railroad.

LARBOARD, n. *lâr'börd* [Dut. *laager*; OE. *leer*, left, and Eng. *board*]: obsolete naval term for the left side of a vessel, *looking forward*. From its liability to be confused by the steersman with the not very different sound, 'starboard,' the word was a few years ago officially abolished, and the expression 'port' was arbitrarily substituted. The terms *starboard* and *larboard* are by some said to have been originally Italian—*questo bordo*, this side (the right); and *quello bordo*, that side (the left); which were contracted into *'sto bordo* and *'lo bordo*, and finally became starboard and larboard. The word *port* is said to be an abbreviation of *porta la timone*, 'carry the helm,' suggesting the analogy of porting the arms on the left hand: ADJ. pertaining to the left side of a vessel. See **PORT**.

LARCENY, n. *lâr'sě-nĭ* [F. *larcin*, robbery—from OF. *larrecin*—from L. *latrōcin'ĭm*, robbery—from *latro*, a robber]: taking or carrying away the goods of another without his knowledge or consent; petty theft. **LAR'CENIST**, n. *-sě-nĭst*, one who commits larceny; a thief. **LARCENOUS**, a. *lâr'sěn-ŭs*, having the character of larceny.

LAR'CENY: wrongful taking and carrying away by one person of the personal property of another, without any color of right or excuse for the act, and with the intent of permanently depriving the owner of his property. It is of two kinds, simple and compound. *Simple* larceny was formerly *grand* or *petit*, according as the value of the property taken was great or small; but the distinction has been abolished in England and in many of the United States; and in the states still retaining it, *grand* larceny is usually a felony by statute, and *petit* larceny a misdemeanor, with different degrees of punishment. *Compound* larceny is a form of larceny aggra-

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vated by circumstances surrounding its commission; as when the property is taken directly from the house, after a trespass, or from the person, unknowingly or after an assault of the owner. The law holds fundamentally that an act of trespass must precede every larceny; and in its relation to personal property a trespass is held to define an injury to or violation of a person's title and possessory interest in chattels; which injury or violation is comprised in the wrongful deprivation of possession without consent. Where consent is obtained, though by fraud, there is no larceny. A person retaining money paid by mistake, or any species of personal property which he has found and of which he knows the owner, is guilty of larceny, for the owner has parted with neither by consent; but a person who is intrusted with the possession of an article by its owner and carries it away and sells or appropriates it is not guilty of larceny, for the owner has consented to the possession and assumed the risk of honesty. While the law holds that the wrongful taking of property must be an actual removal, it is very strict on the method of removal and the length of time of wrongful possession. The removal may be exceedingly slight and the possession but a moment of time, as long as the owner's consent is not given and the intent is felonious: as the removal of a package of goods from one part of a wagon or sidewalk to another by one who intends to steal it if unobserved. A thief snatched a ring from a lady's ear; it immediately slipped from his hand and was found in her hair; he was convicted of larceny, because he had been in complete possession of the ring, though for a moment, without her consent. A distinction is made between possession and custody. When the possession of an article is intrusted to a person, who carries it away and appropriates it, there is no larceny; but when the custody is merely parted with, such misappropriation constitutes a larceny, for the owner has not actually parted with his right in the article. A servant is held to have custody, not possession, of his master's property, the possession remaining with the master; and if property is stolen while in custody of the servant, the crime is against the master, as the real possessor. It has been decided in the United States that a person who receives money from another for the purpose of getting it changed and who keeps it is guilty of larceny; but in England the decisions on the same question are the reverse. A thief, stealing in one county or state, and arrested with the goods in another, may be tried where arrested, the law assuming a fresh taking in every county or state in which the thief carries the stolen property. Decisions vary on this question also; as in the case of a thief bringing stolen property from a British prov. to Mass., where the act was held to be no larceny. Personal property only is liable to larceny; realty and fixtures naturally and truly attached to it are not liable; hence it is not larceny to steal fruit from

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a person's orchard. Unconfined wild animals cannot be subject to larceny, and tame confined ones are subject only when they are fit for food. The flesh of dead animals if fit for food, and oysters planted for cultivation, are subject to larceny. There is a wide range of decisions in England and the United States concerning the liability of leasehold fixtures to larceny. In some states a tenant cannot remove a tree or vine that he has planted, nor any improvement that he has attached to leased premises by means of nails, when he vacates. A tenant who built a new stoop and attached it to the premises by means of screws was acquitted of larceny on removing it because the attachment was not by nails; and another was justified in removing a valuable grape vine on proving that he had planted it in a large tub or box, though the box had been buried in the ground and almost wholly decayed.

LARCH, n. *lârch* [OF. *larege*—from L. and Gr. *larix*; It. *larice*, a larch], (*Larix*): genus of trees of nat. ord. *Coniferae*, differing from firs (*Abies*)—of which, however, some botanists regard it as a mere sub-genus—in having the scales of the cones attenuated at the tip, and not falling off from the axis of the cone when fully ripe, and the leaves deciduous and in clusters, except on shoots of the same year, on which they are single and scattered.—The COMMON LARCH (*L. Europæa* or *Abies Larix*) is a beautiful tree, growing wild on the mountains of s. and middle Europe, found also in Asia, where it extends much further n., even to the limits of perpetual snow. The larch is not a native of Britain, and was not planted in any part of the island as a forest tree till the middle of the 18th c., when it began to be extensively planted. Its introduction has changed the aspect of whole districts, particularly in Scotland. The perfectly erect and regularly tapering stem of the larch, its small branches, its regular conical form, and its very numerous and very small leaves, make its aspect peculiar among the trees of Britain. It attains a height of 60—100 ft., and an age of 200 years. The male catkins are small and bright yellow, the female catkins generally purple and erect; the cones ovate-oblong, about an inch long, and erect. The larch grows rapidly, and is useful even from an early age; the thinnings of a plantation being employed for hop-poles, palings, etc.; the older timber for a great variety of purposes. It is very resinous, does not readily rot even in water, is not readily attacked by worms, and is much used in ship-building. It is, however, very apt to warp, therefore not well suited for planks.—Larch-bark is used for tanning, though not nearly equal in value to oak-bark.—In Siberia, where large tracts of larch forest are frequently consumed by accidental fires, the scorched stems yield, instead of a resin, a gum similar to gum-arabic, reddish, and completely soluble in water, known as *Orenburgh Gum*, used

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for cementing and in medicine, and, notwithstanding a somewhat resinous smell, even for food.—In warm countries, a kind of Manna (q.v.) exudes from the leaves of the larch, in the hottest season of the year, having a sweetish taste, with a slight flavor of turpentine. It is gathered principally in France, and is known as *Briançon Manna*, or *L. Manna*.—The larch woods of Britain have of late years suffered greatly from a disease, in which the centre of the stem decays; the nature and causes are very imperfectly understood, though it seems ascertained that those plantations are peculiarly liable to it which are formed where any kind of fir has previously grown, and those least so which are regularly thinned, so that the trees have abundance of fresh air. The larch does not dislike moisture, but stagnation of water is very injurious to it, and thorough drainage is therefore necessary.—Varieties of the Common larch remarkable for crowded branches, for pendulous branches, and for other peculiarities, are sometimes planted as ornamental trees.—**HACKMATACK** (*L. Americana*), most useful and by far the most widely distributed representative of the larch family native to America; known also as Tamarack. It resembles the European larch, but is smaller and much more hardy. It abounds in the northern United States, and in portions of British America. When fully developed it reaches a diameter of two ft. and a height of 80 ft. It produces small cones, and differs from all other native trees of its class in that its leaves fall in the winter. It is graceful and vigorous, and in New England is often planted for ornament. It thrives in land too moist for the European varieties, but succeeds also in high and even mountainous regions. Its timber is close-grained, very strong and durable. In hop-growing regions, it is esteemed for poles. It is in demand for building purposes, especially for cross-beams and rafters, and is considered superior to oak for knees and spars for ships.—**HIMALAYAN LARCH** (*L. Griffithsii*) abounds in the Himalaya, but is generally a small tree 20 to 40 ft. high. Its cones are larger than those of the common larch. Its wood is very durable.

LARCOM, *lâr'kom*, LUCY: author: 1826—1893, Apr. 17; b. Beverly, Mass. Wrote stories and poems at an early age; worked some years in the Lowell cotton mills; removed to Ill. 1846, and taught school and studied in the Monticello female seminary; returned to Mass. and taught in the Norton Acad. six years; and was editor of *Our Young Folks*, a Boston Juvenile, 1865-74. She also edited *Breathings of a Better Life* (Boston 1867); *Hillside and Seaside in Poetry* (1876); and *Roadside Poems for Summer Travelers* (1877); and published *Ships in the Mist, and other Stories* (1859); *Poems* (1868); *An Idyl Work, a Story in Verse* (1875); *Childhood Songs* (1877); *Wild Roses of Cape Ann, and other Poems*

LARD—LARDNER.

(1880); and a complete collection of her *Poetical Works* (1884).

LARD, n. *lârd* [F. *lard*—from L. *lardum*; It. *lardo*, *lard*]: the fat of swine after being melted and cooled. Until after the first quarter of the 19th century, lard was used only for culinary purposes, and as the base of various ointments in medical use. The enormous pork product in America rendered it necessary to find some other applications for this material, and large quantities were pressed at a low temperature, by which the stearine and oleine were separated. The stearine was used for candle-making; and the oleine soon became a very important article of commerce, as 'lard oil,' a valuable lubricant for machinery. As much as 14,000 tons of lard, stearine of lard, and lard oil have been exported in one year from the United States to Britain. British manufacture of stearine candles and fine oleine from palm oil, cocoa-nut oil, and various kinds of grease, has now largely taken the place of the American product. LARD, v. to fatten or enrich, as with bacon; to smear or cover with lard; to mix with by way of improvement, as a speech with quotations—usually applied in a depreciatory sense. LAR'DING, imp. LAR'DED, pp. LARDER, n. *lârdêr* [F.]: the room or place in a house where meat or victuals are kept. LAR'DERER, n. *-dêr-êr*, one who has the charge of the larder. LARDACEOUS, a. *lâr-dâ'shÿs*, resembling lard or bacon. LARDOONS, n. plu. *lâr-dônz'* [F. *lardon*, a small slice of bacon]: in *cookery*, bits of bacon about an inch square. LARDY, a. *-dÿ*, containing lard; full of lard. LARDACEIN, n. *lâr-dâ-sê'in*, an amyloid substance deposited in the liver and elsewhere in certain diseases.

LARDNER, *lârd'nêr*, DIONYSIUS, LL.D.: 1793, Apr. 3—1859, Apr. 29; b. Dublin: distinguished writer on physical science. He became known first by his *Treatise on Algebraical Geometry* (Lond. 1823), and by a work on the *Differential and Integral Calculus* (Lond. 1825). In 1828, he was appointed professor of natural philosophy and astronomy in Univ. College, London. In 1830, he projected a sort of encyclopedia, consisting of original treatises on history, science, economics, etc., by the most eminent authors; and 134 vols. were accordingly published, under the general name *Lardner's Cyclopædia*, 1830-44. Some of these vols. were from his own pen. A second issue was begun 1853. The most important of his scientific publications are his 'hand-books' of various branches of nat. philosophy (1854-56). Lardner was author of *Museum of Science and Art*, an excellent popular exposition of the physical sciences, with their applications. He died in Naples.

LARDNER, *lârd'nêr*, JAMES L.: 1802, Nov. 20—1881, Apr. 12; b. Penn.: naval officer. He entered the U. S. navy as midshipman 1820, May 10; was promoted lieu-

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tenant 1828, May 17, commander 1851, May 17, captain 1861, May 19, commodore 1862, July 16, and rear-admiral 1864, and was retired 1866, July 25. He distinguished himself at the capture of Port Royal and in the blockade of South Carolina and Georgia, and had commanded the E. Gulf blockading and the W. India squadrons.

LARDNER, NATHANIEL, D.D.: 1684—1768, July 24; b. Hawkshurst, in Kent: English Presb. divine. He studied first in London, afterward at Utrecht and Leyden. Lardner belonged to a body of English *Presbyterians*, who had become Unitarians. Lardner was not a popular preacher; but his *Credibility of the Gospel History*, and his *Jewish and Heathen Testimonies*, have secured for him a permanent place among modern apologists for Christianity. The last edition of his works, 10 vols., appeared at London, 1828.

LAREAU, lâ-rō', EDMOND: Canadian author: b. St. Gregoire, Quebec, 1848, March 12; d. 1890. He was educated at the College of Ste. Marie de Mannoir, at Victoria College, and at McGill University, and was admitted to the bar in 1870. In 1876 he became professor of law in McGill University, and in 1886 was elected in the Liberal interest to the provincial legislature from Rouville co. His works, written in French, include histories of Canadian law (1872), and literature (1874), and *Historie and Literary Miscellanies* (1877).

LAREDO, lâ-rā'dō: city, cap. of Webb co., Tex.; on the Rio Grande river, and the International & Great Northern, the Mexican N., and the Rio Grande & E. P. railroads; directly opposite New Laredo, Mex., where it connects with the Mexican National railroad. It was settled in the latter part of the 18th c. by Spaniards, and until late in the 19th c. was a rendezvous for Indians and cattle raiders from both countries, until concerted action on part of the Mexican and U. S. govts. established civilized conditions. As a frontier port of entry in a farming, stock raising, and iron mining region Laredo carries on an active international trade, and has concentrating and sampling works, foundries, machine shops, stock yards, grain elevators, furniture factories, brick yards, etc. Some of the prominent buildings are the court-house, the jail, the Mexican National Hospital, the Mercy Hospital, and the Ursuline Convent. It is the seat of the Laredo Seminary, established in 1882, under the auspices of the Methodist Episcopal South Church, and the Ursuline Academy. The park of 65 acres is an attractive feature of the city. Pop. (1900) 13,429; (1910) 14,855.

LARES AND PENATES. See under LAR.

LARGE, a. lâ-rj [F. *large*, plentiful, large—from L. *largus*, large, long: It. *largo*]: of great size; bulky; copious; liberal: N. in ancient music, longest mark of dura-

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tion: thus semi-breve meant 1, breve 2, long 4, large 8: the breve is now the longest note in use. LARGE'LY, ad. -lī, widely; extensively; copiously; liberally. LARGE'NESS, n. -nēs, bulk; magnitude; greatness. LARGE-HEART'ED, a. having a liberal spirit and wide sympathies; generous. LARGE-HEART'EDNESS, n. the state of being large-hearted; liberality. AT LARGE, without restraint; in the full extent; diffusely.—SYN. of 'large': big; great; broad; wide; thick; extensive; huge; capacious; ample; abundant; plentiful; populous; full.

LARGESS, n. *lâr'jēs* [F. *largesse*, a gift—from mid. L. *largitiā*—from L. *largīrī*, to give or bestow bountifully—from *largus*, large]: a present; a liberal gift or donation; in early times, money which it was the practice to grant to heralds on certain state occasions, for proclaiming the style and title of the sovereign and his nobles. The regular fees, as recorded in one of the Ashmolean manuscripts, were, 'At the coronacion of the king of England, c̄ apparalled in scarlet. At the displaying of the kinge's banner in any campe, c. markes. At the displaying of a duke's banner, £20; at a marquis', 20 markes; at an earle's, 10 markes. The king marrying a wife, £50, with the giftes of the kinge's and queene's uppermost garments; at the birth of the kinge's eldest son, 100 markes, at the birth of younger children, £20. The king being at any syge with the crown on his head, £5.'

LARGHETTO, ad. *lâr-gēt'tō* [It.—dim. of *largo*, broad, large]: musical term meaning 'somewhat slowly.' LARGO, ad. *lâr'gō*, slowly—denoting the slowest of all the *tempi* in common use; employed especially in compositions where the sentiment is solemn. LARGHISSIMO, ad. *lâr-gīs'ī-mō* [superl. of *largo*]: exceedingly slow; as slowly as possible.

LARIAT, n. *lâr'ī-at* [Sp. *la reata*, *lariata*]: lasso; also a long rope for picketing horses in camp; it is fastened to a ring on the picket pin which is driven into the ground, permitting the horse a limited circle in which to graze. See LASSO.

LARICIO. See PINE.

LARIDÆ, n. plu. *lâr'ī-dē* [Gr. *laros*; L. *larus*, a gull]: family of birds, of the order *Palmipedes*, or *Natatores*, called *Longipennes* by Cuvier, from the length of wing characteristic of them. They are generally capable of protracted as well as rapid and graceful flight; all are sea-birds, though some resort to breeding-places at some distance inland, and some follow the course of rivers to considerable distances from the sea. Some are the most oceanic of all birds, being often seen far from any shore. They generally take their prey either by a sudden descent to the water during flight, or while swimming, and are not good divers. The hind-toe is small and free; the bill is pointed or hooked, but destitute of lamellæ. Gulls, Skuas, Terns, Petrels, Shearwaters, Albatrosses.

LARISSA—LARK.

Noddies, Skimmers, etc., belong to this numerous family, which has many representatives in all parts of the world. They prey chiefly on fishes and mollusks, and are in general ready to eat any animal garbage. Some writers separate in the laridæ, a sub-family, *Larinæ*, including the gulls proper. See GULL.

LARISSA, or LARISA, *lâr-îs'sâ* (called by the Turks *Yenitschir*): famous in ancient times as the chief town of Thessaly, and still an important place. By the negotiations inaugurated at the Berlin Congress 1878, and concluded 1881, Larissa was conceded by Turkey to Greece. It stands on the Salambria (anc. *Peneus*), in the great fertile plain of Central Thessaly, has a brisk trade and manufactures silk and cotton goods. Larissa is the seat of a Greek abp., and has several churches, as well as numerous mosques. Pop. about 16,000.

LARISTAN, *lâr-îs-tân'*, AND MOGISTAN: two maritime provinces of Persia, bounded s. by the Persian Gulf, and the Gulf of Oman, and n. by the provinces of Faristan and Kerman.

LARIX. See LARCH.

LARK, n. *lârk* [AS. *lac*, play: Sw. *lek*, sport: Goth. *laiks*; Icel. *leikr*, a game, sport]: fun, frolic, or joking, sometimes with mischief: V. to engage in fun or frolic by way of sport, sometimes with mischief. LARK'ING, imp. LARKED, pp. *lârkt*. SKYLARKING, n. *skî'lâr-k-îng*, among *seamen*, mounting to the highest yards and sliding down the ropes for amusement; fun or frolic—a convenient word covering much mischief. *Note.*—In LARK, frolic, *r* is intrusive, as the root-words show; the word is old, but has been popularly spelled and treated as identical with LARK, the bird, which it is not. The spelling should be *laak* or *lahk*.

LARK, n. *lârk* [AS. *lafere*; Scot. *laverock*; Dut. *lew-erck*; Icel. *lævirki*; Dan. *lærke*, a lark]: singing bird of various species: see below: V. to catch larks. LARKING, imp. LARKED, pp. *lârkt*. LARK'ER, n. one who catches larks. LARK'SPUR, n. a plant with showy flowers, usually of vivid blue—named from the fancied resemblance of the horned nectary to the spur of a lark. Larkspur is the name of a genus (*Delphinium*) of nat. ord. *Ranunculaceæ*, annual and perennial herbaceous plants, natives of the temperate and cold regions of the n. hemisphere. They have five sepals, the upper spurred; four petals, distinct or united into one, the two upper having spurs inserted into the sepaline spur; and 1-5 many-seeded follicles. Some are well known and favorite garden-flowers, as the UPRIGHT LARKSPUR (*D. Ajacis*), native of Switzerland, and BRANCHING LARKSPUR (*D. consolida*), native of most parts of Europe. *D. glaciale* is one of the most alpine plants in the world.

LARK (*Alauda*): genus of small birds of order *Insesores*, section *Conirostres*, type of a family *Alaudidæ*, to

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the whole of which the English name is commonly extended. In this family, the bill, though stout, and nearly conical, is more lengthened than in buntings and finches. The toes are long, and separate to the base; the claws long and little curved, that of the hind-toe generally very long. The true larks (genus *Alauda*) have also long wings, and great power of flight. Many are birds of passage. In common with almost all the family, they nestle and seek their food—seeds, insects, worms, etc.—on the ground; and in admirable harmony with this mode of life, their plumage exhibits much uniformity of coloring, so that when on the ground they may not readily be noticed by their enemies. The lark family is very widely distributed over the world. The COMMON LARK, FIELD LARK, or SKY LARK (*Alauda arvensis*), is one of the best-known British birds, and notwithstanding the tameness of its brown plumage, is a universal favorite, on account of the sweetness of its cheerful song, which it pours forth while soaring and floating in the air, and which every one associates with pleasant scenes and delightful days. It more rarely sings on the ground. It is in great repute as a cage-bird, and sings well in confinement, but flutters its wings while singing, as if still desirous of soaring in the air. It abounds chiefly in open but cultivated districts. It is common in most parts of Europe, but from the more n. parts, it migrates southward on the approach of winter. It is a native also of Asia, and is a winter visitant of n. Africa. It is not found in America, except that it has been introduced on Long Island (N. Y.), and is thriving there. It makes its nest generally in an open field, often under shelter of a tuft of herbage, or a clod of earth; lays four or five mottled eggs, and generally produces two broods in a season. It is not truly gregarious in summer, but in winter large flocks assemble; and at this season multitudes of larks are taken for the table in s. England, in France, and other countries. They are often caught by horse-hair nooses, attached to a long line of packthread, to which the nooses are fastened at distances of about six in., the line being pegged to the ground at intervals of 20 yards. This mode is most successful when the ground is covered with snow, and a little corn is scattered along the line. The Clap-net (q.v.) and Trammel-net (q.v.) also are employed by lark-catchers, and great numbers of larks are taken in some parts of England by dragging the trammel-net over the stubbles and pastures. *Twirling for larks* is a peculiar mode of turning to account the attractiveness which any glittering object possesses for these birds. It is a French practice. A piece of highly polished mahogany, or of some common wood inlaid with bits of looking-glass, is fastened on the top of a rod, so as to reflect the sun's rays upward, and is made to twirl by means of a string. Larks are greatly attracted by it, congregate around it, and are readily

LARMES—LARNED.

shot in large numbers.—The CRESTED LARK (*A. cristata*), very similar in size and plumage to the common lark, but having the feathers of the crown of the head more distinctly developed into a crest, is very common in many parts of Europe, and abundant near Calais, but is very seldom seen in Britain.—The WOOD LARK (*A. arborea*), a smaller species, frequent in parts of England, rare in Scotland, is a bird of very delightful song, and usually sings perched on the branch of a tree: it frequents wooded districts. Its nest, however, is made on the ground.—The SHORE LARK (*A. alpestris*), very rarely found in Britain, inhabits n. Europe, n. Asia, and N. America, the only N. American species. Its song is very sweet, and gladdens the visitor of such desolate shores as those of Labrador, where it breeds, amid the tufts of mosses and lichens, with which the bare rocks are interspersed. It is a winter visitant of New England, and is sometimes seen as far s. as Georgia. The head has two erectile tufts of feathers, somewhat resembling those of horned owls. Black, white, and yellow vary the brown plumage of the Shore Lark.

LARMES, *lârm*, in British Heraldry: applied to the field bestrewed with an indefinite number of drops of a blue color, when the field is said to be *gutté de larmes*.

LARMIER, n. *lâr'mî-êr* [F.—from *larme*, a tear or drop—from L. *lacryma*, a tear]: in *arch.*, the corona; the eaves or drip of a house.

LARNED, *lâr'nêd*, AUGUSTA: author: b. Rutland, N. Y., 1835, Apr. 16. She was educated at the Watertown and Potsdam seminaries and at Epingler Institute, New York; has been contributor and correspondent to periodicals; editor of the *Revolution* (woman's rights); editorial writer for the *Christian Register*, Boston, for many years; and is author of the *Roundabout Road* series of papers which appeared in the *New York Evening Post*. She has also published *Home Stories*, 6 vols. (New York, 1872-3); *Talks with Girls* (1873); *Old Tales Retold from Greeian Mythology* (1875); *The Norse Grandmother*; *Tales from the Eddas* (1880); *Village Photographs* (1887); *In Woods and Fields* (verse); etc.

LARNED, BENJAMIN FRANKLIN: 1794, Sep. 6—1862, Sep. 6; b. Pittsfield, Mass.: soldier. He entered the U. S. army as ensign 1813, Oct. 21; was promoted 1st lieutenant 1814; brevetted captain for gallantry in the defense of Fort Erie; was retained in the army on its reorganization, and appointed paymaster and major 5th U. S. infantry; promoted deputy paymaster-general and lieutenant-colonel 1847; and succeeded Gen. Nathan Towson as paymaster-general and colonel 1854. In the early part of the civil war he accomplished a reorganization of his department, but his health gave way under the strain.

LARNED, JOSEPHUS NELSON: American author and

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librarian: b. Chatham, Ontario, Can., 1836, May 11. He was a member of the editorial staff of the *Buffalo Express* 1859-69; and editor 1869-72; he was then superintendent of public education in Buffalo for a year, and in 1877 became librarian of the Buffalo Library, a position which he held for 20 years. He was president of the American Library Association in 1893-4. He edited and published (1902) *The Literature of American History*, a bibliography, in which the 'scope and comparative worth' of each book is indicated in short annotations by historical students. His other works include *Talks about Labor* (1877); *History for Ready Reference* (1895); *Talk about Books* (1897); *History of England for Schools* (1900); *A Multitude of Counselors* (1901); *Primer of Right and Wrong* (1902); *History of the United States for Secondary Schools* (1903); *Seventy Years to Survey* (1905).

LARNED, WALTER CRANSTON: American lawyer and author: b. Chicago 1850, Nov. 30. He was graduated at Harvard in 1871; studied at the Harvard Law School 1871-2, and in Europe 1872-4; was admitted to the bar in 1874, and has since practiced in Chicago. He is the author of *Arnaud's Masterpiece: a Romance of the Pyrenees*; *Churches and Castles of Mediæval France*; and *Rembrandt: a Romance of Holland*.

LAROCHFUCAULD, lâ-rosh-fô-kô', FRANÇOIS (Duke of), Prince of Marsillac: 1613, Sep. 15—1680, Mar. 17; b. Paris; of an old French family of great celebrity, whose original seat was the small town of Larochevoucauld, near Angoulême. The history of the family is traced back to 1026, when a certain Foucauld, first seigneur de la Roche, is spoken of in a charter of an abbey of Angoulême as *vir nobilissimus Fulcaudus*. In the religious wars of the 16th c., it embraced the cause of the Protestants. Larochevoucauld was one of the greatest of maxim writers. From youth he was fond of literary pursuits; and after having been involved in intrigues against Cardinal Richelieu, and in the tumults of the Fronde, he retired into private life, cultivated the society of the most eminent literary persons of his time, Boileau, Racine, and Molière, and composed his famous *Mémoires* (Cologne 1662; Amst. 1723, etc.), in which he gives a simple but masterly historic account of the political events of his time. In 1665, he published *Réflexions ou Sentences et Maximes Morales*, a work containing 360 detached thoughts, of which, perhaps, the most widely celebrated is his definition of hypocrisy, as 'the homage which vice renders to virtue.' The book is regarded as a model of French prose, and the maxims show great acuteness of observation, and a clear perception of the prevalent corruption and hypocrisy of his time. Their literary style is unrivalled for clearness, fulness, brevity, and point. Larochevoucauld's character

LAROCHEFOUCAULD—LAROCHEJAQUELEIN.

was entirely reputable. His political action has been censured, but it has been well remarked that the keenness of his intellect, with his apprehension of both sides of a question may easily have lessened his capacity for instant resoluteness in action. His *Œuvres Complètes* were edited by Depping (Par. 1818), and his writings have been commented on by a host of critics of the most different schools, as Voltaire, Vinet, Sainte-Beuve, and Victor Cousin.

LAROCHEFOUCAULD', FRANÇOIS ALEXANDRE FRÉDÉRIC, Duke of LAROCHEFOUCAULD-LIANCOURT, *-le-ōng-kōr'*: philanthropist: 1747, Jan. 11.—1827, Mar. 27. He was representative of the nobles of Clermont in the states-general, and was a zealous advocate of reform, but sought to preserve the monarchy. After the catastrophe of Aug. 10, he fled to England, and lived in great penury, till he obtained back, 1794, some fragments of his property. He then visited the United States, and published *Voyage dans les Etats-Unis d'Amérique fait en 1795-97* (8 vols. Par. 1798). Having returned to Paris, he lived in retirement, occupied only with the extension of vaccination and similar works of benevolence. Napoleon restored him his ducal title 1809. After the Restoration, he was made a peer, but soon gave offense to the court, by opposing its unconstitutional policy. He labored zealously in promotion of many patriotic and philanthropic objects. He founded the first savings-bank in France.

LAROCHEJAQUELEIN, *lâ-rosh-zhâk-lâng'*, DU VERGER DE, HENRI, Count (of L.): 1772-1794, Mar. 4; of an old noble family of France. The name Du Verger is derived from a place in Poitou. Larochejaquelein's ancestor, Guy du Verger, married 1505 the heiress of the seigneur of Larochejaquelein, and of his descendants several distinguished themselves as soldiers, after the beginning of the French Revolution, by their strenuous efforts in the cause of the Bourbons. Larochejaquelein was an officer in the guard of Louis XVI., and after 1792, Aug. 10, left Paris, and put himself at the head of the insurgent royalists in La Vendée. He signalized himself by many heroic deeds, and for a time successfully repelled the republican forces, but was defeated by Gens. Westerman, Müller, and Tilly, 1793, Dec. 13, and escaped with difficulty. He raised a new body of troops in Upper Poitou, but was killed in battle at Nouaillé.—LOUIS DU VERGER, Marquis de Larochejaquelein (1777-1815, June 4), bro. of Henri, emigrated at the commencement of the Revolution; returned to France 1801, but resisted all Napoleon's efforts to win him, and 1813 placed himself at the head of the royalists in La Vendée. Louis XVIII. appointed him, 1814, to the command of the army of La Vendée, and during the hundred days he maintained the royalist cause there, supported by the British. He fell in battle at Pont-des-Mathis.—

LA ROCHELLE—LARREY.

MARIE-LOUISE VICTORIE, Marquis de Larochejaquelein (1772-1857), wife of Louis du Verger, published *Mémoires of the War in La Vendée*, of which she was an eye-witness (Bordeaux 1855), which are of great value, and have gone through many editions.

LA ROCHELLE'. See ROCHELLE, LA.

LAR'RABEE, WILLIAM CLARK: American Methodist Episcopal clergyman and educator: b. Cape Elizabeth, Maine, 1802; d. 1859. He was principal of Methodist academies at Cazenovia, N. Y. (1831-5), and Kent's Hill, Maine, and in 1837 was a member of the Maine geological survey. In 1840 he was appointed professor of mathematics and natural science in Indiana Asbury (now De Pauw) University, and in 1852-4 and 1856 was superintendent of public instruction in Indiana. He worked efficiently toward the improvement of educational methods in his denomination. Among the works published by him are: *Scientific Evidences of Natural and Revealed Religion* (1850); *Wesley and his Co-laborers* (1851); *Asbury and his Co-laborers* (1853).

LARRABEE, WILLIAM HENRY, LL.D.: American editor: b. Alfred, Maine, 1829, Sep. 20. He was graduated from Indiana Asbury (now De Pauw) University in 1845, was admitted to the bar but never entered practice, was assistant editor of *The Methodist* of New York in 1862-5 and again in 1870-7, was associate editor of the *Brooklyn Daily Union* in 1865-70, and associate editor of the *Popular Science Monthly* in 1879-1900. He contributed extensively to periodicals and encyclopædic publications, and wrote with A. J. Schem, a *History of the War in the East* (1877).

LARREY, lâ-râ, DOMINIQUE JEAN, Baron: 1766-1842, July 24; b. Baudéan, near Bagnères-Bigorre: French surgeon. He studied medicine with his uncle, Alexis L., and 1792 was appointed second physician to the Hôtel-des-Invalides, and 1793 accompanied the French army to Germany and Spain, when he invented the *ambulance volante*, for transporting the wounded. Napoleon summoned him to Italy 1797, and he accompanied the expedition to Egypt. In 1805, he was placed at the head of the medico-surgical dept. in the French army, and was created a baron of the empire. He was wounded and taken prisoner at Waterloo, and at the restoration lost his rank and pension; the latter, however, was restored 1818; and he continued to fill important and honorable offices till 1836, when he retired from that of surgeon-general of the Hôtel-des-Invalides. Returning from Algeria, where he had been as inspector of military hospitals, he died at Lyon. Apart from his skill in practice, Larrey has a high scientific reputation, and was the author of very valuable books on various medical subjects.

LARRUP—LARVIPARA.

LARRUP, v. *lār'rūp* [Dut. *larp*, a lash; *larpēn*, to thresh as corn in a peculiar manner]: among *seamen*, to beat or thrash. LAR'RUPPING, n. a good beating.

LARRY, n. *lār'rī*, or LORRY, n. *lōr'rī*: a coal-truck on a railway; a long low wagon with springs, and without sides.

LARVA, n. *lār'vā*, LARVÆ, n. plu. *lār'vē* [L. *larva*, a ghost, a mask: F. *larve*, larva: It. *larva*, a mask]: an insect in the caterpillar or grub state. LAR'VAL, a. *-vāl*, of or pertaining to larvæ. LAR'VATED, a. *-vā-tēd*, masked; clothed as in a mask. LAR'VIFORM, a. *-vī-fawrm* [L. *forma*, shape]: like a larva.—*Larva*, in natural history, is the denomination of animals which undergo transformation, in that state in which they exist first after issuing from the egg. The *egg* is the first state of an insect, the *larva* the second, the *pupa* or *chrysalis* the third, the *imago* the fourth or perfected state. Until recently, the larva state was known in insects only, and the term is still commonly used with regard to them only; but it has been discovered that many marine animals spend a considerable part of their existence in such a state, during which they are often extremely different from what they become after their next transformation; some of them, as the young of the Cirrhopods, swimming about freely in the larva state, but becoming firmly fixed to one spot when they have reached their perfect development, and—still more remarkable—possessing eyes in the former state, and becoming destitute of them in the latter. The larva state of crabs exhibits a very singular form, long known as a distinct genus of crustaceans, under the name Zoëa. The young of at least some Entozoa pass through a larva state; those of the tape-worms were formerly regarded as creatures altogether distinct, and received the generic name *Scolex*, which when now used is with regard to these animals equivalent to larva—The larvæ of insects differ very much in the degree of their development, the differences being characteristic of different orders; some resembling the perfect insect, except in the lack of wings, and others being very unlike it. The larvæ of many insects, particularly those very unlike the perfect insect, as grubs (coleopterous larvæ), maggots (dipterous larvæ), and caterpillars (lepidopterous larvæ), accumulate fat in great quantity, which serves to sustain them during their *Pupa* (q.v.) state, in which they take no food. The same accumulation of fat does not take place in larvæ more nearly similar to the perfect insect, as in neuropterous insects, whose pupæ are active and voracious.

LARVIPARA, n. plu. *lār-vīp'ā-rā* [L. *larva*, a mask; *pariō*, I bring forth]: a name given to those insects which bring forth larvæ or grubs instead of eggs. LARVIP'AROUS, a. *-ā-rūs*, producing young in the state of larvæ or grubs.

LARYNGISMUS STRIDULUS—LARYNGITIS.

LARYNGISMUS STRIDULUS: called also child crowing and bastard croup. It is far more common than true croup, and is very liable to be confounded with it. The child is seized suddenly with a spasm, closing the larynx and preventing inspiration. It struggles to inspire, but is apparently unable to do so; at length, the spasm yields and the breath is drawn in with a shrill crowing sound, like that which characterizes whooping-cough, and depending upon the same cause—a narrowing of the fissure of the larynx. In severe cases, the countenance becomes livid, the eyes fixed, and there is entire suspension of the respiratory function for awhile. The child makes vehement struggles to recover its breath, and at varied intervals, from a few seconds to a minute or longer, air is admitted through the glottis, now partially open; and this rush of air produces the characteristic sound. A fit of coughing or crying then often supervenes, and the attack terminates, leaving the child exhausted. If, however, the glottis does not partially open, the child will die suffocated (in popular language, *in a fit*) at the end of two, or at most, three minutes. In association with these symptoms is often a contracted state of the flexor muscles of the thumb, fingers, toes, wrist, and ankle, giving to the foot an appearance like that of club-foot.

During the paroxysm, the warm bath may be tried, if it can be made ready at once; and the more accessible application of hot fomentations to the throat, by means of a large sponge, is often serviceable. The muscles sometimes relax when cold water is freely sprinkled over the chest and face, and these simultaneous applications of hot and cold water are often more effective than either alone. Subsequent general treatment must depend on the exciting cause. The state of the bowels and of the skin must always be carefully regulated, and change of air is advisable. Phosphate of lime, in doses of five to ten grains, three times a day, administered in chalk mixture, has been recommended.

LARYNGITIS, or INFLAMMATION OF THE LARYNX: inflammation of the larynx; either an acute or a chronic disease. Acute laryngitis, in its severe form, commences with a chill, followed by fever with full strong pulse, hot skin, and flushed face. There is also soreness of the throat, hoarseness of the voice, great difficulty in swallowing, and a feeling of extreme constriction of the larynx. There is a painful stridulous cough, but only a little mucus is ejected. Great difficulty of breathing soon comes on, the act of inspiration being prolonged, and wheezing, in consequence of the swollen membrane of the glottis impeding the entrance of air. On examining the fauces, the epiglottis (see LARYNX) is observed to be of bright red color, erect, and so much swollen as not to be able to descend and close the glottis during deglutition. The patient shows great anxiety and

LARYNGOSCOPE—LARYNGOTOMY.

distress; his lips become blue, his face of a livid paleness, his pulse irregular and very feeble, and at length he sinks into a drowsy state, often preceded by delirium, and quickly followed by death. The disease is very rapid, ending, when fatal, in three or four days, and occasionally in less than one day. This severe form of laryngitis occurs rarely.

The most frequent cause of laryngitis, whether mild or severe, is exposure to cold and wet, especially when in perspiration. It frequently arises also from direct injury to the larynx, as from attempting to swallow boiling water or corrosive fluids, from inhaling gases, etc.

In simple cases, confinement to a warm room, with soothing inhalations of steam, etc., and resting of the voice, are usually curative. In exceptionally severe cases, sucking ice is recommended, and laryngotomy (see TRACHEOTOMY) may be necessary. In persons who over-use the vocal organs laryngitis frequently is chronic, with alteration of the voice and various morbid sensations in the larynx. See LARYNX.

LARYNGOSCOPE, n. *lär-īng'gō-skōp* [Gr. *larungx*, the upper part of the windpipe; *skopēō*, I view or see]: small mirror for examining the larynx: the mirror is placed on a handle or stalk attached to its margin, at an angle of 120° to 150°, the stalk being about six inches in length and of flexible metal, so that it can be bent at the will of the operator. LARYN'GOSCOPI'IC, a. *-skōp'ik*, relating to the inspection of the larynx. LARYNGOS'COPY, n. *-gōs'ko-pi*, art or practice of exploring the larynx with a laryngoscope. Although attempts had been previously made to explore the recesses of the larynx by means of a reflecting mirror, it was not until two German physiologists, Drs. Turck and Czermak, took up the subject 1857-8, that the great importance of laryngoscopy was generally recognized. The mouthpiece of a large reflector, with a central opening through which the observer looks, is held between the molar teeth; or, better, the reflector may be attached to a spectacle frame by a stiffly working ball-and-socket joint. The rays of the sun or of a good lamp are concentrated by this reflector on the laryngeal mirror, which is placed against the soft palate and uvula. The laryngeal mirror, introduced with the right hand, which rests by two fingers on the jaw, is maintained at such an inclination that it throws the light downward, and illuminates the parts to be examined, while it reflects the images of these parts into the eye of the observer through the central opening of the reflector. Thus he can look through the larynx into the trachea or windpipe. By use of this instrument can be seen the actual position of small tumors, ulcers, etc.

LARYNGOTOMY, n. *lär'īng-gōt'ō-mī* [Gr. *larungx*, the upper part of the windpipe; *tomē*, a cutting]: operation of cutting into the larynx to admit of breathing in cases of obstruction: see TRACHEOTOMY.

LARYNX.

LARYNX, n. *lăr'ingks* [L. *larynx*—from Gr. *larungx*, the upper part of the windpipe, gen. *larunggos*, of the upper part of the windpipe]: the upper part of the trachea or windpipe. LARYNGEAL, a. *lăr'in-jě'äl* or *lăr'in'jě-äl*, pertaining to the larynx; also LARYNGEAN, a. *lăr'in-jě'an* or *lăr'in'jě-än*. LARYNGISMUS, n. *lăr'in-jis-müs*, the spasmodic action of the larynx. LARYNGITIS, n. *lăr'in-jit'is*: see LARYNX, THE.

LARYNX, THE: the organ of voice, also taking part in the respiratory process, as all air passing either to or from the lungs must pass through it. It is a com-

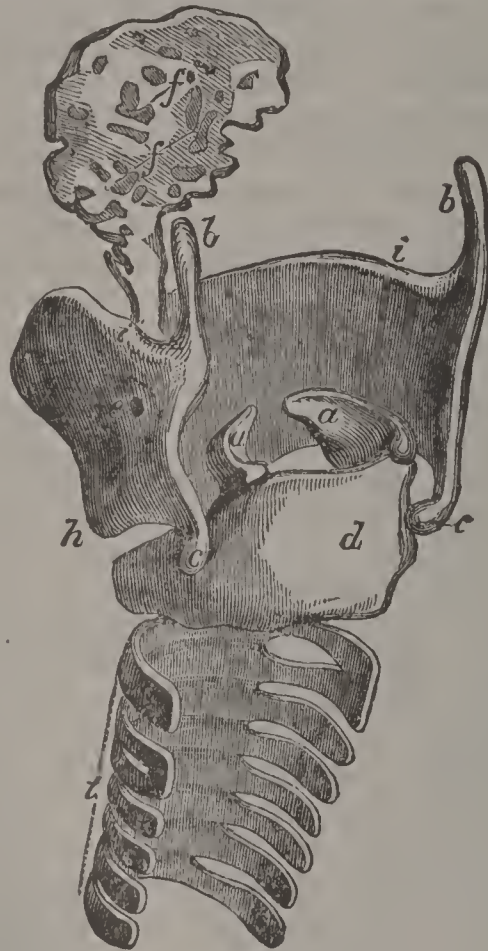


Fig. 1.

(From Todd and Bowman.)

Cartilages of larynx and epiglottis, and upper rings of trachea, seen from behind: *a*, arytenoid cartilages; *b*, superior cornua of thyroid cartilage; *c*, its inferior cornua; *d*, posterior surface of cricoid; *f*, epiglottis, with its perforations; *i*, upper margin of thyroid; *h*, its left inferior tubercle; *t*, trachea.

plex mechanism, resembling a box composed of pieces of cartilage, which may be moved on each other, and inclosing the membranous bands (the *chordæ vocales*) by which the vocal vibrations are produced.

It is situated between the *trachea*, or windpipe, and the base of the tongue, at the upper and front part of the neck, where it forms a considerable projection (especially in men) in the mesial line; and it opens superiorly into the *pharynx*, or throat, and inferiorly into the windpipe.

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The cartilages of which the skeleton of the L. is composed are five in number—viz., the thyroid and the cricoid cartilages, the epiglottis, and the two arytenoid cartilages.

The *thyroid* [Gr. shield-like] cartilage consists of two square plates of cartilage united in front at an acute angle, which forms the projection commonly known as the *pomum Adami*, or Adam's apple. Each of these plates is prolonged at the upper and lower posterior corners. The thyroid cartilage forms almost the whole of the anterior and lateral walls of the larynx.

The *cricoid* (Gr. ring-like) cartilage is a ring whose lower margin is parallel to the first ring of the trachea, to which it is united by fibrous membrane. Its upper border is connected in front with the lower border of the thyroid cartilage by a thick yellow fibrous tissue. It presents two articular surfaces on either side, viz., a

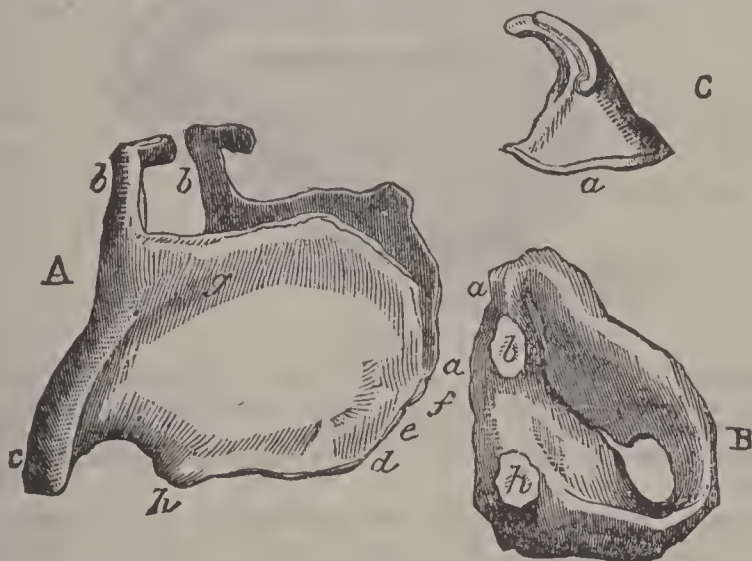


Fig. 2.

A, side view of thyroid cartilage: *a*, the notch; *b*, superior, and *c*, inferior cornua; *g*, *h*, superior and inferior tubercles; *f*, *pomum Adami*. B, side view of cricoid cartilage: *a*, posterior superior margin; *b*, articulating surface of right arytenoid cartilage; *h*, surface articulating with inferior cornua of thyroid. C, the right arytenoid cartilage: *a*, its base articulating with the upper margin of the cricoid.

lower one (*h* in B, fig. 2), which articulates with the inferior cornua of the thyroid cartilage, and an upper one (*b* in B, fig. 2), which is oval in form, and supports an arytenoid cartilage. The *arytenoid* [Gr. ladle-like] cartilages are pyramidal bodies resting on the oval articular surfaces at the upper and posterior part of the cricoid cartilage. When *in situ*, they present a concave posterior surface (fig. 1). From their connection with the vocal cords, and from their great mobility as compared with the two larger cartilages, the arytenoids act a very important part in the mechanism of the larynx. The *epiglottis* is a very flexible cartilaginous valve (fig. 1, *f*), situated at the base of the tongue, and covering the opening of the larynx. Its direction is vertical, except during deglutition, when it becomes horizontal. It is attached inferiorly by a kind of pedicle to the angle of

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the thyroid cartilage. Upon removing the investing mucous membrane, the cartilage is seen to be perforated by numerous foramina, *f*. Each perforation admits some fasciculi, of yellow, elastic, ligamentous tissue, which expands on its anterior aspect, and secures the return of the epiglottis to its vertical position, independently of any muscular action. Such is the skeleton of the larynx, which hangs from the hyoid bone, with which it is connected by the thyro-hyoid ligament and certain muscles.

The various cartilages which have been described are connected to one another by ligaments, the chief of

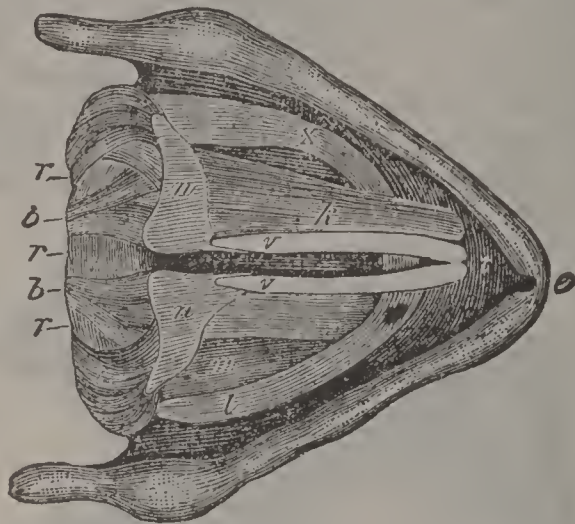


Fig. 3.

View of larynx from above, after Willis. *b*, ligaments uniting arytenoid and cricoid cartilages; *e*, thyroid cartilage in front; *k*, left thyro-arytenoid muscle, right removed; *l, r, x*, cricoid cartilage; *m*, right crico-arytenoid muscle; *n*, arytenoid cartilage, *t, v*, vocal cords.

which are known as the true and false vocal cords. In their quiescent state, the true vocal cords do not lie parallel to each other, but converge from behind forward (see fig. 3). The length of the vocal cords is greater in the adult male than in the adult female, in the ratio of three to two. In infancy, they are very short, and increase regularly from that period to the age of puberty. The mucous membrane of the L. is part of the great respiratory tract (see MUCOUS MEMBRANE), and is remarkable for its great sensibility.

The length of the chink or aperture of the glottis, which is directed horizontally from before backward, varies, like the vocal cords, until the period of puberty, when its length, in the male, undergoes a sudden development, while in the female it remains stationary. In the adult male, it is about eleven lines in length.

The L. is provided with two sets of muscles, viz., the *extrinsic*, by which the whole organ is elevated or depressed, and the *intrinsic*, which regulate the movements of the various segments of the organ in relation to one another. By the action of these latter muscles, aided, in some cases, by the extrinsic muscles, the tension of the vocal cords may be increased or diminished,

LA SALLE

and the size of the opening of the glottis regulated at will.

The nerves of the larynx are derived from the superior and inferior laryngeal branches of the pneumogastric or vagus nerve. The superior branch is for the most part sensory (being mainly distributed to the mucous membrane), while the inferior branch communicates motor-power to all the intrinsic muscles except the crico-thyroid.

That the larynx is the organ of voice, is easily proved. Thus, alteration in the mucous membrane covering the vocal cords, causes hoarseness or other change of voice; ulceration of the vocal cords, destroys or injures the voice; opening the trachea below the vocal cords, or section of the inferior laryngeal nerves, destroys the voice; and sounds like those of the voice may be produced by experiments on the dead larynx.

Diseases of the Larynx.—Of these the most serious is *acute inflammation* or Laryngitis (q.v.).

Edema, or *swelling of the glottis*, though of common occurrence in laryngitis, may be developed independently of inflammation, from obstruction of the veins leading from that part, or from other causes. Tracheotomy affords the patient almost the only chance of life.

Chronic inflammation and *ulceration* of the larynx are very common in tubercular consumption and in secondary syphilis. In these cases, the laryngeal affection is merely a local manifestation of a general disease.

LA SALLE, *la sāl*: city in La Salle co., n. Ill.; at head of navigation on Illinois river, 110 m. n.n.e. of Springfield, about 80 m. s.w. of Chicago, 1 m. from Peru; at the terminus of the Ill. and Mich. canal, and junction of the Ill. Central and Chicago, R. I. and Pacific roads. It is the center of a large trade by river, canal, and rail; is in a rich bituminous coal region (there being several large coal mines in operation in the city and the immediate vicinity); and is engaged in coal mining, zinc smelting and the manufacture of sulphuric acid, hydraulic cement, sewer pipe, bottles, clocks and ornamental pressed brick, and common brick. It is the seat of Saint Bede College and Saint Mary's Hospital; has an excellent public library; good sewerage system, waterworks, hospitals, a national bank, electric light and street railroad plants, and daily and weekly newspapers. The Illinois Central has erected a fine bridge over the river. The city was settled in 1830, and named in honor of La Salle, the explorer. It was chartered in 1852. The government is vested in a mayor and council. The mayor appoints all minor officials except the attorney, clerk and treasurer, who are elected by popular vote. The city owns and controls the electric light plant and waterworks. Pop. (1900) 10,446; (1910) 11,537.

LA SALLE, ABBE DE. See BROTHERS OF THE CHRISTIAN SCHOOLS.

LA SALLE.

LA SALLE, *lâ sâl*, JEAN BAPTISTE DE: French priest and educator, called the father of modern pedagogy: b. Rheims, 1651, April 30; d. Saint-Yon 1719, April 7. After completing the preparatory course of humanities, he entered the university of his native city where, at the age of 19, he took his Master's degree. Shortly afterward he went to the Seminary of Saint Sulpice at Paris; and, while living there, followed the theological courses of the Sorbonne. On Easter eve 1678, he was ordained priest, being already a titular canon of the Cathedral Church of Rheims; two years later, in 1681, after defending a thesis before the faculty of the University of Rheims he obtained the degree of Doctor in Sacred Theology.

A man of means and academic culture, he interested himself at an early period in education, especially the education of children belonging to the humbler classes. He noticed that nowhere was there a clear distinction drawn between primary and secondary education and that nowhere was there any provision made for instructing school-children in subjects of acknowledged utility to them in after life.

To correct this state of affairs he founded in 1681 a society of teachers under the name of Brothers of the Christian Schools (q.v.), enjoining them by rule to take the vows of religion but not to enter holy orders. By this latter regulation, he sought to free them from ecclesiastical duties so that they might be able to devote themselves unreservedly to the work of education. The rules and constitutions of the society were approved in 1724 by Pope Benedict XIII.

The first great change introduced by De la Salle and successfully carried out by his followers was the substitution of French for Latin as the language of the classroom. As in the case of antecedent reforms, this roused a swarm of wrathful critics; but it soon met with the approval of the universities and highest authorities in church and state.

The individual system of teaching was then in vogue, and as it seemed to him to involve loss of time and to favor idleness, he replaced it by the 'simultaneous' method in which the teacher addresses himself to a numerous division and frequently to a whole class at a time. He insisted on the Socratic method of teaching for all subjects, rejecting the lecturing style as unsuited to elementary instruction. He also recommended the frequent use of object-lessons. Such thorough-going changes gave a great impetus to education inasmuch as it increased the efficiency of the teacher while diminishing his drudgery, and insuring substantial results. In due time, these bold innovations in educational methods brought about a general system of popular education in France as well as in other European countries, and merited for their author the title of Father of Modern Pedagogy.



ROBERT CAVALIER DE LA SALLE.

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In 1684 he opened a *Seminaire de Maîtres d'Ecole* for the formation of competent masters for the rural districts, which seminary was the first normal school or training college founded in Europe. Admission was by examination; and during the course, opportunities were afforded for practice-work by the free schools attached to the institution. In his endeavors to instruct the masses and educate the people, De la Salle established in Paris in 1699 regular public courses in science and art in which instruction was given to all comers on Sunday from 12 to 3, the session being always concluded by a short religious instruction. These schools were called *Ecoles Dominicales* and were, in some respects, the prototype of our Sunday schools. At Saint-Yon, near Rouen, he also founded a school of higher studies in which the students were allowed to select the courses best adapted to their wants. Among his published writings are *Le Devoir du Chrétien* and *La Conduite des Ecoles*; others are of an ascetical character and refer to the religious life. Pope Leo XIII., in 1900, May 24, conferred on him the honors of canonization and enrolled him among the saints of the Catholic Church.

LA SALLE, *lâ sâl'*, RENÉ ROBERT CAVELIER, Sieur DE: 1643, Nov. 22—1687, Mar. 20; b. Rouen, France: explorer. He became a Jesuit and teacher in early life, but tiring of his vocation and surroundings, withdrew from the soc. and went to Canada 1666. While engaging in the business of trading in furs, he conceived a plan for attempting to discover a way to China across the American continent. In 1669 he sold an estate given him by the priests of the Seminary of St. Sulpice, feudal owners of the island of Montreal, and with two priests of the order of St. Sulpice, who proposed seeking sites for missionary work in the upper lake region, he started on his tour of exploration. At Lake Ontario his companions parted company with him, but he found a small escort body, explored the lake, then made his way southward and eastward, discovered the Ohio river 1671, and descended it as far as Louisville, Ky. On a second journey he ascended Lake Michigan, crossed Ill. to the Illinois river, and then, according to some authorities who are contradicted by others, he followed the Illinois river to its junction with the Mississippi. If he descended the Illinois as claimed by some, he and not Marquette and Joliet, is entitled to the honor of its discovery; but friends of the latter assert with evidence that he merely explored the upper region of the Illinois. In 1673 he was ennobled by the French govt. and granted a patent for Fort Frontenac and adjoining lands, the site of the present city of Kingston, Ontario, Canada. With every opportunity for acquiring wealth, he still clung to his project of discovering a n.w. passage. In 1677 he went to France, and after submitting his plans for opening the great west to settlement and trade and

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continuing his journey of exploration, he was granted authority to explore and occupy the west, provided he did not put the govt. to any expense. He soon acquired all the money needed for his enterprise, and was accompanied on his return by Chevalier de Tonti and Louis Hennepin. In 1678, Nov., he started from Fort Frontenac, not to carry out his plans for seeking the route to China, but to confine his travels to the great west, and to establish French colonies along the Mississippi river, which he believed made its way into the Gulf of Mexico and not to the Pacific Ocean, as held by others. At Niagara he built a small vessel, the *Griffin*, and in the summer of 1679 he ascended the lakes to Mackinaw, then Lake Michigan to St. Joseph river, where he crossed to the Illinois river, which he descended to a point below the present city of Peoria, and built his first fort, Crève-cœur. While so engaged, he learned that creditors had taken possession of his property in Canada. Leaving his party under command of Chevalier de Tonti, he made a journey of more than 1,000 m., mostly on foot, to Fort Frontenac, arranged with his creditors, obtained fresh supplies, and when about returning learned that his party had rebelled and was marching back to murder him. Hastening forward, he met the returning party on Lake Ontario, forced them to submission, and with them resumed the journey to the Illinois river. On reaching his camp, he found that the entire region had been desolated by a war party of Iroquois Indians. His misfortune forced him to return to Canada for fresh resources in money and supplies; and after much trouble with his creditors, he formed a new party of 30 Frenchmen and a band of trusty Indians, returned to the Illinois country, descended the Illinois river to its mouth, and embarking on the Mississippi river 1682, Feb. 6, made the passage to its mouth, and Apr. 9 raised a shaft displaying the arms of France on the shore of the Gulf of Mexico, took possession of the territory between the Allegheny and the Rocky Mountains in the name of the king, and called it Louisiana. Returning to Canada to prepare for establishing a fortified settlement on the Gulf, he was so harassed by the fur-traders and La Barre, the gov. who had succeeded his friend Frontenac, that he went to France, reported his actions and submitted his plans for holding and developing the new territory for the benefit of France, and was warmly supported by the court. A royal squadron was fitted out for him, and with a considerable party of colonists he sailed for the Gulf of Mexico 1684. Unfortunate differences with the naval commander broke out, the vessels lost their way, one loaded with provisions and other stores was wrecked, not without suspicions of design; and 1685, Mar., the squadron came to anchor, not at the mouth of the Mississippi river as intended, but in Matagorda Bay, Tex. A fort was there built, and then La

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Salle spent nearly two years searching for the mouth of the Mississippi. Early in 1687, Mar., he reached a branch of Trinity river, and while arranging to return to Canada for supplies for his colonists, he was treacherously murdered by some of his own men, hidden in ambush. See FRONTENAC, LOUIS DE BUADE; HENNEPIN, LOUIS; JOLIET, LOUIS; MARQUETTE, JAMES.

LASCAR, n. *lās-kér'* [Hind. *lashkar*, camp-follower]: in *E. Indies*, a native sailor, especially on British ships; a laborer employed about arsenals, and with the menial work of the artillery. The Lascars are good seamen, but irritable and revengeful; therefore they are not usually made the majority in a crew.

LASCARIS, *lās'ka-rīs*, CONSTANTINE: Greek scholar of the 15th c.: b. Constantinople; d. 1493; of the family which in the second c. previous had given three emperors to Nicæa. He was a refugee, after the capture of Constantinople by the Turks, 1453, and one of the first founders of Greek studies in the west. He was received with distinction by Francesco Sforza, Duke of Milan, 1454, who intrusted to him the education of his daughter Hippolyta; but his more important labors were at Rome, where he settled in the train of the learned Greek cardinal, Bessarion, and, finally, at Naples and Messina, where he taught rhetoric and Greek letters until his death. His Greek grammar, entitled *Erotemata*, dated 1476, is the earliest printed Greek book, and is known chiefly through a Latin translation printed at the Aldine press, and frequently reprinted.

LAS'CARIS, JOANNES or JANUS (surnamed RHYNDACENUS): abt. 1445-1535; b. Bithynia; of the same family with Constantine Lascaris. He was one of those whom Lorenzo de' Medici employed in the collection of ancient, especially Greek classical authors, of whom Lascaris brought home a valuable collection from Mount Athos. On the death of Lorenzo, Lascaris went to Paris, where he taught Greek under Charles VIII. and Louis XII.; but he eventually settled in Rome, where he was appointed by Leo X. to the superintendence of the Greek press which that pontiff established. Lascaris edited several of the *editiones principes* at the Roman press. He was employed as ambassador at the court of Francis I., and afterward at Venice, and died in Rome. See Villemain's *Lascaris, ou les Grecs du 15^{me} Siècle* (Paris 1825).

LAS CASAS, *lās kâ'sâs*, BARTOLOMÉ DE, Bishop of Chiapa, in Mexico (surnamed the *Apostle of the Indians*): missionary and philanthropist: 1474-1566, July; b. Seville, of French descent. He studied at Salamanca. In 1502, he accompanied Don Nicholas Ovando, who was sent out as gov., to St. Domingo. Eight years after his arrival there, he was ordained to the priesthood, the first so ordained in the colonies, and was subsequently ap-

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pointed to a charge in Cuba. Here he signalized himself by exertions in behalf of the oppressed Indians. To oppose the law which divided them among the conquerors, he went to Spain, where he prevailed on Cardinal Ximenes to send a commission of inquiry to the W. Indies; and still dissatisfied, he revisited Spain, to procure the adoption of stronger measures for the protection of the natives. Finally, to prevent the entire extirpation of the native race by the toils to which they were subjected, he proposed that the colonists should be compelled to employ negro slaves in the more severe labors of the mines and sugar plantations; and the proposal was adopted. Las Casas has on this account been represented as the author of the slave-trade, though it has been proved to have existed long before this proposal was made. Las Casas afterward attempted to carry out Castilian peasants as colonists to the W. Indies, with the view of giving more complete effect to his schemes on behalf of the Indians; but failing in this, he retired to a Dominican convent in Hispaniola. He again visited Spain 1539, in behalf of the natives of the W. Indies, and published *Brevissima Relacion de la Destruccion de las Indias*, soon translated into the other languages of Europe. The rich bishopric of Cuzco was offered to him, but he preferred the poor one of Chiapa, in a wild and almost unexplored region. The colonists received him with no friendly feelings, and as he went the length of refusing the sacraments to those who disregarded the new laws in favor of the Indians, he drew on himself not only the resentment of the planters, but the disapprobation of the church, so that he was compelled to return to Spain, where he ended his life in a convent in Madrid, at the age of 92. His most important work, published after his death, is *Historio general de las Indias*. See his Life by Sir A. Helps (1868).

LAS CASES, *lâs kâz*, EMMANUEL AUGUSTE DIEU-DONNÉ, Count: 1776-1842, May 15; b. near Revel: companion and historiographer of Napoleon in St. Helena. He was a lieut. in the French navy before the Revolution, and then fled from France, served in the Prince of Condé's army, spent some time in England, where he supported himself by private teaching, and took part in the expedition to Quiberon. After Napoleon's accession, he returned to France, and labored in the preparation of his admirable *Atlas historique* (1803-4). This work attracted the attention of Napoleon, who made him a baron, and employed him in the administration. After the battle of Waterloo, he offered to share the exile of Napoleon; and in St. Helena, the ex-emperor dictated to him a part of his Memoirs. A letter which Las Cases contrived to send to Lucien Bonaparte, led to his separation from Napoleon; and after eight months' confinement at the Cape of Good Hope, he was brought to Europe, and resided mostly in Belgium till Napoleon died, when he re-

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turned to France, and published *Mémorial de Ste-Hélène* (8 vols. Par. 1823; amended edition, 1724, often reprinted), a work which must be always a chief source of information respecting Napoleon, but in which the author has taken too much liberty with his materials.

LASCIVIOUS, a. *lās-siv'ī-ūs* [L. *lasciv'ia*, wantonness; *lascivus*, wanton: It. *lascivo*: F. *lascif*]: lewd; wanton; lustful. LASCIVIOUSLY, ad. *-lī*. LASCIVIOUSNESS, n. *-nēs*, the state or quality of being wanton or lustful.

LASH, v. *lāsh* [Ger. *lasche*, a slap, a flap: a word imitative of the sound; Esthon. *laksuma*, to sound like waves when they lash the shore: comp. Gael. *lasag*, a fit of anger]: to strike with a sounding blow, as when a whale lashes the sea with its tail, or a lion its flanks; to strike with a whip or scourge; to dash against with sudden jerks; to dash or beat against, as waves; to chase; to excite to great wrath; to censure with severity: N. a stroke, as with a whip; an expression or retort which gives pain; the thong or flexible part of a whip. LASH'ING, imp.: N. a whipping or chastisement. LASHED, pp. *lāsht*. LASH'ER, n. *-ér*, one who lashes.

LASH, v. *lāsh* [Dut. *lasch*, a piece let into a garment, a joint or seam; *lasschen*, to join two pieces together: Dan. *laske*, to baste, to stitch, to mortise]: to bind or fasten anything to the ship's sides or mast; to secure or bind with a rope or cord to something else. LASH'ING, imp.: N. the piece of rope or cord for binding one thing to another. LASHED, pp. *lāsht*, made fast by a rope.

LASKER, *lās'kēr*, EDUARD: German politician: b. Jarotschin, Posen, 1829, Oct. 14; d. New York, 1884, Jan. 5. He was of Jewish descent, and after being educated at the Universities of Breslau and Berlin obtained a post in the municipal court (1851). He spent three years in England. On his return he entered the government service and was elected in 1865 to the Lower House. He sat subsequently in the Constituent North German Diet, and up to the time of his death in the North German and German Diet for the district of Saxe-Meiningen. He was associated with the 'Fortschritts-partei' or Progressives, and in 1866 assisted in forming the National Liberal Party. He took an active part in the civil consolidation of the German empire. Among his writings is: *Zur Verfassungsgeschichte Preussens* (1874).

LASKER, EMANUEL: German chess champion: b. Berlinchen, 1868, Dec. 24. He chose mathematics as a profession, but eventually turned his attention to chess, playing with such success that since 1892 he has triumphed over all competitors both in tournaments and duel matches. He has outplayed, without losing a single game, Blackburne, Bird and F. Mieses of Leipsic. In 1892 he won the first prize in the London tournament; and in the international tournament at New York in

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1893 beat all the best players, including Steinitz, champion of the world. A decisive match was arranged between him and Steinitz at Moscow and came off December, 1896, and January, 1897. Lasker won by 10 games to 2, 5 being drawn.

LAS PALMAS, *lās pâl'mâs*, Canárias, the chief town of Grand Canary Island, and seat of the provincial government: an attractive place, with clean streets, a few handsome public buildings and churches, shaded walks, a well-defended small harbor, and a somewhat inadequate water-supply. The principal industries are the building and repairing of vessels, and manufacturing woolen goods, hats, leather, and glass. Population about 12,000.

LASS, n. *lās* [*laddess*, the old fem. of *lad*: W. *lodes*, a lass]: a young woman; a girl; generally a country girl. LASSIE, n. *lās'ī*, in *Scot.*, a little lass. LASS'LORN, in *OE.*, forsaken by a sweetheart or mistress.

LAS'SA. See H'LISSA.

LASSALLE, *lās-sâl*, FERDINAND: originator of the movement for social-democracy in Germany: 1825-1864; b. Breslau; of Jewish lineage. In the universities of Breslau, and then of Berlin, he studied especially philosophy and philology, became a fervent Hegelian and a professed political reformer. He went to Paris, where he won the admiring friendship of Heine, whom he fascinated, as also von Humboldt, with his brilliant and audacious energy. There, 1845, he met Countess Hatzfeldt, whose cause he espoused against her husband long separated from her; and having studied law for the purpose, brought her case before 36 tribunals, and at the end of ten years secured for her a favorable settlement. The scandal which arose from his relations with her was increased by a theft of a bond of large value which Count Hatzfeldt had given to a baroness, his mistress, to the injury, as Lassalle claimed, of his wife's rights. Men sent by Lassalle carried off the bond with the baroness's jewels, in her jewel-casket. He was tried for complicity, but escaped conviction. In 1849 he was imprisoned for a year for resistance to the authorities at Düsseldorf. In 1862, his important political activity began, when into Bismarck's struggle with the liberals, Lassalle brought a third factor, the cause of the working-men, in whose behalf he advocated a social revolution. The working-men were slow to comprehend his social theories: this only redoubled his activity as their self-appointed champion, in Berlin, Leipzig, Frankfort, and the whole Rhine country, where, 1863-4, his tours as the herald of a new day were like processions of a conqueror. Meanwhile, this agitator of society in the interests of the poor, was accustomed to live in most dainty and elegant luxury. Self-gratification was as a necessity to him. His resolve to marry a young lady of high social position, whose father sternly refused to allow her to

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have anything to do with him, occasioned his challenging to a duel a Bavarian count to whom her father had succeeded in bringing her to betroth herself. In this duel, in a suburb of Geneva, 1864, Aug. 28, Lassalle fell mortally wounded. It was a fool's end; yet multitudes exalted him as a martyr, and for many years treasured his name in a fanatical devotion.

Lassalle was a typical theorizer—not a broad and systematic thinker, but an invincible follower of a single superficial idea. Against the ancient feudal subjection of the working-people, and equally against the modern sway of capital in the hands of the middle classes who doled out wages to the laborers and kept them poor, he set the notion of a voluntary productive association of working-men to be endowed with money provided by the state. Only this, he claimed, could deliver the laboring masses from the despotism of capital in the hands of individuals, who combined their forces for their own interests against those to whom they paid wages. The state was to supply the capital needed, and the workers were to administer it for productive results, and procure returns therefrom which should take the place of wages. Direct universal suffrage was the necessary preliminary to establishing the new order; and this was to be gained by peaceful but resolute organized agitation. His condemnation of the wage-system—it has been pointed out—was strictly based on Ricardo's well-known principle as to the operation of the law of wages under the relations of supply and demand: thus he made the orthodox political economy the justification of his theory.—Lassalle had boundless ambition, and vast powers of leading and organizing men. His self-love vitiated his whole activity.—See Laveleye, *Le Socialisme Contemporain* (Paris 1881).

LASSELL, *la-sèl'*, WILLIAM: English astronomer: b. Lancashire, 1799, June 18; d. 1880, Oct. 5. His early education was scanty, and while serving a mercantile apprenticeship at Liverpool he made telescopes for himself, and in a private observatory which he built near that city he began his astronomical work, about 1820, and continued it until 1861. There he built and mounted reflecting telescopes equatorially, the first of the kind in use, and also invented a method of polishing the specula. With his own telescope he discovered the satellite of Neptune in 1847, observed the eighth satellite of Saturn in 1848, and in 1851 discovered two new satellites of Uranus. In 1861, at Valetta, on the island of Malta, he mounted equatorially a reflecting telescope, and at that place until 1865 he made observations, also describing new nebulae and correcting many of his former results. In 1865 he returned to England, built an observatory near Maidenhead, and there spent the remainder of his life.

LASSEN—LASSO.

LASSEN, *lās'sèn*, CHRISTIAN: 1800, Oct. 22—1876, May 8; b. Bergen, Norway: eminent orientalist. He studied at Christiania, Heidelberg, and Bonn. He assisted Schlegel in publication of the *Râmâyana* and *Hitopadesa*. He also associated himself with Eugène Burnouf in the *Essai sur le Pali* (Par. 1826). In 1830, he became extraordinary prof., and 1840, ordinary prof. of ancient Indian languages and literature, at Bonn. He edited many Sanskrit works, deeply investigated the relations of the oriental languages and antiquities, and published several very important books. Among them are works on Persian Cuneiforms (1836 and 45); on the Greek Kings in Bactria (1838); *Institutiones Linguae Pracriticae* (1837); *Indische Alterthumskunde*, critical history of Indian civilization (Bonn 1847-61; new ed., 1861-74), etc. He died at Bonn., after a total blindness of several years.

LASSEN, EDUARD: Danish composer: b. Copenhagen, 1830, April 13; d. Weimar, 1904, Jan. 15. He began his education at Brussels and 1851 won the 'Prix de Rome.' Through Liszt his opera *Landgraf Ludwigs Brautfahrt* was produced in Weimar (1875), where he was made the following year 'Kapellmeister' to the court. He retired in 1895. Of his compositions those which are most remarkable for talent and artistic sincerity are the operas: *Frauenlob* (1860); *Le Captif* (1868). He wrote two symphonies, and the music for Sophocles' *Ædipus*, and Goethe's *Faust*, as well as numerous songs, etc.

LASSEN'S PEAK: one of the highest summits of the Sierra Nevada Mountains, on the boundary lines of Shasta, Tehama, and Plumas cos., Cal.; lat. 40° 28' n.; 10,577 ft. above the sea. It is of volcanic origin, is partly composed of lava and trachyte, yields enormous growths of pine and fir on its slopes, and nut pine, oak, and manzanita at its base, and is snow-topped the year round.

LASSITUDE, n. *lās'si-tūd* [F. *lassitude*—from L. *lassitūdo*, faintness, weariness—from *lassus*, faint, languid: It. *lassitudine*]: fatigue; weariness; languor of body or mind from exhaustion or a distempered state.

LASSO, n. *lās'sō* [Sp. *lazo*, a slip-knot: F. *laisse*; It. *lasse*, a leash for dogs]: thin but well-plaited rope of raw hide, used in Spanish America for catching wild cattle. One end is fastened to the saddle gear of the man who uses it, the other ends in a small brass ring, by means of which a running noose, usually 8 ft. wide, is formed. The rider holds a coil of the lasso in the left hand; with the right, he dexterously whirls the open noose round his head, and hurls it (to no great distance, but with wonderfully sure aim), so as to fall over a given object—round the horns of a wild ox, or the like. The *bolas* is a shorter cord with leaden balls at both ends; sometimes it has three branches. Held by one

LAST—LAS VEGAS.

ball, it is whirled round the head of the rider till it has attained sufficient momentum, and then the entire missile is sent spinning through the air like chain shot, so as to twist round the legs of the animal pursued. In Mexico the lasso is *la reata* (the rope); thence the term *lariat* for a kind of lasso in the s.w. territories of the United States. The lasso has been used in warfare with deadly effect. Only very skilful riders can use it. **LASSO**, v. to capture with a lasso. **LAS'SOING**, imp. **LAS'SOED**, pp. -*sōd*.

LAST, a. *lǎst* [contracted from *latest*: Ger. *letzt*; Bav. *lesst*; Low Ger. *lest*, last]: that comes after all the others in time, place, or order; utmost; final; next before the present. **LAST'LY**, ad. -*lĭ*, in the last place; in conclusion. **AT LAST**, or **AT THE LAST**, at the end; in the conclusion. **TO THE LAST**, to the end. **TO BREATHE ONE'S LAST**, to die; to expire.

LAST, n. *lǎst* [Icel. *hlass*, a cart-load; *lest*, a burden: AS. *hlǣst*; Dut. and Ger. *last*, a load]: a burden; a certain weight or measure of variable amount. **LASTAGE**, n. *lǎst'āj*, the lading of a ship; ballast; storage room; a duty levied at some markets or fairs.

LAST, n. *lǎst* [Dut. *leest*, to make, to shape: Ger. *leisten*, a model, a mold, a shoemaker's mold: Icel. *leistr*, the foot below the ankle]: the form or model of the foot, usually of wood, on which boots and shoes are made. **LAST'ING**, n. the process of drawing the upper leather smooth and straight in shoemaking; a worsted stuff used for uppers. **TO STICK TO ONE'S LAST**, to abide by one's own proper business; not to pass an opinion on a matter of which one knows little or nothing.

LAST, v. *lǎst* [Ger. *leisten*, to fulfil, to carry out: Goth. *laist*; AS. *last*, a trace, a footstep]: to perform the duty for which a thing is made; to wear; to continue; to remain; to hold out, as the provisions will last a week; to endure. **LAST'ING**, imp.: **ADJ.** durable; of long continuance. **LAST'ED**, pp. **LAST'INGLY**, ad. -*lĭ*. **LAST'INGNESS**, n. -*nĕs*, the quality or state of long continuance.—**SYN.** of 'lasting': enduring; continuing; remaining; permanent; perpetual; undecaying; unending.

LAST TESTAMENT, or **LAST WILL**: the latest instrument in point of date, and it revokes prior wills so far as inconsistent. See **WILL**.

LAS VEGAS, *lās vā'gās*: city and county-seat of San Miguel county, N. Mex., on the Gallivar river, a branch of the Pecos, and on the Atchison, T. & S. Fe railroad, 83 miles east of Santa Fe. There are here practically two towns, the old Mexican settlement, which is the county-seat, and the modern city lying to the east, first known as East Las Vegas, but incorporated in 1896 as the city of Las Vegas. The New Mexico Normal University is located here, and there is a public library, flour-mills, carriage and wagon shops, railroad machine

LASZOWSKI-GERARD—LATCH.

shops, planing-mills, foundries and machine shop. The surrounding country is devoted to agriculture and stock raising and Las Vegas is an important wool market. The health resort known as Las Vegas Hot Springs is located 6 miles distant, at an elevation of 6,767 ft. above the sea. Pop. 5,000.

LASZOW'SKI-GER'ARD, MADAME EMILY DE: Anglo-Austrian novelist: b. Scotland, 1849, May 7. She was educated in the Convent of Riedenburg in the Tyrol, was married to the Chevalier Miecislav de Laszowski, an Austrian lieutenant-general, and resides in Vienna. She published: *Reata* (1880); *Beggar My Neighbor* (1882), and other novels, written in collaboration with her sister, Dorothea Gerard, and *Bis* (1890); *The Tragedy of a Nose* (1898); *The Extermination of Love* (1901); and other novels of which she is sole author. Her fiction has been popular both in England and America.

LATACUNGA, lâ-tâ-kôn'gâ, Ecuador, capital of the province of Leon and one of the oldest towns in the republic, containing an administration building, city hall, college, hospital, school for young ladies, five churches, two printing houses, manufactories of woolen and cotton fabrics, potteries, etc. Owing to its situation on a plain more than 9,000 ft. above sea-level, it has an even and temperate climate, and the surrounding country is well adapted to agriculture and cattle-raising; but it is only 25 miles distant from the great volcano, Cotopaxi, and has repeatedly been destroyed by earthquakes. Pop. about 12,000.

LATAKIA, n. lâ-ta-kē'a: a superior kind of Turkish tobacco, so called from the place where produced.

LATAKIA, lâ-ta-kē'a (Turkish, *Ladakkiyeh*; anc. *Laodicea*): s. seaport of Syria, pashalic of Tripoli, 75 m. n. of the town of Tripoli, 60 m. s.w. of Antioch. It is surrounded by plantations of myrtle, pomegranate, mulberry, and olive trees. It consists of the decaying Upper Town and the Lower Town, separated by magnificent gardens. On the hills in the vicinity, a mild and finely-flavored tobacco is grown, and is extensively exported. Latakia occupies the site of the ancient *Laodicea ad Mare*, which was founded by Seleucus Nicator, and named after his mother, and which formed the port of Antioch. The ruins of the aqueduct built here by Herod the Great are extant.—Pop. 7,000 to 10,000.

LATCH, n. lâch [AS. *læccan*, to catch, to seize: F. *loquet*, the latch of a door: L. *laquēüs*; F. *lacs*, a bow-string, a noose]: a small bar of iron or wood moving on a pivot, used for fastening a door, and raised by a handle or string; in *OE.*, a cross-bow, from the resemblance of the trigger to the fastening of a door: V. to fasten with a latch; in *OE.*, to catch; to inclose. LATCH'ING, imp. LATCHED, pp. lâcht. LATCH-KEY, a key used to raise the

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latch of a door. LATCHET, n. *lăch'ět*, the buckle or string of a shoe. *Note.*—LATCHET is really a dim. of *lace*, and is not derived from *latch*; the first *t* is intrusive.

LATCHAW, JOHN ROLAND HARRIS, A.M., D.D.: American educator: b. Venango county, Pa., 1851, Sept. 7. He was graduated at Hillsdale College in 1881 and in 1895-6 studied at the University of Chicago. In 1881 he founded Barkeyville Academy in Pennsylvania, and conducted it until 1884, when he became president of Findlay College, where he was also lecturer on psychology and theology till 1893. From 1893 to 1895 he was minister of the First Baptist Church at Zanesville, Ohio; held several other pastorates; was president of Defiance College, 1896-1902, and president of Palmer University, 1902-3. He has written: *Outlines of Psychology, Its Method and Matter; Citizenship in the Northwest Territory; Outline Lectures in Theology; Theory and Art of Teaching; The Problem of Philosophy; Inductive Psychology* (1905); and is editor and publisher of the *Truth Seeker*, and joint editor of *Unity Herald*.

LATE, a. *lāt* [Icel. *latr*; AS. *læt*, slow: Dut. *laat*, tardy: Ger. *lass*; L. *lassus*, weary]: coming after the usual time; tardy; long-delayed; deceased; departed; recent, as the *late* gales; far in the day or night: AD. after or beyond the usual time; in time not long past; for lately. LATE'LY, ad. *-lī*, not long ago. LATE'NESS, n. state of being late or tardy; time far advanced; comparatively recent time. OF LATE, in times past; near the present. TOO LATE, after the proper time. LA'TER, a. *-tēr*, comparative degree of *late*; longer delayed; subsequent. LA'TEST, a. superl. degree of *late*; final; ultimate.

LATEEN, a. *lă-tēn'* [It. *latina*, as in *vela latina*, a Latin or lateen sail; *latino*, broad, wide]: broad and triangular—applied to a sail, as a *lateen sail*, i.e., a large triangular sail, common in the Mediterranean. The upper edge is fastened to the lateen-yard, a spar of considerable length, which is held at about an angle of 45° with the deck by means of a mast crossing it at a third or a fourth of the way up.

LATENT, a. *lă'tēnt* [F. *latent*—from L. *latens* or *laten'tem*, concealing, hiding: It. *latente*]: concealed; hid; not visible or apparent. LATENCY, n. *lă'tēn-sī*, the state of being latent or concealed. LA'TENTLY, ad. *-lī*. LATENT FAULT, in *law*, defects in an article sold which were unknown to the seller. In the contract of sale, it is a rule that the buyer takes the risk of all latent faults, all that the seller answers for being, that the thing is, so far as he knows, what it appears to be. LATENT HEAT, heat which when applied to a body produces no rise of temperature, but only a change of state, as ice when changed into water: see HEAT. SYN. of 'latent': hidden; secret; occult; unseen; invisible; obscure.

LATERAL—LATERAN.

LATERAL, a. *lăt'ér-ăl* [F. *latéral*—from L. *laterālis*, of or belonging to the side—from *lātus*, a side: It. *laterale*]: pertaining to or proceeding from the side, or inclined to it; on, in, or of the side. **LAT'ERALLY**, ad. *-lī*, in the direction of the side; by the side.

LATERAL LINE ORGANS: a system of sense organs in the lower aquatic vertebrates, so called from the fact that part of the system makes a well marked line on the side of the body of fishes, although a larger but less conspicuous portion of the organs occurs upon the head. In their simplest form, as in the fish *Chimæra*, the organs are placed in grooves, but usually the grooves are closed into tubes with openings at regular intervals by which water obtains access to the canals. The distribution varies considerably in different fishes, but the most constant canals are one along the side of the body, one across the back of the head, and three rows, one above, one below the eye and one on the lower jaw. The sense-organs contained in the canals belong to a group of peculiar structures known as 'nerve-hillocks' or 'neuromasts,' and are further peculiar in their nerve supply, which is derived from the 7th (facial) and 10th (vagus) nerves. In the case of the amphibia these organs occur only in the aquatic forms. Hence, while they are present in tadpoles, they are lost, and with them their nerves, when the tadpole changes into a frog or toad. This would indicate that their function is in some way connected with an aquatic life, and only very recently has it been shown to be for the recognition of vibrations of low rapidity in the water. There has been accumulated considerable evidence to show that the ears of vertebrates are only specially modified parts of the lateral line system.

LATERAN, n. *lăt'ér-ăn* [named from the anc. *Laterāni* family, whose mansion stood on the site]: abbreviated title of the **CHURCH OF ST. JOHN LATERAN**, the first in dignity of the churches at Rome, with a palace and other buildings annexed; styled in Roman usage 'the Mother and Head of all the churches of the city and the world.' It occupies the site of the splendid palace of Plantius Lateranus, which, having been escheated (A.D. 66), in consequence of Lateranus being implicated in the conspiracy of the Pisos, became imperial property, and was assigned for Christian uses by Emperor Constantine. The church was originally dedicated to the Saviour; but Lucius II., who rebuilt it in the middle of the 12th c., dedicated it to St. John the Baptist. The solemn entrance of the pope into office is inaugurated by his taking possession of this church; he is Pope at Saint Peter's, but here he is Bishop of Rome, and as such he is charged especially with the care of the poor, and the orphans and widows and with the stewardship of the sacred treasures of the church. Here in a balcony over the portico, the pontiffs gave their benediction and

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here have been held five councils regarded as ecumenical by the Roman Church. (See LATERAN COUNCILS; COUNCIL.) The Lateran Palace was the habitual residence of the popes until after the return from Avignon, when they removed to the Vatican. It was afterward occupied by officials of the chapter, and is now under the control of the Italian govt. The late pope, Pius IX., had converted a portion of it into a museum of Christian archeology. In the piazza of St. John Lateran stands the celebrated relic called the 'Scala Santa,' or 'Holy Staircase,' reputed to be the stairs of Pilate's house at Jerusalem, made holy by the feet of our Lord as he passed to judgment.

LATERAN COUNCILS: five councils of the Roman Catholic Church, held in the Church of St. John Lateran, Rome, under the presidency of the pope. The first Lateran Council took place in 1123, under Calixtus II. The Concordat of Worms was confirmed, the indulgences granted to the crusaders by Urban II. were renewed; the consecrations performed by Burdin, the anti-pope, were annulled; the decrees against simony, marriage of the clergy, etc., were repeated. The second (1139), under Innocent II., laid the interdict upon King Roger of Sicily, excommunicated the Petrobrusians, and ordered Arnold of Brescia to keep silent. The third (1179), under Alexander III., decreed that a vote of two-thirds of the total conclave should be required legitimately to elect a pope. The fourth, conveyed by Innocent III. in 1215, is the most important of all the Lateran Councils. Besides representatives of many princes, two oriental patriarchs were present, 412 bishops, and 800 abbots and priors. Seventy decrees were issued. The first, directed against the Cathari and Waldensians, contains a confession of faith, in which the term *transsubstantiatio* occurs for the first time. The second decides the Trinitarian controversy between Petrus Lombardus and Joachim of Floris (in favor of the former). The 13th forbids the foundation of new monastical orders. The 21st decrees that all the faithful shall confess at least once a year to his sacerdos proprius (Mansi xxii. 953-1086). The fifth (1512-17), which was not recognized by the Gallican Church, abrogated, on the command of Julius II., the Pragmatic Sanction issued by the Council of Pisa, and approved the concordat between Francis I. of France and the pope by which the 'liberties' of the Gallican Church were abrogated. Consult: Valentini, *Basilica Lateranense descritta ed illustrata* (1839); Buddeus, *De Conciliis Lateranensibus*, Jena (1725).

LATERIFOLIIOUS, a. *lăt'ér-î-fō'li-ūs* [L. *lătus*, a side, *latĕra*, sides; *foliūm*, a leaf]: in *bot.*, growing on the side of a leaf at the base.

LATERITE, n. *lăt'ér-īt* [L. *lătĕr*, a brick or tile]: mineral substance, product of the disintegration and partial

LATES—LATH.

decomposition of gneiss; compound of clay and oxide of iron, which is cut into bricks for building. It forms a bright red earth; which, where it abounds, as in parts of Ceylon, being blown about as a fine dust, imparts its hue to every neglected article, and to the dresses of the inhabitants. Laterite, however, is not always red; its redness is attributed to the presence of iron; but when felspar preponderates in the gneiss, it is whitish: when hornblende preponderates, it is yellow. LATERITIOUS, a. *lăt'ér-ışh'ūs*, of the color of bricks.

LATES, *lăt'tēz* (*Lates Niloticus*): fish of the perch family, one of the most delicate and best-flavored fishes of the Nile. It grows to a large size, sometimes 3 ft. long. It is mentioned by several ancient authors. In form it resembles a perch, and the genus is very nearly allied.—Another species of this genus is the VACTI (*Lates nobilis*), called *Cock-up* by the English in Calcutta, one of the most esteemed fishes of the Ganges, which it ascends as far as the tide goes.

LATEX, n. *lăt'tēks* [L. *lătēx* or *lătēem*, a liquid or juice]: in *bot.*, the proper juice or returning sap of plants after it has been elaborated in the leaves. It returns from the leaves to the bark by vessels called *laticiferous vessels*, which branch, unite, and anastomose very variously. They are not always of uniform thickness, but present many distentions, often almost as if articulated. Peculiar currents are observed in the *Latēx*, pointed out first by Schultz, who has bestowed great attention on this subject, and its connected physiology. The latex differs very much in different plants, in color and other qualities, but in all it is full of granules. LATICIFEROUS, a. *lăt'ī-sif'ēr-ūs* [L. *fero*, I carry]: containing latex or elaborated sap.

LATH, n. *lăt*, LATHS, n. plu. *lăt*z [F. and Dut. *latte*, a thin piece of cleft wood: Ger. *latte*, a pole or rod, a young slender tree; W. *llath*, a yard or measure of three feet]: long thin slips of wood, of various lengths, rarely more than four ft.; made by splitting lathwood, or sawn from pine; used in lining ceilings, partitions, and walls of houses before the plaster is laid on; they are placed slightly apart to receive the plaster, which is pressed into the intervals. The sawn laths are a modern introduction, due to the development of steam saw-mills in the northern states and in Canada, which thus utilize the small portions of the lumber. Slaters' laths (also called shingle laths) are longer strips of wood, nailed to the framework of a roof, for sustaining the slates, which are fastened to the laths by nails. LATH, v. to cover or line with long thin slips of wood. LATH'ING, imp. n. a covering made of laths. LATHED, pp. *lăt*ht: ADJ. covered or lined with laths. LATH'ER, n. one employed in lathing. LATHY, a. *lăt*h'ī, thin or slender as a lath. LATHWOOD, Norway spruce fir (*Pinus abies*), from which laths were almost altogether made.

LATHAM—LATHROP.

LATHAM, *lā'tham*, ROBERT GORDON, M.D.: 1812, Mar. 24—1888, Mar. 9; b. Billingsborough, Eng.; philologist and ethnologist. He was educated at Cambridge, and took the degree M.D.; but making a tour in Denmark and Norway, turned his attention to the Scandinavian languages. For several years he was prof. of English language and literature in Univ. College, London. His well-known work, *English Language* (1841) has gone through numerous editions. *Natural History of the Varieties of Mankind* (Lond. 1850) is a valuable contribution to ethnology. Among his works are his edition of Tacitus's *Germania*, with philological and historical notes (1850); *Ethnology of the British Colonies; Man and his Migrations* (Lond. 1851); *Descriptive Ethnology* (1859); *The Nationalities of Europe* (1863); new ed. of Johnson's *Dictionary* (1870); *Outlines of General or Developmental Philology* (1878).

LATH'BURY, MARY ARTEMISIA: American author and illustrator: b. Manchester, N. Y., 1841, Aug. 10. She was educated at Manchester and at Worcester, Mass.; after leaving school engaged in teaching art, and subsequently in editorial work; and since 1876 has devoted herself to general literature and illustration. She is author and illustrator of *Fleda and the Voice* (1878); *Out of Darkness into Light* (1880); *Seven Little Maids* (1882); *Ring-Around-a-Rosy* (1884); *Idyls of the Months* (1884); *Twelve Times One* (1885); *From Meadow Sweet to Mistletoe* (1888); *Child's Story of the Bible* (1898); has also published other books, and is well known through her Chautauqua songs and hymns in church collections.

LATHE, n. *lāth* [OE. *lare*, a lathe: Icel. *loth*, a smith's lathe: Ger. *laede*, a frame: probably from *lath*]: a machine used for turning wood, iron, etc., or for drilling and burnishing. See TURNING.

LATHE, or LATH, n. *lāth* [AS. *laeth*, a portion of land: Dan. *laegd*, a division of land, a site]: in OE., a division of a county; an intermediate division between a shire and a hundred; still in use to denote a number of hundreds amounting to less than a shire. In Irish usage lathe denotes a division intermediate between a tithing and a hundred.

LATHER, n. *lāth'ér* [prov. Eng. *lother*, to splash in water: Icel. *lodra*, to foam; *loðr*, foam of the sea: Bav. *loder*, suds]: the foam or froth formed by rubbing soap moistened with water, used for shaving: V. to cover with soap-foam: to become frothy; to form a foam. LATH'ERING, imp. LATH'ERED, pp. *-érd*.

LATHROP, *lā'throp*, FRANCIS: an American artist; b. at sea, near the Hawaiian Islands, 1849, June 22; was educated in Dresden, Germany; studied painting in London, England; returned to the United States in 1873, where he afterward engaged in painting portraits and

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decorative pictures, and executing stained glass windows and general decorative work.

LATHROP, GEORGE PARSONS: American author: b. Oahu, Sandwich Islands, 1851, Aug. 25; d. New York, 1898, April 19. He was educated in New York and in Dresden, studying in the latter city from 1867 to 1870, when he returned to New York and for a short time studied law. He went to England and there, in 1871, married Rose, second daughter of Nathaniel Hawthorne. (See LATHROP, ROSE HAWTHORNE.) From 1875 to 1877 he was assistant editor of the *Atlantic Monthly*; editor of the *Boston Courier* till 1879; resided afterward at Concord, Mass., and in New York city. Among his writings in prose and verse the following are best known: *Rose and Roof-Tree*, poems (1875); *Study of Hawthorne* (1876); *Afterglow*, a novel (1876); *A Masque of Poets* (1877); *An Echo of Passion* (1882); *In the Distance* (1882); *Spanish Vistas* (1883); *History of the Union League in Philadelphia* (1883); *Newport* (1884); *Gettysburg, a Battle Ode* (1888); *Dreams and Days*, verses (1892); *Gold of Pleasure* (1892). With his wife he published *Annals of Georgetown Convent* and *A Story of Courage* (1894); and he brought out an edition of Hawthorne's works, with a biography (1883). The American Copyright League was founded (1883) by Lathrop.

LATHROP, JOHN (also LATHROPP, LAYTHROP): American clergyman: b. Yorkshire, England; d. 1653. He was educated at Oxford, took holy orders; was rector at Egerton in Kent; and about the year 1624, in London, became minister (succeeding Henry Jacob) of the first Independent and Congregational church organized in England. He and his congregation underwent annoyance and persecution at the hands of churchmen, and for a time (1632-4) Lathrop was imprisoned. During his confinement he was bereft by the death of his wife and by a division in his flock over a question of baptism, and in 1634 sailed to Massachusetts, where he settled as minister at Scituate, removing in 1639 to Barnstable. The records of these towns kept in 'an original register' written by him are referred to as authority by Prince in his *Annals of New England*.

LATHROP, JOHN, A.M.: an American jurist; b. in Boston, Mass., 1835, Feb. 8; was graduated at Burlington College, N. J., 1853, and at Harvard Law School, 1855; admitted to the bar in the following year, and practiced in Boston till 1888; was reporter of the decisions of the supreme court, 1874-88, and justice of the superior court, 1888-91. He served in the civil war with the 35th Mass. volunteer infantry; was lecturer at Harvard Law School, 1871-73, and at the Boston Law School, 1873 and 1880-83. Since 1891 he has been justice of the supreme judicial court of Massachusetts.

LATHROP, JOHN HIRAM: American educator: b. Sher-

LATHROP—LATHYRUS.

burne, N. Y., 1799, Jan. 22; d. Columbia, Mo., 1866, Aug. 2. He was graduated at Yale in 1819, from 1822 to 1826 was tutor there; adopted the profession of law, which he followed for six years, then abandoned it for that of teaching. He taught at Norwich, Vt., and at Gardiner, Maine. Between 1829 and 1840 held professorships of mathematics, natural philosophy, law, history, and economics at Hamilton College; was president of the University of Missouri 1840-9; afterward became chancellor of the University of Wisconsin (1849-59); president of Indiana University (1859-60); professor of English literature at the University of Missouri (1860-2). He was again president of the University of Missouri in 1865, and until the time of his death.

LATHROP, ROSE HAWTHORNE: American author: b. Lenox, Mass., 1851, May 240. She was educated in the public schools, having lived during the years 1853-60 in England, where her father, Nathaniel Hawthorne (q. v.), was United States consul at Liverpool (1853-7), and in Portugal; studied art in Dresden and London; and in 1871 married George Parsons Lathrop, with whom, until his death, she was associated in literary labors. She has been especially interested in the improvement of conditions for suffering and needy people, and in 1891 established Saint Rose's Free Home for Cancer, and Rosary Hill Home, in New York, where she afterward became head of a Dominican community of the Third Order and directress of a charitable home, her title being Mother Mary Alphonsa. Besides many sketches and stories, her writings include *Along the Shore*, poems (1888); *Memories of Hawthorne*, with her husband (1897), with whom she also collaborated in other works; and *A Story of Courage*. See LATHROP, GEORGE PARSONS.

LATHYRUS, *lăth'î-rūs*: genus of plants of nat. ord. *Leguminosæ*, sub-ord. *Papilionaceæ*. The leaves are furnished with tendrils, and are pinnate, but often with only one pair of leaflets. The species are numerous, annual and perennial herbaceous plants, natives of temperate countries in the n. hemisphere. Few are American. Some have very beautiful flowers of considerable size, and find a place in flower-gardens; e.g., *L. latifolius* and *L. sylvestris*, the latter a native of England, and the former of s. Europe, both perennials, and known by the name of EVERLASTING PEA. The SWEET PEA (*L. odoratus*), native of the East, well-known in flower-gardens, is a hardy annual, whose flowers are esteemed for both beauty and fragrance. Many varieties are in cultivation, differing in color, etc. The MEADOW VETCHLING (*L. pratensis*), has bright yellow flowers. *L. sativus*, the CHICKLING VETCH, or LENTIL OF SPAIN, native of s. Europe, with flowers generally of bright blue color and winged pods, is cultivated in India and in Germany, France, and other countries for its seeds, the flour of

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which, however, is mixed with other flour rather than used alone, on account of its narcotic qualities, which even caused its cultivation for food to be interdicted in Würtemberg 1671. An incurable paralysis of the limbs has sometimes been produced by it, both in human beings and lower animals. The seeds of *L. cicera*, though sometimes used by the country people of France, are even more dangerous. Those of *L. Aphaca*, species sometimes found on gravelly soils in England, possess similar qualities when ripe, but in unripe state are eaten with the pods which contain them, and are quite wholesome. *L. tuberosus*, native of Germany and other parts of continental Europe, is cultivated for its amylaceous tubers, sometimes called *Dutch Mice*, in Germany, known as *Earth-nuts*. The herbage of the plant is relished by cattle.

LATICIFEROUS. See LATEX.

LATIMER, *lăt'è-mér*, HUGH: one of the most distinguished of the English reformers, bishop of Worcester: prob. 1490—1555, Oct. 16; b. Thurcaston, Leicestershire. He was educated at Cambridge, and after a brief period of zealous devotion to the papacy ('I was as obstinate a papist,' he says, 'as any in England'), he became attached to the new learning and divinity which had begun to establish themselves there. He very soon became a zealous preacher of the reformed doctrines. The consequence of his new-born zeal was, that many of the adherents of the old faith were strongly excited against him, and he was embroiled in many controversies.

The dispute about Henry VIII.'s marriage with Catharine of Aragon brought Latimer more into notice. He was one of the divines appointed by the University of Cambridge to examine as to its lawfulness, and he declared on the king's side. This secured Henry's favor, and he was appointed one of his chaplains, and received a living in Wiltshire. In 1535, he was appointed Bishop of Worcester; and at the opening of convocation 1536, June 9, he preached two very powerful and impressive sermons, urging the necessity of reform. After a while, the work of reform rather retrograded than advanced, and Latimer found himself with his bold opinions in little favor at court. He retired to his diocese, and labored there in a continual round of 'teaching, preaching, exhorting, writing, correcting, and reforming, either as his ability would serve, or the time would bear.' This was his true function. He was an eminently practical reformer. In the closing period of Henry's reign, and when the reactionary party headed by Gardiner and Bonner were in the ascendant, Latimer lived in great privacy. He was looked on with jealousy, and closely watched, and finally, coming up to London for medical advice, he was brought before the privy council and cast into the Tower.

LATIMER.

On the accession of Edward VI., he again appeared in public. He declined, however, to resume his episcopal functions, though his old bishopric was offered to him at the instance of the house of commons. He devoted himself to preaching and practical works of benevolence. The pulpit was his great power, and by his stirring and homely sermons, he did much to rouse a spirit of religious earnestness throughout the country. At length, with the lamented death of Edward, and the accession of Mary, he and other reformers were arrested in their career of activity. Latimer was put in prison, and examined at Oxford 1554. After his examination, he was transferred to the common jail there, where he lay for more than a year, feeble, sickly, and worn out with his hardships. Death would not have long spared the old man, but his enemies would not wait for the natural termination of his life. In 1555, Sep., he was summoned before certain commissioners, appointed to sit in judgment upon him and Ridley; and after an ignominious trial, he was condemned to be burned. He suffered with Ridley 'without Bocardo Gate,' opposite Baliol College, exclaiming to his companion: 'Be of good comfort, Master Ridley, and play the man: we shall this day light such a candle, by God's grace, in England, as I trust shall never be put out.'

Latimer's character presents a combination of many noble and disinterested qualities. He was brave, honest, devoted, and energetic, homely and popular, yet free from all violence; a martyr and hero, yet a plain, simple-hearted, and unpretending man. Indeed, at one critical hour he seems to have had in charge the fortunes of the Reformation in England. His sermons were unique, and had immense popular influence. It has been said that Latimer by his preaching did more for the Reformation than Henry VIII. by his edicts. Humor and cheerfulness, homely sense and direct evangelical fervor, distinguish his sermons and his life, and make them alike interesting and admirable.

Latimer's sermons were reprinted at London, 2 vols., 1825. The latest ed. is by the Rev. G. Corrie, 4 vols., 1845.—See Tulloch's *Leaders of the Reformation* (1859); and *Latimer*, biography by Demaus (1859; new ed. 1881); and also the biography by R. M. Carlyle (1890).

LATIMER, MARY ELIZABETH WORMELEY: American author: b. London, England, 1822, July 26; d. Baltimore, Md., 1904, Jan. 4. Among her works are: *Salvage; Princess Amélie; A Chain of Errors; My Scrap-Book of the French Revolution* (1898); *The Last Years of the XIXth Century* (1901); *The Prince Incognito* (1902); and *Talks of Napoleon at St. Helena with General Gourzand* (1903). She also wrote several works on the history of France, Russia, Turkey, England, Italy, Spain, etc., during the 19th century.

LATIN—LATIN LANGUAGE AND LITERATURE.

LATIN, n. *lăt'in* [*Latīnus*, of or belonging to Latium, Latin—from *Latīum*, the district of anc. Italy where Rome was situated]: the language of the anc. Romans: ADJ. pertaining to Rome and its language; composed in the language of the anc. Romans (see LATIN LANGUAGE AND LITERATURE). LAT'INISM, n. *-izm*, a mode of speech peculiar to the Latins. LAT'INIST, n. *ist*, one learned in Latin. LATINITY, n. *lă-tīn'ī-tī*, the Latin style or idiom. LATINIZE, v. *lăt'in-īz*, to give to foreign words Latin terminations. LAT'INI'ZING, imp. LAT'INIZED, pp. *-īzd*. LATIN CHURCH, the Church of Rome and the churches which hold to the Roman obedience, and conduct service in the Latin language, as distinguished from the *Greek* or *Eastern Church*. The disruption of the church into these two divisions occurred in the 9th c. LATIN CROSS, cross having its lower limb considerably longer than the other three limbs. LATIN EMPIRE, name given to that portion of the Byzantine empire seized 1204 by the Crusaders, who made Constantinople their capital: it was overthrown by the Greeks 1261 (see BYZANTINE EMPIRE). LATIN RACE, the nations of western Europe, whose languages are closely allied to the Latin, as the Italians and French. DOG LATIN, Latin composed with some degree of literal and grammatical accuracy, but neither elegant nor idiomatic. LAW LATIN, a corrupt Latin largely interspersed with Latinized foreign words and non-classical words and phrases, used in law courts and in the preparation of deeds and instruments, now employed to a very limited extent, unless in the use of particular words and phrases. LOW or MIDDLE LATIN, the Latin in common use in the non-classical and middle ages. MONKISH LATIN, the mixed and debased Latin as used in the monasteries, and by ecclesiastical writers of the middle ages.

LATINI, *lă-tī'nī*: Italian people, who in pre-historic times had established themselves on the lower part of the Tiber and the Anio, between the sea and the nearest Apennines. The limits of their territory, LATIUM (q.v.), cannot, however, be fixed with precision. The L. had the Volsci for neighbors on the s., the Æqui and Hernici on the e., and the Sabines on the n.; but after the subjugation of these tribes by the Romans, the name of Latium was given to the whole conquered district.

LATIN LANGUAGE AND LITERATURE: language and written productions of the ancient Romans.—*Language*.—The Latin is a member of the great family commonly called Indo-Germanic, Indo-European, or Aryan. It is therefore closely allied to the Greek, Persian, German, Celtic, English, and many other tongues and dialects of Europe, its kinship to which is more or less clearly shown by identity of stems and similarity of structure. It was developed primarily among the people (Latini) who inhabited the plain of Latium, in that

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part of w. Italy between the rivers Tiber and Liris (see LATIUM); and though the city of Rome stamped her name on the political institutions of the empire, yet the standard tongue of Italy still continued to be called the *Latin* language, *not* the Roman. As the Roman conquests extended, Latin spread with equal strides over the conquered countries, and was generally used by the educated classes in the greater part of Italy, in Gaul, Spain, Germany, Africa, and other Roman provinces. But even in Italy itself, and in Latium, there seem to have been two forms of the language, differing considerably from each other—a polished dialect and a rustic one—a language of books and of the higher classes, and a language of conversation and everyday life among the vulgar. It was in the last years of the Republic and the first of the Empire that the polished language reached its highest perfection in the writings of Cicero, Horace, Virgil, and others. But by the influx of foreigners, by the gradual decline of Roman feeling and Roman spirit, and by the confusion of the classic forms with those of the provinces, it became corrupted, the process of deterioration going on with double rapidity after the dismemberment of the Roman Empire in the 5th c. Thus were formed the modern French, Spanish, Italian, and Portuguese. The English language also owes much to Latin, both directly by derivation from the classical forms, and at second-hand through the Norman-French. Latin continued the diplomatic language of Europe till a comparatively recent period. It is still the medium of communication among the learned of the world, and has always been the official language of the Rom. Cath. Church. See the grammars of Madvig, Roby, and Gildersleeve in English; and general works by Hübner, Dräger, Corssen, Neue, Bücheler, Lindsay, and other scholars.

The ~~grammar~~ grammar of the Latin language has been studied and illustrated by many celebrated scholars from Varro (B.C. 116–28) to Zumpt, Kühner, Madvig, Stolz, and Schwalz, through a long list of names, such as Donatus, Priscian, Laurentius Valla, Manutius, Melanchthon, Scaliger, Perizonius, Schneider, Linacre, Ruddiman, Alvarez, and many more. In lexicography, Stephanus, Gesner, Forcellini, Freund, Georges, Wölffin, and others of less note, have done valuable service.

Literature.—The Roman Republic had nearly run its course ere it possessed a writer of literature worthy of the name. A kind of rude poetry was cultivated from earliest times, and was employed in such compositions as the Hymn of the Fratres Arvales (dug up near Rome 1778), in the sacred songs to particular deities, and in triumphal poems and ballads, in the Fescennine chants, and other rude attempts to amuse or dupe an illiterate and vulgar populace. And even when, in after years, the Romans began to foster a literary taste, the preference

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for Greek models discouraged original efforts. Such was the case even in the days of Horace and Virgil, both of whom are largely indebted to Greek models. The first period of Roman literature may be said to extend from B.C. 240 to the death of Sulla B.C. 78; the second, or Golden Age, from the death of Sulla to the death of the Emperor Augustus A.D. 14; the third, or Silver Age, from the death of Augustus to the death of Hadrian A.D. 138; and the fourth from the death of Hadrian to the overthrow of the Western Empire, A.D. 476. In the first period, the most distinguished names are those of Livius Andronicus, writer of dramas adapted from the Greek, whose first play was brought out in B.C. 240; Ennius, whose chief work was an epic poem in the History of Rome, and who wrote also dramas and satires; with Naevius, Plautus, and Terence, the comedians. The second period is adorned by Varro, who wrote on agriculture, grammar, antiquities, etc.; by Lucretius, writer of a superb philosophical poem, instinct with force and adorned by passages of rare beauty; by Virgil, who, to his great epic, the Aeneid, added pastoral and agricultural poetry in the Eclogues and Georgics; by Horace, in lyric verse and in satire; by Catullus, one of the great lyric poets of all time; by Tibullus and Propertius, in elegy; by Livy, Cæsar, Sallust, and Nepos, in history and biography; by Cicero, in philosophy, rhetoric, and oratory: and by Ovid, in elegiac and didactic poetry. The third period presents Tacitus, historian and biographer; the elder Pliny, naturalist; Persius and Juvenal, satirists; Martial, epigrammatist; Lucan, Statius, and Silius Italicus, epic poets; Colimellia, bucolic writer; Pliny the Younger, epistolographer; with many of less note. The fourth period produced few men of fame; but among the best known are the Emperor M. Aurelius, Ammianus Marcellinus, Gellius, Justin, Apuleius, Lactantius, Eutropius, Macrobius, Calpurnius, Boëthius, and Claudianus, the last of the Roman classic poets. There is a collection of fugitive verse belonging to the third and fourth centuries, of unknown authorship, but often charmingly modern in its tone. Ansonius, whose *MOSELLA* has been greatly admired, sounds clearly the new note of nature-poetry. For minor variations of the language, see *LAW LATIN: DOG LATIN: LOW OR MIDDLE LATIN: MONKISH LATIN* (under *LATIN*).

The spread of Christianity gave rise to the ecclesiastical poetry of the Middle Ages, which departed from the classic models, and reverted to what was probably the primitive and popular form of Latin verse. It disregarded the restrictions of quantity and metre, and substituted accent and rhyme as the regulating principles of its form. The most famous name in the earlier period is that of Prudentius—to whom we may add Sedulius,

LATIN UNION—LATISEPTÆ.

St. Hilary, St. Ambrose, and St. Gregory the Great; and in the later period, Fortunatus; Bede (the Venerable); Bernard of Clairvaux; Adam of St. Victor; Thomas of Celano, author of the famous *Dies Iræ*; James de Benedictis, author of the equally famous *Stabat Mater*; and St. Thomas Aquinas.—See histories of Latin Literature by Bernhardt (1878); Simcox (1883); Teuffel (Eng. trans. 1892); Tyrrell's *Latin Poetry* (1895); Mackail (1895); and Fowler (1904).

LATIN UNION: association of European states, formed at Paris, 1865, Dec. 23, by which it was agreed to regulate the weight, title, form, and circulation of the gold and silver coinage of those states. The original members of the union were France, Belgium, Switzerland, and Italy. Greece and Roumania joined it 1867, Apr. The agreement, which went into effect 1866, Aug. 1, was that no gold or silver was to be coined other than in certain specified pieces, of a fixed weight, standard, tolerance, and diameter, with the year of issue stamped on them; and that the members of the union must make an annual statement of the quantity of gold and silver coins issued by each, and the amount collected for melting. The issue of coins of the smaller denominations was limited in each state, so as not to exceed in amount six francs for each inhabitant. At the annual conference 1874, Jan. 30, it was further agreed to limit the issue of five franc pieces for that year to a certain number in each state; which agreement was renewed the following two years. In 1877 the coinage of five franc pieces was entirely suspended, except for Italy. In 1873 Belgium received power to suspend silver coinage altogether; in 1876 France did the same; Switzerland also has it. At a conference, Paris 1878, all limitations on gold coinage were removed, except that the coinage of gold five franc pieces was suspended, also that of silver five franc pieces, provisionally, which, however, 'may be resumed when a unanimous agreement to that effect shall be established.' In 1875 Holland, a member of the union, suspended the right of private individuals to have silver coined at her mint.

In view of these facts, and since France holds within her borders more than 2,500,000,000 francs in silver coin, it is easy to see that she long directed the legislation of the union with great skill so as to prevent any large decline in its value. In spite of attempts in the legislation of other nations to demonetize it, France succeeded not only in saving her own capital in silver without loss of value in its home circulation, but in acquiring it at reduced cost from her neighbors. See **MONEY**.

LATISEPTÆ, n. plu. *lăt'ĭ-sĕp'tĕ* [L. *lătus*, broad; *septum*, a hedge]: in *bot.*, cruciferous plants having the dissepiment of the pod broad in proportion to the thickness between the valves.

LATITAT—LATITUDE.

LATITAT, *lā'tī-lāt*: old form of writ in England, which commenced an action in the court of queen's bench; now obsolete.

LATITUDE, n. *lăt'ī-tūd* [F. *latitude*—from L. *latitūdīnem*, breadth—from *lātus*, broad: It. *latitudine*]: on the earth, the distance of any place in a direct line north or south from the equator, measured in degrees, minutes, and seconds—if in the northern hemisphere, it is said to be in *north latitude*, if in the southern, *south latitude* (see **LATITUDE** and **LONGITUDE**): undefined freedom with respect to meaning of words and principles of action; laxity. **LAT'ITU'DINAL**, a. *-tū'dī-nāl*, pertaining to latitude. **LAT'ITU'DINA'RIAN**, a. *-dī-nā'rī-ān*, unrestrained; unconfined as to doctrines: N. one who indulges in unusual freedom, chiefly in religious opinions; one not strictly orthodox. **LAT'ITU'DINA'RIANISM**, n. *-rī-ān-īzm*, freedom or laxity of opinions, usually applied to religious opinions (see **LATITUDINARIANS**). **LATITUDE OF A HEAVENLY BODY**, the distance of the body from the ecliptic or plane of the earth's orbit. **PARALLELS OF LATITUDE**, the circles drawn parallel to the equator on the terrestrial globe, or on a map of the world. **HIGH LATITUDES**, the parts of the earth's surface lying near or beyond the arctic circle in the northern, and the antarctic circle in the southern hemisphere. **LOW LATITUDES**, the parts of the earth's surface lying near the equator. **MIDDLE LATITUDES**, the parts of the earth's surface lying within the temperate zones. *Note.*—The terms *longitude* and *latitude* had their origin from the notion of the ancients, that the earth was *longer* from east to west (longitude) than from south to north (latitude)—these terms expressing *length* and *breadth*.

LATITUDE AND LONGITUDE, in Geography: angular distances of a place on the earth (latitude) n. or s. from the equator, and (longitude) e. or w. from the first meridian, respectively; the angular distance in longitude being found by supposing a plane to pass through the place, the earth's centre, and the poles, and measuring the angle made by this plane with the plane of the first meridian; the angular distance in latitude being found in the same manner, but substituting the two extremities of an equatorial diameter for the poles; or, more simply, latitude is the angle made by two lines drawn from the earth's centre—the one to the place, the other to the equator at the point where it is crossed by the meridian of the place. Latitude is reckoned from the equator to the poles, a place on the equator having lat. 0° , and the poles 90° n. and 90° s. respectively. Longitude is reckoned along the equator from the first meridian; but as nature has not, as in the case of latitude, supplied a fixed starting-point, each nation has chosen its own first meridian; thus, in Great Britain and her colonies, in Holland, and other maritime states, longitude is reckoned from the meridian which passes

LATITUDE.

through Greenwich; in France, from that through Paris, etc.; and in many old charts, from Ferro (one of the Canary Isles), or from the Madeira Isles. It is reckoned e. and w. from 0° to 180° , though astronomers reckon from 0° w. to 360° w., and never use e. longitude. It is evident that if the latitude and longitude of a place be given, its exact position can be determined, for the latitude fixes its position to a circle passing round the earth at a uniform fixed distance from the equator (called a parallel of latitude), and the longitude shows what point of this circle is to be intersected by the meridian of the place, the place being at the intersection.

The determination both of latitude and of longitude depends on astronomical observation. The principle on which the usual methods of finding the latitude depend, appears from the following considerations: To an observer at the earth's equator, the celestial poles are in the horizon, and the meridian point of the equator is in the zenith. If now he travels northward over one degree of the meridian, the n. celestial pole will appear one degree above the horizon, while the meridian point of the equator will decline one degree southward; and so on, until, when he reached the terrestrial pole, the pole of the heavens would be in the zenith, and the equator in the horizon. The same thing is true with regard to the s. hemisphere. It thus appears that to determine the latitude of a place we have only to find the altitude of the pole, or the zenith distance of the meridian point of the equator (which is the same thing as the complement of its altitude). The altitude of the pole is found most directly by observing the greatest and least altitudes of the polar star (see POLE), or of any circum-polar star, and (correction being made for refraction) taking half the sum. Similarly, half the sum of the greatest and least meridian altitudes of the sun, at the two solstices, corrected for refraction and parallax, gives the altitude of the meridian point of the equator. The method usual with navigators and travellers is to observe the meridian altitude of a star whose declination or distance from the equator is known; or of the sun, whose declination at the time may be found from the *Nautical Almanac*; the sum or difference (according to the direction of the declination) of the altitude and declination gives the meridian altitude of the equator, which is the co-latitude. Other methods of finding the latitude require more or less trigonometrical calculation.

The determination of the longitude is much less readily accomplished. Various methods have been proposed, most of which are fitted only for observatories. Among these may be classed those which depend on the determination of the local time of the occurrence of certain celestial phenomena, such as the eclipses of the sun, moon, or Jupiter's satellites, occultations of fixed stars by the moon, the time occupied in the moon's transit over the meridian, etc., and comparing the ob-

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served local time with the calculated time of the occurrence, at some station whose longitude is known (c.g., Greenwich), the difference of time when reduced to degrees, minutes, and seconds, at the rate of 360° to 24 hours, gives the difference of longitude. The two methods in use among travellers and on board ship are remarkable for their combination of simplicity with accuracy. The first consists merely in determining at what hour on the chronometer (which is set to the time at Greenwich, or some place of known longitude) the sun crosses the meridian. It is evident that as the sun completes a revolution, or 360° , in 24 hours, he will move over 15° in 1 hour, or 1° in 4 minutes. Now, if the watch be set to Greenwich time—viz., point to 12 o'clock when the sun is on the meridian of Greenwich, and if at some other place, when the sun is on the meridian there, the watch points to 3 hours 52 minutes, the difference of longitude is 58° , and the longitude will be w., as the sun has arrived over the place *later* than at Greenwich; similarly, if the sun be over the meridian of a place at 9 hours 40 minutes A.M., the longitude is 35° e. (by the chronometer). The accuracy of this method depends evidently on the correctness of time-keepers (see HOROLOGY: WATCH). The other method—that of 'lunar distances'—is briefly as follows: The distance of the moon from certain fixed stars is calculated with great accuracy (about three years in advance) for every three hours of Greenwich time, and published in the *Nautical Almanac*. The moon's distance from some one star having been observed, and corrected for refraction and parallax, and the local time having also been noted, the difference between this local time and *that time in the table which corresponds to the same distance* gives the longitude, which may be converted into degrees as before. The longitude of all places connected by telegraph with the reckoning-point can be easily found by transmitting from the latter a signal to an observer in the place, at a certain fixed time (reckoned in solar time at the reckoning-point), and by the observer instantly and accurately noting the local time at which the signal arrived; the difference of the two times, reduced in the way shown above, will give the longitude, the time occupied in the transmission of the signal being so small as to be neglected. When applied to a heavenly body, the terms latitude and longitude have the same relations to the ecliptic and its poles, and to the point on the ecliptic called the Equinox (q.v.), that terrestrial latitude and longitude have to the equator and a first meridian. The positions of a heavenly body relatively to the equator are called its Declination (q.v.) and Right Ascension (q.v.).

LATITUDINARIANS: name applied by contemporaries to a school of theologians in the English Church in the latter half of the 17th c. It grew out of the earlier movement in favor of a more liberal constitution for the church, represented by Falkland, Hales, Jeremy Taylor,

LATIUM.

and Chillingworth. This earlier movement was mainly ecclesiastical, aiming at a wider extension of the Anglican Church system, and seeking a middle way between the exclusive Prelatists and the strict Independents and Presbyterians, the later movement was mainly philosophical, and had still more directly in view the interests of rational religion. The school was represented by a succession of well-known Cambridge divines, of whom the chief were Whichcote, Smith, Cudworth, and More. Starting from the same ground as Hales and Chillingworth, in the disregard for authority and tradition in matters of faith, and the assertion of the supremacy of reason as the test of truth, their liberalism takes a higher flight, and leads to the discussion of larger questions and principles more fundamental and far-reaching. The Cambridge divines, nurtured on Plato and the later Platonists, sought to wed philosophy to religion, and to confirm the union on an indestructible basis of reason. Theirs was the first attempt to link together philosophy and Christianity ever made by any Protestant school; and, indeed, the first true attempt since the days of the great Alexandrine teachers, to construct a philosophy of religion at once free and conservative, in which the rights of faith and the claims of the speculative intellect should each have free scope and blend together for mutual elevation and strength. This school was attacked by both the old parties in the church, and was freely accused of deistical tendencies.—The term L. is now loosely applied to those who refuse to be bound by a rigid interpretation of doctrinal formulas and by church tradition—e.g., the group known as Broad-Church.

LATIUM, *lā'shī-ŭm*: region in ancient Italy, originally the plain now known as the Campagna di Roma. It was the home of the Latini, who spread over the country from the sea to the Alban Mts., and from the Anio to the Tiber; though now it is almost uninhabitable because of the Pontine marshes which have been formed by the waters of various streams that found no outlet, and the neglected drainage of the old Latin cities fallen into decay. Here they founded many towns and cities of importance, among which the most prominent were Alba Longa, Lavinium, Antium, Corioli, Ardea, and Tusculum. Thirty of these formed themselves into a confederacy of which Alba was the supreme head. Later the Latin league took the place of this, consisting of all the chief cities of Latium, which about B.C. 493 formed an alliance with the Romans. The Latin league held general assemblies in a sanctuary at the foot of the Alban hills, and had a common place of worship on the summit of Mount Albanus (Monte Cavo), where stood the famed temple of Jupiter Latiaris. This mt. was the highest of a volcanic group occupying the midst of the plain of L., about 30 m. in circuit, and reaching an altitude of 3,000 ft. Nearly the entire surface is made up

LATOUR D'AUVERGNE—LA TRAPPE.

of volcanic deposits, though most of it is very fertile with a belt of sandy shore along the coast. Some of the finest wines were produced in the vicinity of Campania.

After the fall of Alba, Rome entered the Latin league and became its head, from which time the league steadily grew feebler, and was finally overthrown, after the battle of Vesuvius, B.C. 340, and the Latin cities gradually became subjects of Rome and their inhabitants citizens of Rome, as also were those of the neighboring tribes of Hernicans, Volseians, and Auruncans. Thenceforward the name L. was made to comprise them all, and to cover the entire territory from the Tiber to the Liris (Carigliano), and from the sea-shore to the Apennines, though this change was not consummated until the time of Augustus. Pliny calls the original L., *Latium Antiquum*, and the later *Latium Adjectum* or *Novum*.

LATOUR D'AUVERGNE, *lâ-tôr'dô-vârñ'*, THÉOPHILE MALO CORRET DE: 1743, Nov. 23—1800, June 27; b. Carhaix in Finistère, France; of an illegitimate branch of the family of the Dukes of Bouillon. He entered the army 1767; and 1781 served under the Duke de Crillon at Port Mahon. On the outbreak of the Revolution, he attached himself to the national cause. The army of the Alps contained no braver officer than Latour. He was the first to enter Chambery, sword in hand, at the head of his company. But he would not hear of advancement in military rank; and in the following year, though placed at the head of a column of 8,000 grenadiers in the army of the Pyrenees, he continued to wear the uniform of a captain. His corps obtained the name of the 'infernal column,' on account of the dread which its bayonet-charges inspired. When he was subsequently with the army of the Rhine in 1800, as he still refused all promotion, Bonaparte bestowed on him the title of 'The First Grenadier of France.' He was killed at Oberhausen, near Neuburg in Bavaria. French biographies are full of instances of his daring valor, his Spartan simplicity of life, and his chivalrous affection for his friends. When he died, the whole French army mourned for him three days; every soldier set aside a day's pay to purchase a silver urn to hold his heart; his sabre was placed in the church of the Invalides; and each morning, till the close of the Empire, at the muster-roll of his regiment, his name continued to be called, and the oldest sergeant answered to the call: '*Mort au champ d'honneur*' (Dead on the field of honor). L. was not only a brave warrior, but also a man of a studious disposition, and author of *Nouvelles Recherches sur la Langue, l'Origine et les Antiquités des Bretons* (1792), 3d. ed. 1801, entitled *Origines Gauloises*.

LA TRAPPE, *lâ trâp'*: narrow valley in Normandy, dept. of Orne, closely shut in by woods and rocks, and very difficult of access; notable as the place in which the Trappists (q.v.) originated

LATREILLE—LATROBE.

LATREILLE, *lâ-trāy'*, PIERRE-ANDRÉ: 1762, Nov. 29—1833, Feb. 6; b. Brive, dept. of Corrèze, France: naturalist. He received ordination; but applied himself chiefly to entomological studies. In 1796, he published his great work, *Précis des Caractères Génériques des Insectes*. Latreille was sentenced to *déportation* during the Revolution, and imprisoned, but was ultimately released. After the Revolution he was employed in the arranging of insects in the Museum of Nat. History. He died at Paris. His other most important works are the *Histoires des Salamandres* (1800); *des Singes* (1801); *des Crustacés et Insectes*, 14 vols. (1805); *des Reptiles* (1802); *Genera Crustaceorum et Insectorum* (1809); *Considérations sur l'Ordre Naturel des Animaux* (1810); *Familles Naturelles du Règne Animal* (1825); *Cours d'Entomologie* (1833).

LATRIA, n. *lă-trī'ă* [mid. L. and It. *latria*—from Gr. *latreia*, service, worship—from *latreuō*, I serve]: the highest worship, or that paid to God: *dulia*, the inferior worship paid to saints—a distinction used by the Rom. Cath. Church.

LATRINE, n. *lăt'rēn* [F. *latrines*, plu. a privy—from L. *latrīnă*, a privy—from *lavātrīnă*, a lavatory, a privy—from *lavō*, I wash, I bathe]: a necessary convenience; a water-closet; a privy.

LATROBE, *lâ-trōb'*, BENJAMIN HENRY: 1764, May 1—1820, Sep. 3; b. Yorkshire, England: architect. He graduated at the Univ. of Leipsic; served in the Prussian army; studied architecture in London; and became surveyor of public offices and city engineer there 1789. In 1796, he came to the United States; was engineer of the James river and Appomattox canal; builder of the penitentiary in Richmond; designer of the building of the bank of Penn., the Acad. of Art, and the bank of the United States, and engineer of the Schuylkill waterworks in Philadelphia; was architect of the Rom. Cath. cathedral and the U. S. custom house in Baltimore; had charge of the completion of the U. S. capitol and of its rebuilding after the British burned it 1815; was engineer of the Chesapeake and Delaware canal; and was interested with Robert Fulton in his steamboat schemes.—His son, BENJAMIN HENRY LATROBE, 1807, Dec. 19—1878, Oct. 19, b. Baltimore, was admitted to the bar, but became civil engineer, was chief engineer of the Baltimore & Ohio railroad, consulting engineer of the Hoosac tunnel, and a member of the advisory board which approved John A. Roebling's plans of the New York and Brooklyn bridge.

LATROBE, JOHN HAZLEHURST BONVAL: American lawyer: b. Philadelphia, 1803, May 4; d. Baltimore, 1891, Sep. 11. He was the son of Benjamin H. Latrobe (q.v.). He studied at the United States Military Academy, was called to the bar in 1825, from 1828 until his

LATROBE—LATTEN.

death was counsel for the Baltimore & Ohio Railway Company, was the founder of the Maryland Institute. invented a stove commonly known as the 'Baltimore heater,' was long identified with the American Colonization Society, and succeeded Henry Clay in its presidency in 1853. He also became president of the Maryland Historical Society, and published a *Biography of Charles Carroll of Carrollton* (1824), a *History of Mason and Dixon's Line* (1854), *Personal Recollections of the Baltimore & Ohio Railroad* (1858), and other works.

LATROBE: town and borough in Westmoreland co., Pa., on Loyalhanna creek and on the Pennsylvania railroad, 40 miles east of Pittsburg. It is the centre of a large agricultural district. There are valuable deposits of coal and iron ores and mining is carried on to a considerable extent. Latrobe has a large number of manufacturing, including steel works, cork works, paper, flour and lumber mills, glass-houses, brick-yards, etc. Pop. (1910) 8,777.

LATRO'BITE: a mineral named after C. I. Latrobe. It is found massive and crystallized in forms belonging to the triclinic system; but the crystals are not well defined; color, pale pink; scratches glass; specific gravity, 2.8; opaque; lustre vitreous. It is composed of silica, alumina, and lime, being a rare variety of anorthite, or lime feldspar. See **FELDSPARS**.

LATRODEC'TUS: a genus of spiders of the loose-web building family *Therididae*, which contains certain large American species popularly considered poisonous, especially one (*L. mactans*) known in the tropics as the katipo. This spider, according to Emerton, is sometimes half an inch long, with a round abdomen and the whole body black except a bright red spot on the under side and one or more red spots over the spinnerets and along the middle of the back; the small and few males have in addition red vertical stripes on each side. This spider makes a large funnel-shaped nest among loose stones, which may spread out two or three feet. It is found all over the country from Canada to Argentina and Chile, and is everywhere feared, but there is no good reason for considering it any more poisonous than other spiders. Consult: Emerton, *The Common Spiders* (1902).

LATRUNCULI, *lā-trūng'kū-lī*: ancient game among the Romans, of unknown origin, but attributed to Palamedes. It had some resemblance to chess, and some have thought it possibly a rudimentary form of that game.

LATTEN, n. *lăt'ĕn*, or **LETON**, n. *lē'tŏn* [OF. *laton*; F. *laiton*, brass—from OF. *latte*, a lath—so named because hammered into thin plates: It. *latta*, tinned iron plate]: fine sheet or plate brass, or thin plates of mixed metal, used for the brasses of sepulchral monuments, for crosses, etc.; milled brass of different thicknesses; thin plates of mixed metal; tinned iron. **BLACK LATTEN**,

LATTER—LATTER DAY SAINTS.

sheets of mixed rolled metal, copper and zinc, about the thickness of pasteboard and unpolished; used by braziers, and for drawing into wire. ROLL-LATTEN, latten of the other sorts polished on both sides ready for use. SHAVEN LATTEN, sheets of the thickness of writing-paper, very bright on both sides. WHITE LATTEN, a mixture of brass and tin. LATTEN WIRE, wire made from sheet brass.—The term *latten* is now seldom used. It has an archæological interest, as it is often mentioned in old public records without explanation of its nature.

LATTER, a. *lăt'tér* [comp. deg. of *late*]: coming or happening after something else; opposite of *former*. LAT'TERLY, ad. *-lĭ*, lately; in time not long past.

LATTER DAY SAINTS, THE REORGANIZED CHURCH OF JESUS CHRIST OF (anti-polygamist): a continuation of the church which was organized at Fayette, N. Y., 1830, Apr. 6, with six members. This organization was effected by Joseph Smith, Oliver Cowdery and others. Joseph Smith was chosen president (see MORMONS). From the time of organization the church rapidly increased. In 1831, Jan., the headquarters were established at Kirtland, Ohio; and in the following year a great many located in Jackson county, Missouri, which was appointed the place of Zion. Here they were persecuted and mobbed; and in the fall of 1833, driven from their homes by violence. Three years later, the exiles from Jackson county, joined by the Saints from Kirtland and the east, located in Caldwell county. In 1838, a religious persecution resulted in imprisoning the leaders and driving the body of the church from the state. In the spring of 1839, no charges having been sustained against the leaders, they were permitted to escape, and soon joined the body of the church near Quincy, Ill. They purchased the town of Commerce, afterward called Nauvoo, and rapidly gathered there. For five years they enjoyed comparative peace and prosperity.

On June 27, 1844, the Prophet Joseph Smith, and his brother Hyrum, were murdered by a mob at Carthage, Ill. This threw the church into much confusion. The membership at this time numbered about 150,000. The quorums were as follows: (1) The First Presidency, consisting of the president and two counsellors, organized in 1833; (2) The Twelve Apostles, organized in 1835, consisting at Joseph Smith's death of Brigham Young, president; Heber C. Kimball, Orson Hyde, Orson Pratt, William Smith, Parley P. Pratt, John Taylor, John E. Page, Wilford Woodruff, Willard Richards, George A. Smith, and Lyman Wight; (3) Seventies, composed of one or more quorums of missionaries of 70 men each, organized in 1835; (4) High Priests, a quorum without definite number, composed of local presidents; (5) Elders, organized into quorums of 96 each. Quorums of priests, 48 each; teachers, 24 each; and deacons, 12 each. The first bishop was Edward Partridge, ordained

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in 1831. He died at Nauvoo in 1840 and was succeeded in January, 1841, by George Miller, who was acting in 1844.

The question now was, who should succeed Joseph Smith. The prophet himself had chosen and designated his son Joseph; but he being only 12 years of age a number of aspirants came forward, the more important being Sidney Rigdon, the only surviving member of the First Presidency; James J. Strang; William B. Smith, one of the Apostles, who, as brother of the prophet, claimed to be guardian for young Joseph, son of the prophet; and Brigham Young, who, together with eight other Apostles, claimed the right of the Twelve to lead the church. Young had the largest following; and in 1846 left Nauvoo for the West (see MORMONS). While at winter quarters near Council Bluffs, Iowa, in 1847, Dec., he assumed the presidency of the church, and led his followers to Salt Lake Valley, where he introduced such doctrines as Adam-God, blood atonement, and polygamy. None of these had been accepted by the church, or taught by its authorities during the life of Joseph Smith.

In 1851, a number of persons and local organizations, some of whom had stood aloof from all factions, started a movement that resulted in a conference at Beloit, Wis., June, 1852. This conference renounced all allegiance to Young, William Smith, Strang and others. At a conference 1853, Apr. 6, seven Apostles were chosen. Jason W. Briggs was chosen president and representative of the lawful heir in the presidency. Other officers were chosen, and thus the reorganization of the original church was inaugurated. At a conference at Amboy, Ill., 1860, Apr. 6, Joseph Smith, eldest son of the prophet, accepted the presidency of the church. *The Saints' Herald*, the official publication of the church, was commenced 1860, Jan. 1, at Cincinnati, Ohio. It was removed to Plano, Ill., 1863, Mar. Since 1881 it has been published at Lamoni, Iowa. Joseph Smith has been its editor-in-chief since 1865. The church held annual and semi-annual conferences until and including 1882, when the semi-annuals were discontinued. The headquarters were at Plano, Ill., from 1863 to 1881; since then at Lamoni, Iowa. The quorums of the reorganization are organized in the same order which existed at the death of Joseph Smith. The doctrines are the same as promulgated during his life.

The church has been more aggressive in its fight against the crime of polygamy than any other organization. The local work is divided into the following organizations according to the latest reports: Two states, Lamoni, Iowa; and Independence, Mo.; both organized in 1901; 74 districts; 62 in the United States, 2 in Australia, 5 in England, 2 in Wales, 2 in Canada, and 1 in Nova Scotia. The reorganization supports

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Graceland College and a home for the aged, both at Lamoni, Iowa. The reorganization has a membership of about 50,000. It is prosecuting missionary work throughout the United States, the Canadas, Australia, New Zealand, Society Islands, Sandwich Islands, the British Isles, Scandinavia, and other countries.

LATTICE, n. *lăt'is* [F. *lattis*, a covering of laths—from *latte*, a lath: Ger. *latte*, a lathe (see LATH)]: any interlaced framework of wood, metal, or other material, made by crossing rods or bars at short distances from each other: ADJ. made by crossing bars or rods, as lattice-work: V. to furnish with a lattice; to form into an open framework by crossing bars or rods. LAT'TIC-ING, imp. LAT'TICED, pp. *-ist*, furnished with a lattice; covered with diagonal cross-bars. *Latticed*, or *Treillé*, in *her.*, is applied to a shield covered with a decoration resembling Fretty but differing in this respect, that the pieces do not cross over and under each other: those directed from dexter chief to sinister base are placed uppermost and *cloué*, that is, have nails inserted at the joints.

LATTICE LEAF, or LACE LEAF, or WATER YAM, or OUVIRANDRANO (*Ouvirandra fenestralis*): plant referred by some botanists to the nat. ord. *Juncaginæ*, and by some to *Naiadaceæ*. It is a native of Madagascar, and grows in running streams. It has a root-stalk about the thickness of a man's thumb, six to nine inches long, often branching, internally white, with a light-brown skin, farinaceous, and used for food. The crown of the root is under water, and the leaves float just under the surface; the flower-stalks rise above it. The flowers are in forked spikes. The leaves are very curious; the blade resembling lattice-work or open needle-work of a most regular pattern; the longitudinal ribs being crossed at right angles by fine tendrils, and the intervening spaces being open. The blade is of an elongated oval form, abruptly acuminate; the length of the stalk varies according to the depth of the water. The whole appearance of the plant is very beautiful. It grows well in hothouse aquaria in Britain.

LAUD, v. *lawd* [L. *laudo*, I praise—from *laus*, praise: It. *laude*, praise]: to praise; to extol; to celebrate. LAUD'ING, imp. LAUD'ED, pp. LAUD'ABLE, a. *-ă-bl*, praiseworthy; commendable. LAUD'ABLY, ad. *-blĭ*. LAUD'ABLENESS, n. *-bl-nĕs*, the quality of deserving praise. LAUDATION, n. *law-dă'shŭn*, praise; commendation. LAUDATORY, a. *lawd'ă-tĕr-ĭ*, containing praise: N. that which contains praise. LAUDS, in the *Roman Breviary*, the part of the service of the first canonical hour—viz., *matins*,—which immediately follows the third *nocturn*. See CANONICAL HOURS; also CANON; MATINS; NOCTURNS.

LAUD, *lawd*, WILLIAM, Archbishop of Canterbury: 1573, Oct. 7—1644, Jan. 10; b. Reading, Berkshire; son

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of a clothier in good circumstances. He entered St. John's College, Oxford, 1589, became a fellow 1593, and took his degree A.M. 1598. Ordained a priest 1601, he soon made himself conspicuous at the university by his antipathy to Puritanism; but being then a person of little consequence, he succeeded only in exciting displeasure against himself. Yet his learning, his persistent and definite ecclesiasticism, and the unselfishness of his devotion to the church, soon won him friends and patrons. In 1607, he was preferred to the vicarage of Stanford, Northamptonshire, and 1608 obtained the advowson of North Kilworth, Leicestershire. In 1609, he was appointed Rector of West Tilbury, Essex; 1611—in spite of strong opposition—Pres. of St. John's College; 1614, Prebendary of Lincoln; and 1615, Archdeacon of Huntingdon. King James now began to recognize what sort of a man Laud was, and to see that he might rely on him as a valuable ally in carrying out his notions of the 'divine right.' In 1617, Laud accompanied the king to Scotland, with the view of introducing episcopacy into the church-govt. of that country; but the attempt failed. In 1621, he was consecrated Bishop of St. Davids. After the accession of Charles I., he was translated from the see of St. Davids to that of Bath and Wells, became high in favor at court, was more than ever hated by the Puritans, and was denounced in parliament. In 1628, he was made Bishop of London. After the assassination of Buckingham (q.v.), Laud became virtually the chief minister of Charles, and acted in a manner so utterly opposed to the spirit of the times and to the opinions of the great body of Puritans in England, that one might have foreseen his ruin to be inevitable, in spite of the royal favor. In 1630, he was chosen chancellor of the Univ. of Oxford, the centre of High-church loyalty. From this period he was for several years busily but fruitlessly employed in repressing Puritanism. In the high-commission and star-chamber courts, the influence of Laud was supreme; but the penalty he paid for this influence was the hatred of the English parliament and of the people generally. In 1633, he was raised to the archbishopric of Canterbury, and in the same year made chancellor of the Univ. of Dublin. The famous ordinance regarding Sunday sports, published about this time by royal command, was believed to be drawn up by Laud, and greatly increased the dislike of the Puritans to him. His minute alterations in public worship, his regulations about the proper position of the altar and the fencing of it with decent rails, his forcing Dutch and Walloon congregations to use the English liturgy, and all Englishmen to attend the parish churches where they resided, evince a petty intellect and an intolerant spirit; as other of his actions indicate that there lurked in his small, obstinate nature considerable cruelty and malice. Still, it is now evident that in the long run,

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Laud's ritualism has triumphed. The Church of England was gradually penetrated with his spirit, and the high value which she has come to put on religious ceremonies is partly due to the pertinacious efforts of the archbishop. During 1635-37, another effort was made by Laud to establish episcopacy in Scotland; but the first attempt to read the liturgy in St. Giles's Church, Edinburgh, excited a dangerous tumult. The Scots, occupying the northern counties of England 1640, and sending commissioners of peace to London, demanded the punishment of Laud as the great disturber of the peace. Proceedings were finally taken against him, and he was, by order of the house of commons, conveyed to the Tower. Here, proceedings were stayed for a time; but fresh need of conciliating the Scots, led (1643) to his impeachment being proceeded with. After being stripped of his honors, and exposed to many indignities and much injustice, he was finally brought to trial before the house of lords 1643, Nov. 13, on a charge of treason and other crimes. The lords, however, did not find him guilty; but the commons had previously resolved on his death, and passed an ordinance for his execution. To this the upper house gave its assent; and in spite of Laud's producing a royal pardon, he was—undoubtedly in violation of express statute, and by the exercise of a prerogative of parliament as arbitrary as any king had ever exhibited—beheaded, 1644, Jan. 10. Laud had a genuine regard for learning—at least ecclesiastical learning—and enriched the University of Oxford, in the course of his life, with 1,300 MSS. in different European and Oriental languages; but his exclusive sacerdotalism, his inability to understand his fellow-creatures, and his consequent disregard for their rights, together with his savage cruelty, forbid us to approve his character, though we pity his fate. His writings are few. Wharton published his *Diary* 1694; and 1857-60, Parker, Oxford publisher, issued *The Works of the Most Reverend Father in God, William Laud, D.D., sometime Lord Archbishop of Canterbury*, containing, among other things, his letters and miscellaneous papers, some of them not before published, and, like his *Diary*, of great help toward an adequate conception of the man and his time.

LAUDANUM, n. *lawd'ă-nŭm* [L. *ladānum*; Gr. *ledanon*, the resinous substance exuding from the shrub *lada*: said by some to be a mere corruption of L. *laudē dignum*, 'worthy of praise,' from its soothing qualities—this is hardly probable]: tincture of opium; a preparation of opium in spirits; most generally used of all the preparations of opium. It is obtained by macerating the sliced or powdered drug in spirit, and filtering. It is of deep brownish-red color, and possesses the peculiar odor and smell of opium. One of the greatest objections to it is, that it is liable to great variations of strength. Dr. Christison remarks: 'Laudanum is made by all the

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colleges with such proportions of the opium and spirit that about $13\frac{1}{2}$ minims, or about 25 drops, contain the entire part of one grain of opium. But the London tincture may be sometimes 16 per cent. stronger than the others, as dry opium is directed to be used.' This medicine is, moreover, very often adulterated.

Laudanum is a powerful anodyne and soporific, but more liable to cause headache than the solution of one of the salts of morphia. For its general action and uses, see OPIUM. The dose for an adult varies from ten minims to a dram. To children it must not be given without extreme caution. *One minim*, equivalent to the 120th part of a grain of morphia, has been known to prove fatal to an infant.

LAUDERDALE, *law-dér-dāl'*, JOHN MAITLAND, Duke of. See MAITLAND, JOHN, Duke.

LAU'DIAN MANUSCRIPT (CO'DEX LAUDIA'NUS): valuable MS. of the Acts of the Apostles, in uncial letters, showing the Greek text in parallel columns with a literal Latin version which differs from the Vulgate and from Jerome's—xxvi. 29, to xxvii. 26, missing. Its probable date is about the 6th c., and place of writing w. Europe. It is named from Abp. Laud, who presented it to Oxford Univ. 1636. It is in the Bodleian Library: its number is 35. Pub. by Hearne 1715.

LAUDONNIÈRE, *lō-dō-nē-ür'*, RENÉ GOULAIN DE: French navigator of the 16th c.; sent by Coligny, 1562, to colonize the French Protestants in America. Laudonnière established the colony on the St. John's river, Fla.; but nearly all were soon massacred by the Spaniards. See FLORIDA (*History*).

LAUENBURG, *low'én-bûrg*, or SAXE-LAUENBURG, *säks-*: duchy belonging to Prussia, formerly united to the crown of Denmark. In the earlier half of the 13th c., it fell into the possession of the Duke of Saxony, one of whose sons became founder of the ducal house of Saxe-Lauenburg. It lies on the right bank of the Elbe, and borders on Hanover and Mecklenburg; area 400 sq. m.; well-cultivated and fertile. In 1876, Lauenburg was finally incorporated with the province of Schleswig-Holstein, of which it is now a district. Pop. 51,800.—The town of Lauenburg, former cap. of the duchy, is on the Elbe; pop. 5,350. It dates from 1182, and contains the old ducal palace.

LAUGH, n. *lâf* [Ger. *lachen*; Dut. *lachen* and *lagchen*; Icel. *hlæja*, to laugh: an imitative word]: the expression of mirth peculiar to man: V. to exhibit the appearance of the features, and utter the sounds, caused by mirth. LAUGH'ING, imp.: ADJ. expressing mirth; having the character of laughter: N. a brief expression of mirth or pleasure indicated by convulsive sounds. LAUGHED, pp. *lâft*. LAUGH'ABLE, a. *-ã-bl*, of a kind to excite laughter; droll. LAUGH'ABLY, ad. *-blî*. LAUGH'

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ABLENESS, n. *-bl-nēs*, the quality of being laughable. LAUGH'INGLY, ad. *-ñ*. LAUGHING-STOCK, *-stōk*, an object or butt of ridicule. LAUGHING-GAS, a gas, nitrous oxide, which causes anæsthesia, and occasionally involuntary laughing, when inhaled into the lungs (see NITROGEN). LAUGHTER, n. *lâf'tér* [AS. *hleahtor*; Icel. *hlatr*, laughter]: certain involuntary movements of the muscles of the face and lips, with peculiar and varying expressions of the eyes, together with convulsive sounds normally indicating mirth or great satisfaction. LAUGHTER'LESS, a. *-lēs*, without laughter. To LAUGH AT, to ridicule or deride; to treat with contempt. To LAUGH IN THE SLEEVE, to laugh secretly, while apparently preserving a grave or serious demeanor toward the person laughed at. To LAUGH TO SCORN, to deride; to treat with mockery.—SYN. of 'laughable': comical; ludicrous; mirthful.

LAUGHLIN, *lōk'lin*, JAMES LAURENCE, A.M., PH.D.: an American educator: b. in Deerfield, O., 1850, Apr. 2; was graduated at Harvard University 1873; instructor at Hopkinson's Classical School, Boston, 1873-78; instructor of political economy at Harvard University 1878-83; became assistant professor there in the latter year, where he remained till 1887; was professor of political economy at Cornell University 1890-92; and in the latter year became head professor of the same branch in the University of Chicago. In 1894-95, he drew up a plan of monetary reform for San Domingo, which that government later adopted; and he has been a member of the monetary commission created by the Indianapolis Monetary Conference in 1897. He is a member of the International Institute of Statistics and of the Political Economy Club, of which he was one of the founders. He has written: *Anglo-Saxon Legal Procedure in Anglo-Saxon Laws* (1876); *Study of Political Economy* (1885); *History of Bimetallism* (1886), a comprehensive treatment of the subject; *Elements of Political Economy* (1887); *Gold and Prices since 1873* (1887); *Facts about Money* (1895); *Report of Monetary Commission* (1898); *Principles of Money* (1902); *Reciprocity* (1903); and has prepared an abridged edition of Mill's *Principles of Political Economy* (1884), with a short biography and a sketch of the history of political economy. He is editor of the *Journal of Political Economy*, and was one of the founders of the *Quarterly Journal of Economics*, to which he has contributed frequently.

LAUGH'TER: muscular movements and convulsive sounds naturally expressive of the sense of the ludicrous. This peculiarly human expression has occasioned much discussion and controversy. We advert first to the physical part of the phenomenon, then to the mental causes or accompaniments of it. Physically, laughter is a convulsive action of the diaphragm. In this state, as remarked by Sir Charles Bell, the person 'draws a full

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breath, and throws it out in interrupted, short, and audible cachinnations.' This convulsion of the diaphragm is the principal part of the physical manifestations of laughter; but there are several accessories, especially the sharp vocal utterance arising from the violent tension of the larynx, and the expression of the features, this being a more intense form of the smile, the characteristic of pleasing emotions generally. In extreme cases, the eyes are moistened by the effusion from the lachrymal glands.

The causes of laughter are both *physical* and *mental*. Among mental causes, we must rank first hilarity, or animal spirits generally. When there is a great overflow of good spirits, it takes the form of the laugh among other manifestations. The rebound of robust natures from constraint or confinement, as when children are released from school, is marked with uproarious glee and excitement. Laughter is produced sometimes by the application of cold, as in the cold bath. Another notable form is the hysterical fit, in which the explosiveness of the nervous system is an effect of disease, and followed by exhaustion.

The *mental* causes of laughter (now limiting the term strictly to its relation to the ludicrous) are what have given rise to the controversy. To determine the common characteristic of all those things termed 'ludicrous,' has been found a problem of unusual difficulty. Various theories have been propounded, all with some truth, perhaps none entirely explaining the facts. Aristotle lays it down that 'the ridiculous implies something deformed, and consists in those smaller faults which are neither painful nor pernicious, but unbecoming—thus, a face excites laughter wherein there is deformity and distortion without pain.' Here he touches upon several of the important conditions—viz., that there should be some strangeness or deviation from the ordinary appearances of nature, that this deviation should be on the side of degradation or inferiority, and that it should not be of a kind to excite any other strong emotion, as pity. Hobbes has given a theory to the effect that laughter is 'a sudden glory, arising from a sudden conception of some eminency in ourselves by comparison with the infirmity of others, or with our own formerly.' This evidently suits a certain number of cases, especially the laugh of ridicule, derision, and contempt. It is not easy to reconcile it with the humorous and genial laughter of those that are little given to self-glorification or exultation over other men's discomfiture. Partly owing to this deficiency, and partly from the harsh judgment of human nature implied in it, this theory has been very unpopular. It has been contended, in opposition to Hobbes, that there are jests that do not imply the degradation of any living being; and that we often feel contempt for others, and sudden glorying in ourselves by the compari-

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son, without being urged to laughter. As to the first of these allegations, Campbell, in his *Philosophy of Rhetoric*, adduces the following instance: 'Many,' he says, 'have laughed at the queerness of the comparison in these lines (from *Hudibras*):

For rhyme the rudder is of verses,
With which, like ships, they steer their courses,

who never dreamed that there was any person or party, practice or opinion, derided in them.' But (aside from the fact that not laughter but a smile would be the usual effect of these lines) in addition to the agreeable surprise caused by the novelty of the comparison, which is the chief ingredient in wit, and may exist without any degradation of the subject, there is here a most apparent degradation of the poetic art, hallowed as it is in men's minds by the most dignified associations as something akin to divine inspiration, and now reduced to a vulgar mechanism of rhyme-making. Hobbes confines his definition too much to actual persons; for the laugh may be raised against classes, parties, systems, opinions, institutions, and even inanimate things supposed to be personified. It would not be easy to produce any unequivocal instance of a laugh (note the limitation above 'to the ludicrous') raised without degrading some person or interest, while in a vast number of cases this circumstance is the indispensable and admitted condition of the effect.

Dr. Campbell himself, while challenging the theory of Hobbes, substitutes nothing in its place except an enumeration of the most prominent kinds of ludicrous effects. These are, first, the debasement of things great and eminent; secondly, the aggrandizement of little things by the language of splendor; and thirdly, the queerness or singularity of the imagery. Now, as regards the first of these, the debasement of things eminently great—by far the largest class—the doctrine of Hobbes, properly guarded, may be found applicable. There is, in minds of a certain type, a strong satisfaction in pulling anything down from a high pinnacle to plunge it in the mire, which some interpret only as a mode of the sentiment of Power, one of the most energetic and deep-seated passions of the human mind, but which may be viewed rather as an evil manifestation of the *pride* of power. This sentiment is gratified by every striking effect that we can produce ourselves; and few effects are more striking than to debase or humiliate some person or interest from a proud eminence; and not only so, but (what Hobbes neglected to remark) also by seeing the same effect produced by the agency of some other person. A familiar mode of pandering to the sense of power is to put any one to fright; even the child can chuckle over this triumph of its young ability. Campbell's second class of cases might seem at first sight the opposite of the first, and thereby to contradict the general theory

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which that illustrates. But when mean and little things are aggrandized, by elevated phraseology, so as to raise a laugh, it will always be found that the effect is owing, not to the raising of the subject, but to the degrading of the dignified language by connection with such a subject. This is the so-called *mock-heroic*, where the grand and the lofty in speech being employed on the mean and insignificant, are debased to the level of what they are applied to. Such is the nature of *parody*. So that, in fact, Campbell's second species is merely a variety of the first. The third species, marked by 'queerness and singularity of imagery,' is really nondescript, but analysis may show that the element of *surprise* has more to do in producing the laugh in such cases, than any pleasure in the abasing of any person or interest, more indeed than any mere sense of the ludicrous. The pleasure may be merely the effect of novelty, or quick discovery: the ludicrousness may apply only to one's self as having been so easily caught at unawares.

In short, Hobbes' principle may suffice to explain all laughter that is not produced by pure wit, humor, geniality, or merely physical causes; it explains laughter in which wit and humor serve selfishness and pride: above this line its explanation fails. It is an unpleasing comment on human nature, when it is claimed that nine cases out of every ten of the genuinely ludicrous are cases of the pleasure of degrading something; and when it is claimed further that this fact furnishes a considerable presumption that the remainder are of the same general character, though perhaps enveloped with circumstances that disguise the fact.

The figures of a powerful imagination, the resources of learning, and the polish of rhetorical art, may enter into a ludicrous combination. Such we have in the works of the great comic writers—in the plays of Aristophanes, Molière, and Shakespeare, and in the humor of Cervantes, Addison, Swift, and Sydney Smith.

LAUMONITE, *law'mo-nīt*, or LAUMONTITE, n. *law'mōn-tīt* [after M. de *Laumont*]: one of the zeolite family of minerals. It usually occurs in masses made up of white, vitreous to pearly, monoclinic prisms. It is a hydrous silicate of aluminum and calcium, $H_4CaAl_2Si_4O_{14} + 2H_2O$. Upon exposure the normally colorless and transparent crystals quickly lose part of their water of crystallization and become white, opaque, brittle and much below the normal hardness of 3.5 to 4. Laumonite is rarer than most of the zeolites with which it is associated in many localities. Especially fine specimens are found at Nagyag, Transylvania, in Nova Scotia, New Jersey, Lake Superior, etc.

LAUNAY, *lō-nā'*, EMMANUEL-LOUIS-HENRI DE. See ANTRAIGUES.

LAUNCE, *lāns* (*Ammodytes*): genus of fishes, of the

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eel tribe, with very elongated body, elongated head, large gill-openings, dorsal fin extending nearly the whole length of the back, anal fin also long, tail-fin distinct from them both, and forked. One species, SAND-EEL (name restricted by some writers to the larger and less abundant *A. Tobianus*), is about 12 inches long, the *Hornel* of the Firth or Forth. A smaller species (*A. lancea*), five or six inches long, is much used as bait by fishermen. Both are very delicate and palatable. They are of beautiful silvery color. The under jaw projects beyond the upper, and is used in burrowing in the sand, to which these fishes retreat when the tide retires. They are obtained by digging in the sand, or by a kind of rake, or by nets drawn along the sand covered by the sea.

LAUNCESTON: second town of Tasmania, or Van Diemen's Land; chief port of entry and mart of trade for the north of the island; incorporated 1858. It stands at the junction of the Esk with the Tamar, which, after a course of 32 m., enters Bass's Strait (q.v.) at Port Dalrymple. It is accessible to ships of considerable burden, and has thriving commerce with the colonies of Victoria and S. Australia. Among the principal buildings are the town-hall; the Albert Hall; the mechanics' institute, with library; a Church of England grammar-school; Wesleyan Ladies' College; a convent school, and other educational institutions; a new post-office; a custom-house; a museum and art gallery; the Academy of Music; military barracks; jail and court-house; hospital, etc. The imports consist of manufactured goods, tea, sugar, etc. Chief articles of export are wool, oats, wheat, flour, timber, potatoes, horses, fruits. In the surrounding district of the same name rises Benlomond, to the height of 4,500 ft. Pop. about 20,000.

LAUNCH, v. *lânsh* [F. *lancer*; It. *lanciare*, violently to throw, to hurl—from L. *lancĕă*, a lance]: to dart or let fly; to commence, as an enterprise; to move or cause to move into the water, as a ship; to go or fly off; to go or send forth; to plunge; to expatiate in language: N. largest boat carried by a man-of-war (see below): the act of launching or putting a new-built ship off the stocks into the sea. LAUNCH'ING, imp. LAUNCHED, pp. *lânsh't*. See LAUNCH below.

LAUNCH: largest boat belonging to a ship. The launch has nearly superseded the long-boat, formerly the principal of a ship's boats. In modern ships of war, the launch is usually a small steamer, fully equipped, with capabilities for stowing several days' provisions. The launch of a man-of-war is frequently armed with a small piece of artillery in the bow; and when the ship is employed in narrow seas or rivers, it is not unusual for the launch to be dispatched on expeditions far from the ship, and to points which the ship is unable to reach.

LAUNCH: process of removing a newly built vessel

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from the land to the water. The keel of a ship is laid upon a series of wooden blocks, six or seven ft. apart, and built up three or four ft. from the ground, the tops of which lie in a line which slopes downward to the water at an angle of about five-eighths of an inch to the foot. The whole ship, therefore, when finished, slopes downward with this inclination, and rests upon the blocks just mentioned, and upon suitable timber shores under it and at its sides. When the vessel is ready for launching, 'ways' of planking are laid down parallel to the keel, and at some little distance on each side of it, under the bilges of the ship; they extend into the water a considerable distance below high-water mark. A 'cradle' is then built under the ship, of which the bottom is formed of smooth timbers resting upon the ways. Before launching, the under sides of these timbers and the upper sides of the ways are well greased, and the weight of the ship is transferred from the keel-blocks to the cradle and ways. Timbers, called 'dog-shores,' are placed so as to resist the tendency of the ship to slide down until the right moment. When this arrives, at high-water, the ceremony of naming the ship takes place; the dog-shores are knocked away, and the vessel glides stern foremost into the water. As soon as the water removes the weight of the vessel from the cradle, the latter breaks up into pieces.

The *Great Eastern*, because of her immense length, was built with her keel parallel to the water; but owing to excessive friction, it took three months' exertion, even with the aid of powerful hydraulic rams, to push the immense mass of 12,000 tons into the river.

LAUND, n. *lawnd*: OE. for LAWN, a small grass park; a grassy open space in a forest.

LAUNDER, n. *lân'dér*: [OE. *lavandre*, a launder—from L. *lavārē*, to wash]: a long hollow trough used by miners in washing powdered or broken ore: V. to wash, as ore; in OE., to wash; to wet. LAUN'DERING, imp. LAUN'DERED, pp. *-dérđ*.

LAUNDRESS, n. fem. *lân'drēs* [OE. *lavanderess*, a laundress: OF. *lavandière*, a washerwoman—from mid. L. *lavandē'rīā*, a washerwoman: It. *lavanda*, suds—from L. *lavārē*, to wash]: a woman whose employment is to wash and get up linen. LAUN'DRY, n. *-drī*, a room where clothes are washed and done up. LAUN'DRY-MAID, a woman who attends to the laundry.

LAURA, n. *law'ra* [Gr. *laura*, a lane, an alley, cloister; hence, a hermitage, a monastery]: in *chh. hist.*, an aggregation of separate cells built in desert places, or hewn in rocky places, tenanted by monks under the control of a superior. Usually but one monk occupies a cell.

LAU'RA. See PETRARCHA, FRANCESCO.

LAURACEÆ, *law-rā'sē-ē*: natural order of exogenous plants, consisting of trees or shrubs which have leaves

LAUREATE.

without stipules, and flowers in panicles or umbels. The perianth is 4—6-cleft; the stamens opposite to its segments, and twice as many. The fruit is a one-seeded berry or drupe; the fruit-stalk often enlarging and becoming fleshy.—This order contains about 450 known species, mostly tropical. An aromatic and fragrant character pervades the order, and among its products are cinnamon, cassia, and other aromatic barks, also a number of aromatic fruits somewhat resembling nutmeg (see NUTMEG). The timber of some species, as green-heart, is valuable; some are valuable for their medicinal barks, as green-heart (bebeeri) and sassafras; some for their secretions, of which camphor is the most important. *Oreodaphne opifera*, a S. American tree, yields a camphoraceous volatile oil in great quantity, if mere incisions are made in its bark. The fruit of some species is agreeable, as the Avocado Pear (q.v.).—A few very remarkable species, forming the genus *Casytha*, have been united with this order by many botanists, though others separate them as a distinct order. They are climbing parasites, like dodders, and inhabit the woods of the hottest parts of the globe.

LAUREATE, a. *law'rē-āt* [*F. lauréat*, a poet-laureate—from *L. laurēātus*, decked with laurel—from *laurus*, a laurel: *It. laureato*]: decked or invested with laurel. POET-LAUREATE (see LAUREATE, POET). LAUREATESHIP, n. office of a laureate. LAUREATION, n. *law'rē-ā'shūn*, act of conferring academical degrees.

LAUREATE, POET: officer in the household of the sovereigns of Great Britain. The appellation seems to have originated in a custom of the English universities of presenting a laurel wreath to graduates in rhetoric and versification; the new graduate being then styled *Poeta Laureatus*. The king's laureate was then simply a graduated rhetorician in the service of the king. R. Whittington, 1512, seems to have been the last man who received a rhetorical degree at Oxford. The earliest mention of a poet-laureate in England occurs in the reign of Edward IV., when John Key received the appointment. In 1630, the first patent of the office seems to have been granted. The salary was fixed at £100 per annum, with a tierce of canary; which latter emolument was, under Southey's tenancy of the office, commuted into an annual payment of £27. It used to be the duty of the laureate to write an ode on the birthday of the sovereign, and sometimes on the occasion of a national victory; but this custom was happily abolished toward the end of the reign of George III. The following poets have held the office of laureate since 1670: John Dryden, Nahum Tate, Nicholas Rowe, Laurence Eusden, Colley Cibber, William Whitehead, Thomas Wharton, Henry James Pye, Robert Southey, William Wordsworth, Lord Tennyson, and (since 1895) Alfred Austin.

LAUREL.

LAUREL, *lă'rĕl*: town in Jones co., Miss., on the Gulf & S. I., and the New Orleans & N. W. railroads. In 1890, this was a village of 100 people. It now (1910) has 8,465 population.

the sawmills of Eastman, Gardiner & Company, and of the Kingston Lumber Company. These sawmills have timber sufficient to last them at least 25 years. Laurel has the following important industries in addition to its sawmills: Laurel Cotton Mill, having 10,000 spindles and 640 looms, and employing 400 hands; Laurel Oil & Fertilizer Company—using 40 tons of cotton-seed daily; Lindsey Wagon Company; Brick & Tile Company, having a capacity of 30,000 bricks per day, and Mississippi Knitting Mills, with a capacity of 125 pairs of hose per day. It also has many smaller factories, as a machine shop, foundry, cotton compress, ice factory and electric light and power plant. The town has two national banks.

LAUREL, n. *law'rĕl* [F. *laurier*, a laurel, a bay tree—from *L. laurus*, a laurel], (*Laurus*): a genus of *Lauraceæ* (q.v.), which, as now restricted, contains only a single known species, the NOBLE LAUREL, VICTOR'S LAUREL, or SWEET BAY (*L. nobilis*), native of Asia Minor, but now diffused over all the countries around the Mediterranean Sea. It is often a mere bush of 15 ft. or less, but sometimes becomes a tree of 30 or even 60 ft. high. It has rather large, lanceolate, leathery, shining leaves, reticulated with veins, and axillary clusters of yellowish-white flowers. The fruit is oval, bluish-black, and about half an inch long. Both the leaves and the fruit are bitter, astringent, and agreeably aromatic, and were formerly much used in medicine as a stomachic and stimulant, but are now almost out of use. The leaves, however, are still sometimes used in cookery for flavoring: they contain a volatile oil (*oil of sweet bay*), and a bitter, gummy extractive.

By the ancient Greeks, the laurel was called *daphne*; it was sacred to Apollo. Berry-bearing twigs of it were wound round the forehead of victorious heroes and poets; and in later times, the degree of Doctor was conferred with this ceremony—whence the term *laureation*; and, according to some, the term *Bachelor* (q.v.). And to this day, a laurel crown is the emblem of the honor to which poets, artists, and warriors aspire.

The SMALL or LAUREL MAGNOLIA, Cape Ann and s., is called SWEET BAY: it shares the name laurel with other shrubs botanically very different, but somewhat similar in their evergreen foliage. LAU'RELLED, a. *-rĕld*, crowned with laurel. LAUREL-WATER, a liquid distilled from the leaves of the cherry-laurel which contains hydrocyanic or prussic acid—consequently poisonous; seldom prescribed medicinally, but given sometimes as a sedative narcotic in very small doses, for neuralgic pains, spasmodic cough, and palpitation of the heart; i.e., when hydrocyanic is applicable. Death has resulted

LAUREL RIDGE—LAURENS.

from its incautious use as a flavoring ingredient in creams and puddings. LAURIF'EROUS, a. -rif'er-ūs [L. *fero*, I carry]: producing or bearing laurel. LAU'RINE, n. -rīn, a bitter principle found in the laurel.

LAUREL RIDGE: southern portion of Chestnut Ridge, in s.w. Penn., extending from Youghiogheny river s.w. to the Cheat river in the s.w. part of Fayette co. Here it reaches the height of 2,000 ft. above sea-level. Thence it extends through Monongahela, Taylor, and Marion cos. in W. Virginia. It is covered with evergreens, sugar maple, wild cherry, oak, poplar, and the other usual forest trees, and contains apparently inexhaustible beds of bituminous coal.

LAURENS, *law'rens*, HENRY: 1724—1792, Dec. 8; b. Charleston, S. C.; of French Huguenot stock: statesman. He received a commercial education at home and in London, and became wealthy in mercantile business. He was active in opposing every form of British aggression, and was drawn into frequent contests with the crown judges because of their unjust decisions in admiralty proceedings. In 1771, he went to England, and while there attempted to avert the war with the American colonies, and joined other Americans in the petition to parliament against adopting the Boston Port Bill. He returned home 1774; was delegate to the provincial congress and pres. of the colonial council of safety 1775; elected delegate to the continental congress 1776; pres. of that body 1777, Nov. 1—1778, Dec. 10; appointed minister to Holland to negotiate a proposed treaty 1779; was captured at sea by a British war vessel, taken to London, and imprisoned for 15 months in the Tower on a charge of high treason; was released and exchanged for Lord Cornwallis 1781; and shortly afterward was commissioned by congress to negotiate peace with England, with Benjamin Franklin and John Jay as his colleagues. During his confinement in the London Tower, he twice refused pardon conditioned on his serving the British ministry, and was vainly urged to advise the withdrawal of his son John from the commission to negotiate a loan in France for the colonies. He signed the preliminaries of the treaty 1782, Nov. 30, and was enthusiastically welcomed on his return home. Various public offices were tendered him, but he declined on account of debility resulting from his imprisonment, and passed the remainder of his life on a farm. In accordance with his will, his body was cremated.

LAURENS, JEAN PAUL: French artist: b. Fourquevaux, department of Haute-Garonne, in 1838. He studied in the Ecole des Beaux-Arts at Toulouse, and became a pupil of Cogniet and Bida in Paris. His work is distinguished for boldness and vigor, and the tragic elements of his subjects are heightened by the dramatic realism of the artist. In point of moderation in treat-

LAURENS—LAURENT.

ment, and of taste in coloring, his compositions have received some adverse criticism, but his powerful effects are not called in question. In 1891, he was elected a member of the Académie des Beaux-Arts and president of the Société des Artistes Français. Among his pieces are: *Death of Tiberius* (1864); *A Voice in the Desert* (1868); *Execution of the Duc d'Enghien* (1872); *The Pool of Bethesda* (1873); *The Interdict* (1875); *The Austrian General Staff around the Deathbed of General Marceau* (1877); and *Napoleon and Pius VII. at Fontainebleau* (1894).

LAURENS, JOHN: soldier: about 1756—1782, Aug. 27; b. S. C.; son of Henry Laurens. He was educated in England, returned home at the beginning of the revolutionary war; joined the army; became aide and sec. to Washington; and served with the commander-in-chief from the battle of Brandywine 1777, Sep. 11, till the capitulation at Yorktown 1781, Oct. 19. He showed such valor on the field—'intrepidity bordering upon rashness,' as Washington expressed it—that he won the sobriquet of the Bayard of the American revolution. He shot Gen. Charles Lee in a duel for disrespect to Washington at Monmouth, and was several times wounded in action. After the fall of Charleston he was sent to France by Washington to procure money and military supplies; became exasperated at the delay of the French ministry and the equivocal dealings of some of its members, and made his demand in person of the king; and securing a pledge of assistance, hastened home, received the thanks of congress, and rejoined the army. He captured a redoubt at Yorktown, and after the surrender joined Gen. Greene in his campaign in the south. He was killed while leading a brigade against the British on the Combahee river.

LAURENS, lō-rōn, JOSEPH AUGUSTIN JULES: French painter: b. Carpentras 1825. After studying painting under Delaroche, he traveled in Persia, Turkey, and Asia Minor. As a landscape painter he obtained wide recognition and was also highly successful in his lithographic copies of Diaz, Bonheur, Corot, Tryon, etc. His pictures in color include: *Vue de la Grande Chartreuse* (1840); *Les Environs de Vaucluse* (1845); *Forêt de Fontainebleau*; *L'Hiver en Perse* (1867); and *Le Rocher de Vannes* (1897); which last is in the Luxembourg. He has published with original illustrations *Voyage en Turquie et en Perse* (1856).

LAURENT, AUGUSTE: French chemist: b. La Folie, Haute-Saône, 1807, Nov. 14; d. Paris, 1863, Apr. 15. In 1838, he became professor to the Academy of Sciences of Bordeaux, which post he held for eight years. In 1848, he was made assayer to the mint and chemical adviser of the minister of war. His researches were very numerous, embracing all departments of the science,



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LAURENTIAN—LAURENTUM.

organic and inorganic, and opening up new fields and new views. He was one of the champions of the unitary system against the dualistic held by most of the chemists of the time. He was opposed also to the electro-chemical theory, which his investigations into the derivatives of naphthaline did so much to shake, and maintained the doctrine of types—forms of constitution of bodies which admitted of parts being substituted by other elemental or compound substances without the type of the original body being altered. His views on general chemical theory appeared in a posthumous work entitled *Méthode de Chimie*, translated into English by Odling, and published by the Cavendish Society 1855.

LAURENTIAN, *law-rěn'shĭ-ăn*, MOUNTAINS: a range in British North America, extending for over 3,000 miles from Labrador to the Arctic Ocean, forming the watershed between Hudson Bay, the Saint Lawrence, and the Great Lakes, and dividing the same bay from the sources of the Mackenzie river. The average elevation of this range is about 1,500 feet, while some of the peaks attain a height of 4,000 feet. The rock formation belongs to the sedimentary deposits known as the Laurentian system.

LAURENTIAN SYSTEM: in *geol.*, the highly crystalline strata which belong especially northward of the valley of the *St. Lawrence*; series of highly metamorphosed rocks, older than the Cambrian, and apparently the fundamental series of the stratified rocks. They belong to the *archæan* age, the age of the first appearance of organic life. The archæan age is divided into two periods, of which the Laurentian is the lower, and the Huronian the upper—styled sometimes upper and lower Laurentian. The Laurentian consists of hornblende and micaceous gneiss, alternating with or passing into mica-schist, the whole being considered to have been originally sedimentary deposits, and to have been thus altered by long-continued metamorphic action. A few large, irregular beds of crystalline limestones, and bed-like masses of magnetic oxide of iron and other minerals are interstratified with the gneiss. True igneous rocks are frequently intruded among these strata, as veins and masses of granite, syenite, and greenstone. The beds are highly inclined and greatly contorted, so that no approximate estimate can be made of their thickness, though it is supposed to be very great. The Laurentian rocks are well exposed in n.w. Scotland, where they form nearly the whole of the Outer Hebrides. In no part of the system as seen in Scotland has any organic structure been detected; though some paleontologists have endeavored to prove the existence of fossil organisms in rocks of this order in Canada. See EOZOON.

LAUREN'TIUS, SAINT. See LAWRENCE, SAINT.

LAURENTUM, *law-rěn'tŭm*: maritime town in anc. Italy, cap. of Latium, about 16 m. from Ostia. It had

LAURESTINE—LAURIER.

beautiful groves of laurel, and was a favorite winter resort of the Roman nobility. The younger Pliny had a villa here, which he describes. Laurentum having been deserted and falling into ruin, was restored and united with Lavinium as a new city, Lauro-Lavinium.

LAURESTINE, n. *law'rēs-tīn*, or LAU'RUSTIN, n. *-rūs-tīn*, or LAURUSTI'NUS [L. *laurus*, the laurel; *tinus*, the laurestine], (*Viburnum Tinus*, see VIBURNUM): beautiful evergreen shrub, frequent in pleasure-grounds in Britain, native of s. Europe and n. Africa. It has dark, shining, leathery leaves, small whitish flowers in corymbs, and small blackish-blue berries. The flowers appear in winter or very early spring. The berries have drastic, purgative properties; they are very acid, and inflame the mouth violently, yet some kinds of birds eat them with avidity. The laurestine cannot endure much frost; and in Germany and the northern United States it is a green-house plant.

LAURIC ACID, or DODECOIC ACID: a fatty acid occurring (as glyceryl ether) in the berries of the bay-tree (*Laurus nobilis*), in pichurim beans, in cocoanut oil, and elsewhere. It may be prepared from the oils in which it occurs by saponification, followed by the fractional precipitation of the acids by means of barium acetate. Lauric acid has the formula $C_{12}H_{24}O_2$, and is insoluble in water, but very soluble in both alcohol and ether. From its solution in alcohol it crystallizes in the form of silky needles, melting at 110° F. With the metals it forms a series of salts called laurates, which, with the exception of barium laurate and the laurates of the alkali metals, are mostly insoluble in water. The glyceryl ether (also known as trilaurin, or laurostearin), has the formula $C_3H_5(C_{12}H_{23}O_2)_3$, melts at 113° F., and may be obtained from bay-berries by extraction with alcohol.

LAURIE, *low'rĭ*, SIMON SOMERVILLE, M.A., LL.D.: Scottish educator: b. Edinburgh, 1829, Nov. 13. He was educated at the University of Edinburgh; for five years was a teacher on the Continent; and returning to Scotland held important positions in connection with education. In 1876, he was appointed to the professorship of the institutes and history of education in the University of Edinburgh, subsequently becoming emeritus. In 1905-6, he was Gifford lecturer on Natural Theology in that university. He has published many works, among which are: *Philosophy of Ethics* (1866); *Language and Linguistic Method in the School* (1890, 3d ed. 1899); *Historical Survey of Pre-Christian Education* (1895, 2d ed. 1900); *The Training of Teachers and Methods of Instruction* (1901); *Studies in the History of Educational Opinion from the Renaissance* (1903); etc.

LAURIER, *lō'rĭ-ā*, SIR WILFRID, D.C.L., LL.D.: Canadian political leader: b. St. Lin, L'Assomption co., Quebec, 1841, Nov. 20. He studied at L'Assomption College and law at McGill University (Montreal); in 1865 and 1866,



SIR WILFRID LAURIER.

LAURIUM.

was a vice-president of the Institut Canadien (Montreal), which formed the nucleus of a movement toward intellectual liberalism on the part of the younger French and was strongly opposed by the clergy; and in 1866 opened a law office at Arthabaskaville. In 1871, he was elected to the Quebec legislature, where his first speech was considered as a national event by his countrymen, and in 1874 was chosen at the general election to the Ottawa house of commons for the Drummond and Arthabaska district. He was soon recognized as one of the most eloquent speakers of the Canadian parliament and became the first. His speeches on certain questions were considered by many as the best which had ever been delivered in the house. At the outset he was regarded as the leader of the liberals in Quebec province; and in 1877 was selected for the portfolio of inland revenue in the Mackenzie administration. In 1878, he retired upon the return to power of Sir John Macdonald and the conservatives. On June 7, 1887, he succeeded Blake as chief of the liberal opposition, though he himself advised the choice of an English-speaking Protestant; and in 1896 he became the first French-Canadian premier of the dominion. In that post he has observed a policy of discrimination in favor of British products and of protection against the United States for at least so long as Canadian products are denied American markets. He has rendered great service through his strong opposition to antagonisms of creed and race. Of all the representatives of the colonies in England on the occasions of the Queen's Jubilee and of the coronation of Edward VII., he was the most remarked by the refinement of his manners and of his eloquence, and was recognized in Paris as in London as one of the most eloquent speakers of our time either in French or in English. While a great admirer of England's political institutions, he is an ardent Canadian and a thorough believer in Canada's destiny. He opposed the imperialistic policy of Chamberlain and contributed more than any other man to prevent him from drawing the colonies into the 'vortex of warlike imperialism,' to use his expression. He has had to pass through all kinds of political and religious difficulties, and has given evidence of qualities and talent which would have made him distinguished as a speaker and a statesman in any country of the world.

Consult his *Speeches*, edited by Barthe (1890); Willison, *Sir Wilfrid Laurier and the Liberal Party* (1903); and Daniel, *Laurier and His Time*.

LAURIUM, *lâ'ri-ũm*: village in Houghton co., Mich., on the Copper R. and Mineral R. railroads. It adjoins Calumet, and is 7 miles from Lake Superior and 12 miles north by east from Houghton. It is situated in the Keweenaw Peninsula, in the northern part of the state, in one of the richest copper regions of the United States. There is considerable local trade. Copper mining is the chief occupation. Pop. (1910) 8,537.

LAURVIK—LAUZUN.

LAURVIK, *lowr'vĭk*, or LAURVIG, *lowr'vig*: seaport town of Norway, at the head of a small fiord, which branches off from Christiania Fiord. Laurvik has of late rapidly increased in population and prosperity. It carries on a considerable trade with foreign countries, and particularly with Britain. Very extensive iron-works—the Fritzo iron-works—are near the town. A cannon-foundry gives employment to many operatives. There are also snuff-manufactories and distilleries. The harbor is excellent, and suitable for the largest vessels. Pop. 10,700.

LAUSANNE, *lo-zân'* (Lat. *Lovsana*): city of Switzerland, cap. of the canton of Vaud, picturesquely situated on the s. slope of the Jura Mountains, close to the n. shore of the Lake of Geneva, on which the village of Ouchy forms its harbor. The two principal parts of the city are separated by a valley, across which a fine bridge has been recently thrown. Lausanne has a number of religious, educational, and scientific institutions. The cathedral, a beautiful Gothic building, begun in the 10th c., and completed in the 13th, is the greatest ornament of the city. Lausanne is much frequented by visitors from all parts of the world. Here Gibbon resided for many years, and the house in which he wrote the greater part of the *Decline and Fall* is still shown. John Kemble, the actor, is buried in a cemetery in the vicinity. Brewing, lithographing, and cotton and wool spinning are principal branches of trade. Pop. 47,450.

LAUT, AGNES C.: Canadian author: b. Manitoba, 1872, Feb. 11. She was educated at Manitoba College, but during the junior year withdrew on account of ill health, afterward spending considerable time in the West and Rocky Mountains. Adopting journalism as a profession, she gained rapid reputation by her novels based upon Canadian history. Her published works include: *Lords of the North* (1900); *Heralds of Empire* (1902); *The Story of the Trapper* (1902); *The Pathfinders of the West* (1904); *Vikings of the Pacific* (1905).

LAUZUN, *lō-zũng'*, ARMAND LOUIS DE GONTAULT, Duc DE: 1747, Apr. 15—1793, Dec. 31; b. Paris; soldier. He commanded an expedition which captured Senegal, Gambia, and other English settlements on the African coast 1779; joined Lafayette in America 1780; organized and commanded the celebrated troop of cavalry known as Lauzun's legion; took part in the siege of Yorktown and the attack on the British in New York 1781; and returned to France 1783. In 1788 he became Duc de Biron; was afterward a delegate to the States-General and secret agent of the Duc d'Orléans; was appointed commander-in-chief of the army of the Rhine 1792, July 9, and of the army on the coast of La Rochelle 1793, May 15; captured Saumur and defeated the Vendean army at Parthenay. He was condemned

LAVA—LA VALLIÈRE.

without a hearing as having been too lenient with the Vendéans, and put to death by order of the revolutionary tribunal on a charge of conspiracy against the republic. He was a brave soldier, but showed lack of principle.

LAVA, n. *lâ'vã* [It. *lava*, a running stream or gutter, lava—from L. *lavãrē*, to wash: F. *lave*]: melted rock-matter which flows from a volcano. The term is sometimes applied generally to Volcanic Rocks (q.v.), but is more strictly confined to those rocks which have been poured out as a stream of molten matter from a volcanic opening, either on dry land or in shallow water. The surface of the stream, which speedily cools and hardens, is generally quite porous and vesicular, from the escape of the confined gases; but as rock is always a bad conductor of heat, the interior often remains long in a liquid condition, permitting the continued flow of the stream sometimes to a very great distance, notwithstanding its indurated covering. The end of the stream is a slowly moving mass of loose porous blocks, rolling and tumbling over one another with a loud rattling noise, being pushed forward in fits and starts by the viscid lava, when it bursts the hardened crust and rushes on. The structure of the interior of a solid lava-stream shows a compact and homogeneous rock, assuming a more and more crystalline structure as the cooling has been the work of a longer period of time. Caverns are sometimes formed in lava-streams by the escape of the molten mass below, leaving the cooled crust standing like the roof of a tunnel.—The lava rock, or volcanic slag, is sometimes melted, and made into small ornamental or useful articles.

LAVAL, *lâ-vâl'*: ancient and picturesque town of France, cap. of the dept of Mayenne, on the river Mayenne, 42 m. e. of Rennes. Its chief building is an old château, now a prison, formerly the residence of the Dukes of La Tremouille. For 500 years this town has been noted for linen manufactures, which are exported from, as well as sold throughout, France. Cottons, calicoes, serge, soap, and leather also are manufactured, and there is trade in grain, wool, timber, and iron. In the vicinity of Laval the Vendéans under Larochejaquelein gained a brilliant victory over the republicans, who lost 12,000 men and 19 cannon. Pop. 30,350.

LA VALETTA. See VALETTA, LA.

LA VALLIÈRE, *lâ vâ-le-är'*, FRANÇOISE LOUISE DE LABAUME LEBLANC DE: celebrated mistress of Louis XIV. of France: 1644—1710, June 6; b. Tours; of an ancient and noble family. At an early age, she lost her father, and was brought to court by her mother, who had married a second time. She was not a great beauty, and had a slight lameness; but her amiability and winning manners, and, above all, the extraordinary sweet-

LAVAL-MONTMORENCY—LAVAL UNIVERSITY.

ness and tenderness expressed in her looks, rendered her very attractive. It is seldom that one can praise more than the face of a king's mistress, but this singular creature was characterized by an extreme, almost morbid delicacy and modesty. She really loved Louis, and bore him four children, of whom two died in infancy; but though she and they received wealth and titles of honor, she remained always extremely sensible of the disgrace of their birth. When Madame de Montespan became the royal favorite, she retired into a Carmelite nunnery in Paris, where she took the veil 1674. She spent more than 30 years in penances and religious austerities. She wrote *Réflexions sur la Miséricorde de Dieu* (Paris 1680), of which a copy, dated 1688, with corrections by Bossuet, was discovered in the Louvre 1852. Both have been edited by M. Romaine Cornut (Paris 1854). A collection of her letters was published 1767.

LAVAL-MONTMORENCY, *lâ-vâl'mōng-mo-rōng-sé'*, FRANCIS XAVIER DE: 1623, Apr. 30—1708, May 6; b. Laval, France: Rom. Cath. bp. of Canada. He was born of a noble family; resigned his right to the family title and estates in favor of a younger brother; studied theol. in Paris; and was ordained priest 1646. In 1651 he declined the bishopric of Cochin China; 1653 became archdeacon of Evroux; and 1658, bp. of *Petræa in partibus* and vicar-apostolic of New France (Quebec). He made a tour of his vicariate; built a church in Quebec on the site of Champlain's chapel 1664; founded a seminary for the education of priests, and a preparatory college; exerted himself to prohibit the sale of liquor by the French to the Indians; and became first Rom. Cath. bishop in Canada 1670. In 1678 he founded the Seminary of the Holy Family, to supersede the seminary and college previously founded, and endowed it with all his estate. His episcopacy was harassed by conflicts of authority with the French governors and disputes with the Recollets, and though invariably sustained by the French court, these troubles, combined with feeble health, led him to resign 1684 and retire to his seminary. Laval University in Quebec is named in his honor.

LAVAL UNIVERSITY: Montreal, Canada, was founded at Quebec, in 1852, by the seminary of that city, which gave it the name of its own founder, Mgr. François de Montmorency-Laval, first bishop of Quebec. The directors of this institution obtained then from Her Majesty Queen Victoria a charter which in confirming the rights and privileges they had enjoyed up to that time also conferred upon them university rights and privileges, for the instruction of youth in secondary and professional studies.

In 1876, following a request from Mgr. Bourget, bishop of Montreal, to secure a Catholic university in his episcopal city, the Sacred Congregation of the Propa-

LAVAL UNIVERSITY.

ganda enjoined Laval University to establish a branch at Montreal, to give therein the same instruction as at Quebec. This curriculum was inaugurated in 1878 in the faculties of theology and law, in 1879 in the faculty of medicine, and in 1887 in the faculty of arts. By virtue of the apostolic constitution *Jamdudum* of 1889, Feb. 2, the branch is today practically independent of the establishment at Quebec. It receives its degrees from that university council, but enjoys its own government and a complete local administration. It comprises four faculties, those of theology, law, medicine and of arts (sciences and letters), three aggregated schools, the Polytechnic, the School of Comparative Medicine and Veterinary Science of Montreal, and that of Dental Surgery. The French language is used in all sections except that of theology, where Latin prevails. The professors of the faculty of theology are appointed by the Grand Seminary of Montreal, directed by the priests of Saint Sulpice. The ordinary course is three years and three months. Some pupils prolong their stay six months to prepare themselves for doctorship. A greater number, after completing their course at Montreal, go to take their degrees in Rome, where the Seminary of Saint Sulpice of Montreal has opened a college for Canadian students.

The faculties of law and medicine are installed in an edifice on Saint Denis street, where they have large class rooms, sectional libraries, play rooms, a gymnasium, etc. The faculty of medicine has a lecture room, a dissecting room and four laboratories, for chemistry, histology, bacteriology, and medical electricity. The present faculty of medicine continues the School of Medicine and Surgery of Montreal, founded in 1845 and affiliated to the Victoria University of Coburg (Ontario), from which it received its degrees until the year 1890. At this period the school had its charter modified by the Quebec government, and allied itself to the Montreal section of the faculty of medicine of Laval University, with which today it forms one body. It receives its degrees from Laval University, but has maintained its charter and autonomy.

As the scientific and literary course which is usually followed by this faculty in the English universities is given, in this province, to Catholic youths by the colleges and seminary schools affiliated to Laval University, where the pupils obtain the degrees of bachelor of letters, of sciences or arts, a complete instruction of this kind is not imposed on the university. Two courses relevant to this faculty are actually given there, that of French literature, founded in 1898, by the late Abbe Colin, superior of the seminary of Saint Sulpice of Montreal. Up to that time this course had been given by a fellow of the Paris University. The second course has for its object ecclesiastical public law, and comprises 20 lessons.

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The other professors, ecclesiastic or lay, of the faculty of arts, give a regular course in the colleges affiliated to the university.

The Polytechnic School of Montreal, founded in 1874, and aggregated to Laval University in 1887, is largely supported by the government of the province of Quebec. It corresponds, by the nature of its curriculum, to the faculty of applied science in other universities. It prepares for the different branches of civil and industrial engineering.

The School of Comparative Medicine and Veterinary Science of Montreal exists since 1886. Aggregated to the university, it is under the control and submissive to the inspection of the minister of agriculture of the government of Quebec, from which it receives a grant. Its system requires a three years' course, and the final degree is that of doctor of veterinary medicine. The school has a very interesting pathological museum at the university. The School of Dental Surgery of Montreal is the continuation of the French section of the College of Dentistry of the Province of Quebec, founded in 1894. It was affiliated to Laval University in February, 1904, and obtained legal existence by an act of the legislature of Quebec, in the month of May of the same year. The course covers a period of four years, and the final degree is that of doctor of dental surgery. An ecclesiastical vice-rector, chosen by the bishops of the province of Montreal, is appointed by the University Council of Quebec. He represents, for discipline and general administration, the university, the corporation of administrators and the bureau of governors; an executive committee of five members, delegated by the bureau, assists him in the management of current affairs and in the execution of the decisions of the corporation and bureau.

The Archbishop of Montreal, by rank of vice-chancellor, controls the nomination and dismissal of the professors, and exercises a strict surveillance over doctrine and discipline. He is by right the president of the corporation of administrators, which owns the university and manages its finances. The suffragan bishops of the ecclesiastical province of Montreal, the delegates of all the affiliated colleges and seminaries of the same province, the delegates of faculties and former graduates, also sit in this corporation, which generally operates through a bureau of governors, composed of eminent personages in finance and the liberal professions.

LAVAL UNIVERSITY: Quebec, Canada. The first establishment of higher education in lower Canada was founded in 1852. The directors of the Seminary of Quebec, the pioneer institute in the educational field, secured from Her Majesty Queen Victoria a charter which conferred on the seminary the privileges of a university. As soon as the royal charter was received from London, which was towards the end of December, 1852, an au-

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thentic copy was forwarded to Rome, and on March 6, 1853, the holy father sent a brief which granted to the Archbishop of Quebec the right to confer theological degrees upon those who completed their ecclesiastical studies at the Quebec University.

In the royal charter, the Roman Catholic Archbishop of Quebec, by virtue of his office, is named the visitor of the university. The visitor was given the right to veto on all regulations and nominations, and on presentation of the council, he could appoint the professors of the faculty of theology. As to the office of rector, the highest in the university, it devolves, by right, by the terms of the charter, upon the superior of the Seminary of Quebec. This office is, therefore, essentially temporary, since the superior of the seminary, elected for three years and re-eligible after the first triennial, cannot occupy the post entrusted to him longer than six consecutive years, unless a special authorization be accorded by ecclesiastical authority.

The charter also provides for the establishment of a council which conjointly with the rector administers the affairs of the university. This council is composed of all the directors of the seminary and of the three oldest titular professors of each faculty. It has the power to make the statutes and regulations which it may judge suitable, with one condition, that these statutes and regulations contain nothing contrary to the laws of the United Kingdom or of Canada.

This council held its first session on Feb. 21, 1853, when it resolved that Laval University should include four faculties: those of theology, law, medicine, and arts. Each faculty is provided with a special council which discusses and submits to the university council all questions which may directly interest one or the other of these faculties.

The faculty of theology was not created at Quebec until 1866. The faculty of medicine, on the contrary, was organized and put in motion in the year 1853. The course in medicine was fixed at four years. It was not such an easy task to organize the faculty of law, and in the years 1854-5 the first steps towards this end were taken, six professors being secured. In 1855 the faculty of arts was outlined.

Laval University had by virtue of its charter the power to confer diplomas of bachelor, licentiate, or master, and of doctor in the faculties of law, medicine and arts. It could not confer degrees in theology. The papal brief accorded by Pius IX. granted this privilege to the Archbishop of Quebec. The university did not receive all the rights of a canonical university until the year 1876.

In 1870 the faculty of medicine of Laval had the favor and honor of being affiliated to the Royal College of Surgeons of London. This granted the university and

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the students of the faculty of medicine the following privileges: (1) The enrollment examination of Laval University is recognized as equivalent to the preliminary examination of the Royal College of Surgeons of London; (2) the certificates of assiduity gained by enrolled students of the medical course are recognized by the Royal College; (3) doctors in medicine of Laval University are admitted to the examination for diploma as member of the Royal College of Surgeons of London.

In 1865 the rector asked and obtained from Rome an indulgence which gave the Archbishop of Quebec the power to confer degrees in theology upon all students of the grand seminaries of the Canadian province. In 1866 Laval University organized its faculty of theology.

The library of the Quebec Seminary included at the time of the foundation of the university over 15,000 volumes; 1,000 volumes for the faculty of law, and 2,000 volumes for the faculty of medicine, were then added. In 1876 this library contained about 55,000 volumes. At the present time it contains over 140,000. The seminary cabinet of physics is one of the most complete in America.

In 1897-8 a bacteriological laboratory was installed, and in the following year a laboratory in experimental chemistry for analytical work was placed at the disposal of the students. The university has a number of splendid museums, as follows: (1) Invertebrate museum, comprised of several distinct collections. The entomological collection numbers over 14,000 specimens of insects from all parts of the world. The conchyliological collection contains nearly 1,000 species of Canadian and foreign mollusks. (2) Museum of ethnology, in three divisions: (a) the Indian collection; (b) the Chinese and Japanese collection; (c) the general collection. (3) Religious museum, containing religious souvenirs, etc., and particularly the lead tomb with remains of the wooden coffin in which reposed for nearly two centuries the remains of Francis de Laval, first Catholic bishop of Canada and founder of Quebec Seminary. (4) Museum of paintings, containing many old and valuable paintings by the old masters. (5) Mineralogical and geological museum, containing over 5,000 specimens. (6) Botanical museum. (7) Zoological museum. (8) Numismatic museum, containing over 3,000 coins and medals.

The faculty of theology numbers over 120 students. There are about 85 students enrolled in the course of the faculty of law and 97 students in that of medicine.

LAVATER, Ger. *lâ-vâ'tër*, F. *lâ-vâ-târ'*, JOHANN KASPAR: 1741, Nov. 15—1801, Jan. 2; b. Zürich; son of a physician. As a boy, he was not distinguished for talent; but 1762, while yet a youth, he gave signal proof of energy and courage in coming forward, with Henry Fuseli, to accuse the *landvoigt* Grebel of oppression and injustice, under which others had groaned without dar-

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ing to complain. He early gained high reputation by a volume of poems, *Schweizerlieder* (Bern. 1767). His next publication was *Aussichten in die Ewigkeit* (3 vols., Zür. 1768-73), of which several editions were soon called for. The tone of this work is that of high religious enthusiasm, mingled with asceticism, and the resemblance to Keble has often been noted. He filled in succession several ecclesiastical offices in his native city, and finally, in 1786, became minister of the Church of St. Peter there. His powers of observation were very keen, and his discrimination of character most delicate, and believing that he could discover much of men's characters from their countenances, he concluded that physiognomy might come to be reckoned among the sciences. He labored, therefore, to form a system of physiognomy, hoping thus to promote greatly the welfare of mankind, and at last he published the work to which he owes celebrity, *Physiognomische Fragmente zur Beförderung der Menschenkenntniss und Menschenliebe* (4 vols., Leip. and Winterth. 1775-78). This work, often reprinted and translated, is written in an inflated style. It gave rise to much discussion, and occasioned not a little display of wit and humor. Lavater himself appears latterly to have been convinced that his system was fanciful. But he was of highly imaginative temperament, and the religious orthodoxy which he firmly retained was incongruously combined with novel speculations and with superstitious notions. He was the chosen spiritual adviser of many persons both in Switzerland and Germany, with whom he maintained an unwearied correspondence. On his tours in Germany he received extraordinary marks of popular esteem and honor. When the French Revolution began, Lavater hailed it with joy; but after the murder of the king, he regarded it with religious abhorrence. In performing kind offices to some wounded persons on the street at the capture of Zürich by Massena, 1799, Sep. 26, he received a wound, of the effects of which he died.

LAVE, v. *lāv* [F. *laver*, to wash—from L. *lavārē*, to wash; It. *lavare*]: to wash; to bathe. LA'VING, imp. LAVED, pp. *lāvd*. LAVER, n. *lāv'vēr*, a vessel for washing. LAVEMENT, n. *lāv'měnt*, a washing. LAVATORY, n. *lāv'ā-tēr-ī* [L. *lavatōriūm*]: place for washing. BRAZEN LAVER, in *Scrip. hist.*, a water-basin in the court of the Jewish temple, at which the priests washed their hands and feet.

LAVE, v. *lāv* [F. *lever*, to raise—from L. *levārē*, to raise, to free from anything]: to throw up or out; to lade out.

LAVEDAN, *lā-vé-dân*, HENRI: French journalist, critic, novelist, and playwright: b. Orleans 1860. He contributed under the pseudonym of 'Manchecourt' a series of brilliant articles to *Vie Parisienne*, *Gil Blas*, etc., and in fiction has published: *Mam'zelle Virtue*

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(1885); *Queen Janvier* (1886); *Lydie* (1887); *Inconsolable* (1888); *High Life* (1891); *A New Game* (1892). Among his plays the most notable are: *A Family* (1890), awarded a prize of 4,000 francs by the French Academy; and *Prince d'Aurec* (acted in 1892).

LAVELEYE, *lāv-lā*, EMILE LOUIS VICTOR DE, *ā-mēl*: Belgian political economist: b. Bruges 1822, April 5; d. Doyon, near Liège, 1892, Jan. 3. He was educated at the Collège Stanislas, Paris, and at the University of Ghent, where he studied law, and in 1864 became professor of political economy in the University of Liège. Among his numerous writings are: *History of the Provençal Language and Literature* (1846); *The Question of Gold* (1860); *Property and Its Primitive Forms* (1874), his best-known work; *The Religious Conflict in Europe* (1875); *Contemporary Socialism* (1881); *Elements of Political Economy* (1882); *Money and International Bimetallism* (1891); *Government in Democracies* (1891).

LAVENDER, n. *lāv'ēn-dēr* [F. *Lavandae*, lavender—from It. *lavendola*, lavender; *lavanda*, a washing—from L. *lavārē*, to wash or bathe—so called from being formerly used in bathing and washing], (*Lavandula*): genus of plants of nat. ord. *Labiatae*, having the stamens and style included within the tube of the corolla, the corolla two-lipped, the upper lip bifid, the lower trifid.—The COMMON LAVENDER, or NARROW-LEAVED LAVENDER (*L. vera* or *L. angustifolia*), grows wild on stony mountains and hills in s. Europe, and in more northern regions is generally cultivated in gardens. It has a delightful aromatic fragrance, and an aromatic bitter taste, and contains a great quantity of a volatile oil, *oil of lavender*. The whole plant possesses stimulant properties, and is used in medicine, but particularly the spikes of the flowers, as a tonic, stomachic, nervous stimulant, etc. Lavender flowers are often put into wardrobes to keep away moths. They are much used in perfumery. *Oil of lavender* is procured by distillation of lavender flowers with water: 70 lbs. of flowers are requisite to yield 1 lb. of oil. It is rather lighter than water, pale yellow, very fluid, and very fragrant. *Spirit of lavender* is made by distilling lavender flowers with rectified spirit; *lavender water*, one of the most popular of all perfumes, by dissolving oil of lavender with smaller quantities of other volatile oils in rectified spirit. Lavender is extensively cultivated for its flowers.—BROAD-LEAVED LAVENDER (*L. latifolia* or *L. spica*) is a native of s. Europe, but is more tender than common lavender. It is also less fragrant, and the oil which it yields is called *Oil of Spike*, and sometimes *Foreign Oil of Lavender*. This oil is used by painters on porcelain, and in the preparation of varnishes.

Lavender grows well in the vicinity of Philadelphia,

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where a considerable quantity is raised for market. In the neighborhood of New York it is found, not entirely hardy.—In the United States, *Sweet Basil* is sometimes called lavender.

LAVÉ, *lā'vēr*: name given to a number of kinds of sea-weed, used as food, especially *porphyra vulgaris* and *P. laciniata*, of sub-ord. *Confervaceæ*, and nearly allied to genus *Ulva*. These plants grow on rocks and stones in the sea, and are frequent on the British shores. They consist of a very thin, flat, purple frond, which is not gelatinous. The frond of *P. vulgaris* is wavy and undivided, that of *P. laciniata* (sometimes called SLOKE) is deeply cleft, and has the segments lobed and cut at the edges. Laver is stewed and brought to table as a luxury; also pickled and eaten with pepper, vinegar, and oil, or with lemon juice. It is regarded as useful in scrofulous affections and glandular tumors, a property which it probably owes to the iodine which it contains.—The name of GREEN LAVÉ is given to *Llva latissima*, the frond of which is green, membranous, broad, flat, wavy, and sometimes inflated. It is bitterish, but is often used in the same way as the true laver, and has similar properties.

LAVÉRAN, *lā-vè-rân*, CHARLES LOUIS ALPHONSE: French physician: b. Paris 1845. He was graduated at the School of Military Medicine of Strasburg in 1867. In 1873 he was made a member of the faculty of Val de Grace, and after traveling in Algeria, was appointed professor of military hygiene and clinical medicine in that institution. In 1894 he was appointed director of the Eleventh corps in the army medical service, and subsequently physician-in-chief of the Lille Hospital, and member of the French Academy of Medicine. He is the greatest living authority on malaria, of which disease he discovered the plasmodium. His most important published works are: *Traité des Fièvres palustres* (1884); *Traité de Hygiène militaire* (1896).

LAVÉRIÈRE, *lā-vâr-dê-âr'*, CLAUDE HONORÉ: Canadian author and teacher: b. province of Quebec 1826; d. 1873. He was educated for the priesthood, which he entered 1851, and was appointed professor in Quebec Seminary and assistant librarian in Laval University. His claim to recognition rests on the efforts he made to unearth and publish to the world the heroic achievements of early French-Canadian settlers and explorers. His works are of extreme value and interest, and include: *Jesuit Relations* (1858); *History of Canada*. He also edited *Voyages of Champlain*, with notes and a life of that explorer. A collection of French-Canadian songs and hymns was also made and published by him.

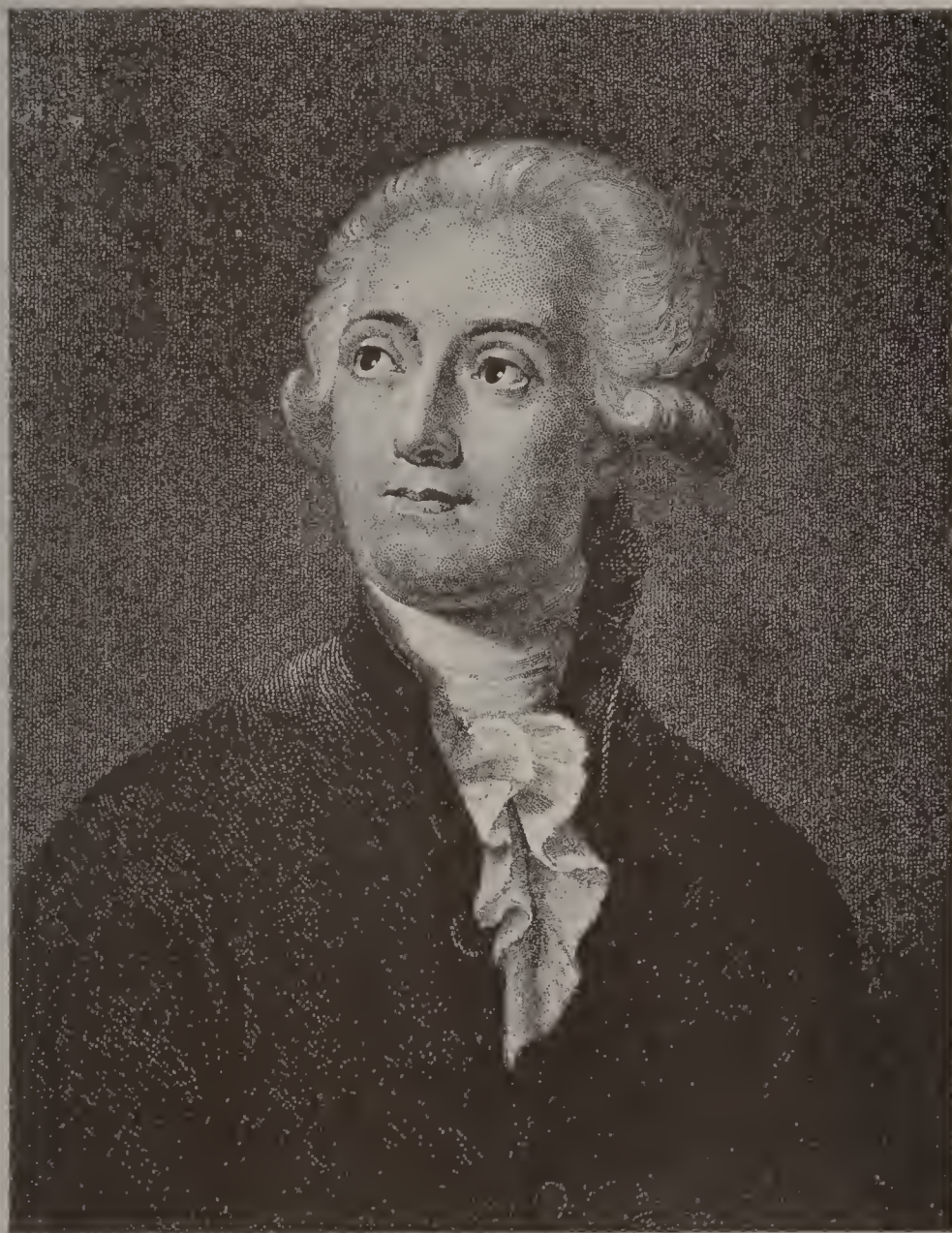
LAVÉROCK, n. *lā'vèr-îk*, or LAVROCK, n. *lāv'rok*, or LEV'EROCK: in *Scot.*, a lark.

LA VILLEMARQUE—LAVOISIER.

LA VILLEMARQUE, *lâ vël-mâr-kâ'*, THÉODORE-CLAUDE-HENRI HERSART, Vicomte DE: Breton antiquary and Celtic scholar: b. Quimperlé, Bretagne, 1815, July 6. His first important work was a collection of popular Breton songs and melodies, 1839, with French translation and notes, under the title *Barzaz-Breiz*. Three years afterward appeared *Popular Tales of Bretagne*, to which was prefixed a dissertation on the story of the Round Table. His next work was a collection of the poems of the Celtic bards, of the 6th c., with French translation, and explanatory and critical notes (1850). This made him widely known. La Villemarque has since published Celtic Legends (*La Légende Celtique*) of Ireland, Cambria, and Bretagne, which contain such of the original texts—Irish, Welsh, or Breton—as are rare or unpublished. Among his publications are a *Breton Grammar*, a *Breton and French Dictionary*, *Bretagne Ancient and Modern*, and *The Great Mystery of Jesus*, with a dissertation on the dramatic literature of the Celts.

LAVISH, a. *lāv'ish* [OF. *lavasse* or *lavace*, an inundation, shower: comp. OE. *lave*, to pour out]: profuse of anything; prodigal; wasteful: V. to expend or bestow with profusion; to waste; to squander. LAV'ISHING, imp. LAV'ISHED, pp. *-isht*. LAV'ISHER, n. *-ér*, one who. LAV'ISHLY, ad. *-lĭ*. LAV'ISHMENT, n. *-mĕnt*, profuse expenditure; prodigality. LAV'ISHNESS, n. *-nĕs*, profusion; prodigality. LAVISH PERSONS, see INTERDICTION.—SYN. of 'lavish, a.': profuse; extravagant; immoderate; exuberant; unrestrained.

LAVOISIER, *lâ-vvâ-ze-ā'*, ANTOINE LAURENT: 1743, Aug. 26—1794, May 6; b. Paris: founder of the antiphlogistic or modern chemistry. To obtain the means of more fully prosecuting chemical studies he accepted, 1769, the office of farmer-general. In 1768, he was made an Academician; 1776, discovered a way of greatly improving the quality of gunpowder; and made other beneficial discoveries in economics, and in the application of chemistry to agriculture. Availing himself of the discoveries of Black, Priestly, and Cavendish, and making many experiments and discoveries himself, he was led to connect the recently discovered gas, oxygen, with the phenomena of combustion and of acidity; and, 1783, he proved that water can be formed by burning oxygen and hydrogen together, and that it can be decomposed into the same elements. He and his associates invented a new chemical nomenclature, adapted to the advanced state of the science, which was very generally adopted: see CHEMISTRY: CHEMICAL NOMENCLATURE. Lavoisier's services to science could not save him during the Reign of Terror from the popular rage against farmers of the taxes, and he, with 27 others of the same profession, died by the guillotine, 1794. His principal work is his *Traité Élémentaire de Chimie*; but of course his chemi-



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cal works are now interesting merely as marking the history of the science.

LAVOLT, *lǎ-völt'*, or LAVOLTA, n. *lǎ-völt'tǎ* [It. *la*, the; *volta*, a turning, a whirling round]: in *OE.*, a dance; a kind of waltz in which there was much turning followed by a bound or spring.

LAW, n. *law* [Icel. *lag*, plu. *lög*, order, custom, law—from *leggia*, to lay; AS. *lagu*, what is laid or fixed, a law: Swed. *lag*; Dan. *lov*, law: comp. Gael. *lagh*, order, method—*lit.*, that which lies or is in due order]: that which is laid down or imposed by God or a government; a rule or command of the sovereign power in a state, published in writing, and addressed to and enforced upon the members of such state; a statute: see LAW (established rule): a rule of direction; a settled principle; a rule or axiom of science. LAWFUL, a. *law'fûl*, conformable to law; allowed by law; legal. LAWFULLY, ad. *-lî*. LAWFULNESS, n. *-nēs*, the quality of being conformable to law. LAW'GIVER, one who makes laws; a legislator. LAW'LESS, a. *-lēs*, not subject to law; unrestrained by law; contrary to law, as a lawless proceeding. LAW'LESSLY, ad. *-lî*. LAW'LESSNESS, n. *-nēs*, the state or quality of being lawless. LAW-SUIT, n. *law'sût* [*law*, and *suit*]: a process in law; a litigation. LAW'YER, n. *yēr* [*law*, and AS. *wer*, a man]: one skilled in law; a solicitor or attorney. In the United Kingdom, lawyer is not a technical term of law, but a popular name given to those who are either practitioners of the law or intimately connected with its administration. In Great Britain and Ireland, lawyers are subdivided into two classes: see ATTORNEYS AND SOLICITORS, BARRISTER: ADVOCATE. In the United States, an attorney acts as counsel, and *vice versâ*, there being no similar subdivision of the profession; and the expediency of the subdivision has often been canvassed in the United Kingdom of late years. LAW-BREAKER, one who violates the law. LAW-MAKER, one who enacts laws; a legislator. BY-LAWS, or BYE-LAWS, laws for regulating the affairs of a society or corporation in addition to the principal or the ordinary laws. CANON LAW, ecclesiastical law (see CANON LAW). CEREMONIAL LAW, the rites and ceremonies instituted by Moses. CIVIL LAW, the written laws which regulate the ordinary rights and duties of men: applied by eminence to the old 'Roman or Civil Law': see LAW (established rule). CLUB LAW, government by violence, or by the use of arms; anarchy. COMMERCIAL LAW, the rules or usages which regulate the intercourse between merchants and traders (see MERCANTILE LAW). COMMON LAW, the unwritten law of a country, or that established by old usage: see LAW (established rule). CRIMINAL LAW, the laws that regulate the nature and punishment of crimes against person or property (see CRIMINAL LAW). ECCLESIASTICAL LAW, laws or rules pre-

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scribed for the government of a church. INTERNATIONAL LAW, the laws which regulate the intercourse between nations (see INTERNATIONAL LAW). LYNCH LAW, see LYNCH. MARITIME LAW, the law of the sea; a branch of the *commercial law*. MARTIAL LAW, rules for the government of an army; summary laws superseding the ordinary law of a country in a disturbed or rebellious district, and administered by the military authorities. MORAL LAW, the laws which lay down to men their duties to God and to each other—applied particularly to the Ten Commandments (see LAW, in Theology). MO-SAIC or JEWISH LAW, that given by Moses, contained in the first five books of the Old Test. Scrip. MUNICIPAL LAW, the ordinary law of a country, regulating the civil conduct and affairs of its people; applicable especially in towns, cities, etc. (see MUNICIPAL LAW). NATIONAL LAW, the laws which govern a nation or state. PHYSICAL LAWS, or LAWS OF NATURE, the properties, actions, tendencies, etc., impressed by the Creator on animals, vegetables, and matter generally, in all their varied conditions and forms; established methods of the activity of force: hence, properly, nature is said to be governed not *by* laws but *through* laws. REVEALED LAWS the laws recorded in the Bible for the guidance and rule of all mankind. STATUTE LAW, a law or rule enacted by the legislative power, and recorded in writing. THE LAW, a body or system of rules of conduct or action; see LAW (established rule): the whole body of the Jewish laws and doctrines contained in the Old Test. Scrip., as opposed to the *Gospel*; the books of the Jewish laws and religion as opposed to the *prophets* (see LAW, in Theology). LAW LATIN, the corrupt Latin in law and in legal documents: see LATIN. LAW OF NATIONS, see INTERNATIONAL LAW.—SYN. of 'law': decree; edict; proclamation; regulation; justice; equity;—of 'lawful': legitimate; rightful; constitutional; allowable; regular.

LAW, n. *law* [AS. *hlaw* or *hlaw*, a heap, a small hill: Goth. *hlaiw*, a grave, a tomb]: in *Scot.*, any round-topped hill standing out boldly from those around it; also called a LOWE, especially in Derbyshire.

LAW [L. *lex*, from *lego*, to collect], is, in its general sense, a rule of action; in a more restricted signification, a rule of human conduct, or collectively a body of regulations adapted to a particular subject. The term may be variously defined, according to its application. The laws of nature, as expounded by men of science, are general propositions as to the order in which physical events have occurred, and will probably recur; the moral law, or the law of God, is a body of truth perpetuated into the form of rules for the guidance of human conduct. But when we speak of law we usually mean to indicate the law which is set and enforced by civilized states. Law, in this sense, derives its sanction, or bind-

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ing force, from the penalties by which men are constrained to obey it or punished for breaking it. In the civil code of Louisiana, law is defined as a 'solemn expression of the legislative will.' Law, regarded as a body of rules for the direction of the individual in his relations with society, is known under various subdivisions, as civil law, criminal law, common law, martial law, constitutional law, international law, merchant law, and canon law, in matters of ecclesiastical jurisdiction. The earliest source of law is custom; the customary rules of a primitive community formed the basis of a civil law at Rome, as they form the basis of the common law in England and the United States. Customary law is rigid and formal; in a progressive society it is relaxed and improved by the use of legal fictions, by the influence of equity, and by legislation. At Rome, for example, the growing commerce of the city compelled the prætor to go beyond the civil law (which was a law for Romans only), and to devise a new law of nations, based on principles of equity, such as all civilized men could understand. When the Romans began to study Greek they identified this law of nations with the law of nature, as expounded by the Stoics (q.v.). The civil law, amended and rationalized by successive prætors and emperors, has furnished most of the nations of modern Europe with the greater part of their legal rules and ideas; even England, while refusing to borrow directly from the *Corpus Juris Civilis* (body of the civil law), has derived no small part of her law from that source. Scotch law has largely drawn its principles and nomenclature from Roman law. It is usual to distinguish public law (constitutional and criminal) from private law (which applies to personal status, family relations, property, and contract). Constitutional law is of especial importance in the United States. Canon law is not received, as an entire system, by any modern state; but its rules are followed in defining the powers and functions of ecclesiastical persons. The law of nations, or international law, is also divided into public and private.

Sacred Law.—Prior to the codex or early codes containing laws for the people, there were sacred books and doctrines which contained moral and spiritual rules and regulations for human conduct. The four famous law books of India were *The Sacred Laws of the Aryas*, *The Institutes of Vishnu*, *Manu*, *the Moses of India*, and *The Minor Law Books*. In China was *The Book of Rites*, a work devoted to rules of ceremony and of behavior, together with the *Four Books of Confucius* (q.v.), of equal canonical authority. There was also the Egyptian *Book of the Dead*, and the Mohammedan *Koran* (q.v.).

Laws of Moses.—The great Jewish historian and law-giver, Moses, of the tribe of Levi, is considered the author of the first five books of the Old Testament—Genesis, Exodus, Leviticus, Numbers, and Deuteronomy—or,

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as they are collectively called, the *Pentateuch*, or the *Five Books*. The Decalogue given through Moses, and many of the broader provisions of the Mosaic laws, form the basis of all present moral and legal codes. His institutions breathe a spirit of freedom, purity, intelligence, justice, and humanity, unknown to contemporary nations, and above all, of supreme love, honor, and obedience to God. They molded the character of the Hebrews, and transformed them from a nation of shepherds into a people of fixed residence and agricultural habits. See MOSES.

Early Law-Makers.—Among the early books on law was Aristotle's lost work on *Constitutions*, there being 158 of these, one, *The Constitution of Athens*, being left to us in its entirety. Among creators of early constitutions was Solon (q.v.), the illustrious legislator of Athens and one of the seven sages of Greece. He framed a new code of laws and obtained from the citizens an oath that they would observe them for 10 years. Among the law-givers of the period were Gellius, Cicero, Cæsar, Pliny, and Marcus Aurelius (q.v.), whose rules of civil law laid the foundation for Justinian's work. This was called *The Pandects*, and was a digest of Roman law from the commentaries of the great jurists, made by 17 famous lawyers in 530—3 A.D.

Law in the Middle Ages.—In the 15th century, Irnerius, a famous jurist at Bologna, revised the study of Roman law, and in the 16th century appeared the *De Jure Belli et Pacis* of H. Grotius, the distinguished Dutch scholar. This work and others have had no small influence on the laws of the present day. In the 17th century Samuel Puffendorf, eminent German publicist, produced *The Elements of Jurisprudence* and *The Law of Nature and Nations*, which to an extent superseded the works of Grotius. Early in the 18th century Emmerick Vattel, the Swiss publicist, wrote his famous work, *The Law of Nations, or Principles of Natural Law Applied to the Conduct and Affairs of Nations and Sovereigns*. It was translated into various languages, and partly superseded the productions of Grotius and Puffendorf. Then followed Coke and Blackstone, the eminent English lawyers, with their invaluable *Commentaries*; Kent, Maine, Bryce, and others who are famous as law-makers and interpreters of the early codes.

The Ancient Codes.—In the days of the early Roman emperors began to appear the *Codex* or code; collections of laws and constitutions, the earliest being those of Gregorianus, or Gregorius, and Hermogenianus. The *Codex Theodosianus* was executed by a commission of eight persons, appointed by Theodosius the Younger, in 429. The work was published and promulgated as laws in 438, and was declared to be a substitute for all the constitutions made since the time of Constantine.

In 528 the emperor Justinian appointed a commission

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of 10 persons, one of whom was the celebrated Tribonian, to compile a code, incorporating the previous codes of Gregorianus, Hermogenianus, and Theodosius, and also the constitutions, rescripts, and edicts subsequently issued. The work was performed in 14 months, and it was then declared that the new code should supersede the older compilations. The code of Justinian is of great importance for church history and law, as many edicts of the Christian emperors concerned religious questions. The Gothic codes or laws of the barbarians were all collected in a single code, which bore the title of *Codex Legum Barbarorum*. Of these various systems, the first was that of Alaric, king of the Visigoths, augmented by the legislative labors of his successors. To this code was given the title of the Gothic law, *par excellence*, and it was the best and fullest of all the barbarian codes.

Charles VII. was the first of the kings of France who attempted, by a series of general *ordonnances*, to introduce something like uniformity into the legislation of France; and several of his successors, in particular Louis XI. and Henry III., entertained the idea of establishing a single code for the whole kingdom. A code having this object in view was subsequently prepared by Michel de Marillac, and published in 1629. It consisted of 471 articles, and is spoken of by French jurists in terms of the highest praise. In Spain in the 13th century Alphonso X., the most learned prince of his race, prepared the Spanish code called *Las Partidas*, and executed the Alphonsine Tables.

The Code Napoleon was adopted in France in the 19th century. There were five codes, namely, the *Code Civil*, published in 1804; the *Code de Procédure Civile*, published in 1806; the *Code de Commerce*, published in 1807; the *Code d'Instruction Criminelle*, published in 1808; and the *Code Pénal*, published in 1810; the first was called by way of eminence, by a law of 1807, Sept. 3, *Code Napoléon*. At the restoration its name was changed back to *Code Civil*, and during the time of the second empire it was again called *Code Napoléon*. The first book is entitled *Of Persons*, and in 11 titles treats, (1) of the enjoyment and privation of civil rights; (2) of civil acts, such as the registry of births, marriages, and deaths; (3) of domicile; (4) of absentees; (5) of marriages; (6) of divorce; (7) of the relations of father and son; (8) of adoption and official guardianship; (9) of the paternal power; (10) of minority, guardianship, and emancipation; (11) of majority, of guardianship of persons of age (interdiction), and judicial counsel. The second book is entitled *Of Property and the Different Modifications of Ownership*, and in four titles treats (1) of the distinction of property into real and personal (*immeubles et meubles*); (2) of ownership; (3) of usufruct, of use and habitation; (4) of

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servitudes (easements, *des servitudes ou services fonciers*). The third book is entitled *Of the Different Modes of Acquiring Property*, and in 20 titles treats, (1) of successions; (2) of donations *inter vivos* and testaments; (3) of contracts, or conventional obligations in general; (4) of engagements formed without a convention; (5) of the contract of marriage and the rights of the parties respectively; (6) of sale; (7) of exchange; (8) of the contract of letting to hire; (9) of partnership; (10) of loan; (11) of deposit and sequestration; (12) of contracts connected with chance (*aléatoires*), such as wagers and life-rents; (13) of powers of attorney; (14) of becoming security; (15) of transactions; (16) of bodily duress in civil cases; (17) of furnishing security; (18) of mortgages; (19) of taking and setting off by execution; (20) of prescriptions. Under the first empire the adoption of the 'Code Napoléon' was made obligatory on all the countries subject to the French. After the battle of Leipsic, in 1813, which freed Germany from the power of France, it ceased to be obligatory in the German states, but it continued to influence considerably their legislation. At present this code is recognized in the kingdom of Belgium (with some modifications), in the grand-duchy of Baden, in the kingdom of Italy, and elsewhere in Europe. In the United States it was a model for the code of Louisiana. See CODE.

Legal Acts.—An act in law may be defined, (1) Anything officially done by a court, as the phrases 'Acts of Court,' 'Acts of Sederunt,' etc. (2) In bankruptcy, an act the commission of which by a debtor renders him liable to be adjudged a bankrupt. (3) In civil law, a writing which states in a legal form that a thing has been said, done, or agreed. (4) In evidence, the act of one conspirator performed in pursuance of the common design may be given in evidence against his conspirators. (5) Acts done, distinguished into acts of God (q.v.), of the law, and of men. (6) Legislative acts, enacted by a congress, legislature, parliament, etc. A statute law, or edict, consisting of a bill which has been successfully carried through congress, parliament, or legislature, and received the approval of the executive or chief ruler. See ACT.

Jurisprudence is the general title covering the entire field of law, the science and study of law, and the knowledge of the laws, customs and rights of men in a state or community, necessary for the due administration of justice. The various classifications of jurisprudence (q.v.) alphabetically arranged are as follows:

Admiralty Law in England and the United States is a system of jurisprudence administered by admiralty courts, which have jurisdiction over all marine torts, contracts, injuries, or offenses. Its civil jurisdiction extends to cases of salvage, bonds of bottomry or hypo-

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theation of ship and cargo, seamen's wages, seizures under the laws of imposts, navigation, or trade, cases of prize or ransom, charter-parties, contracts of affreightment between different states or foreign posts, contracts for conveyance of passengers, contracts with materialmen, jettisons, maritime contributions, and averages, and generally to all assaults and batteries, damages, and trespasses taking place on the high seas. Its criminal jurisdiction extends to all crimes and offenses committed on the high seas or beyond the jurisdiction of any country. See ADMIRALTY COURTS and ADMIRALTY JURISDICTION.

By-Law is a law of a city, town, corporation or society. See BY-LAW.

Canon Law is the body of ecclesiastic Roman law. See CANON LAW.

Civil Law is the ancient Roman law, with the various modifications thereof which have been made in the different countries into which the law has been introduced. See CIVIL LAW.

Common Law is a rule of action which derives its authority from long usage or established custom, which has been immemorially received and recognized by judicial tribunals. As common law can be traced to no positive statutes, its rules or principles are to be found only in the records of courts and in the reports of judicial decisions. Common law is distinguished from the statute law and from equity. It is wholly overruled by the statute law. See COMMON LAW; COMMON LAW, COURTS OF.

Constitutional Law, a system of law established by the sovereign power of a state for its own guidance; the body of written public law. See GOVERNMENT; CONSTITUTION.

Consuetudinary Law is that law which derives its binding character, not from the expressed, but from the tacit, consent of the general will of the community. As it is generally transmitted orally from age to age, it is often spoken of as the unwritten law.

Criminal Law is that branch of municipal law which relates to crime. See CRIME; CRIMINAL LAW.

French Law is the name given Norman dialect, or Old French, which was used in judicial proceedings from the days of William the Conqueror to Edward III.

Law of Merchants is the system of law which the courts of England and the United States apply to mercantile contracts. It is a branch of the common law, inferior in importance to no other, and in many respects quite distinct from any other. The principal subjects embraced within it are the law of shipping, including that of marine insurance; the law of negotiable bills of exchange and promissory notes; and the law of sales; all of which topics are treated of in this work specifically. The merchant law has grown up gradually,

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and, during the larger part of its existence, slowly. It originated undoubtedly in the customs of merchants. That it stands out in English law more prominently and distinctly than in any other general system of municipal law, may be reasonably ascribed to the greater extent of the commerce of England for many ages. It occupies a similar place in our law, in part because we inherit the law of England, and in part because the same extent of commerce which produced this system of law in England preserves it in the United States. In the earliest records of English law, we have distinct intimations that England in all periods of its history from the reigns of its Saxon monarchs, had many ships and many merchants; that questions in relation to the interests and contracts of merchants came not infrequently before the courts; and that these questions were decided even then by a reference to the customs of merchants, which was sometimes only understood, but in other cases was distinctly expressed. In doing this the courts only obeyed a necessity, which was felt wherever commerce existed and was respected. It is not to be concealed, however, that the courts did this with some reluctance, and by steps which followed each other only at long distances. The reasons for this are obvious, and may be discerned the more easily because they have not yet ceased wholly to operate.

The common law was, at a very early period, a quite complicated but well arranged and exceedingly systematic body of law. To know this was the privilege of a few—to administer it gave wealth and dignity to a very few. The law was then a monopoly, and one of very great value, and it was guarded carefully by those who possessed it. Merchants did not wantonly disregard it; but they were compelled to find, or to invent, for the various exigencies of their commerce, rules and principles different from those which had grown out of the feudal system, and were intended mainly to govern titles to land and the relations of feudal rank, and were admirably adapted for this purpose. When these mercantile contracts came before the courts, the same necessity which had led merchants to find and introduce their new rules, acted upon the courts, and induced the courts, more or less willingly, to accept these rules as their rules also, and thus to make them law. But while some of these rules were only modifications of the existing rules of the common law, others of them were very distinct exceptions, and some were positive contradictions. It was perhaps wise in the courts to regard with jealousy rules of law made by no sovereign authority, and neither evidenced nor promulgated in any authentic way. Nor are we obliged to attribute to mere selfishness of any kind the reluctance of the courts of law to admit these usages to the full force of law, at all periods and even at the present day. But at all times the established

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rules which governed the business and the contracts of any set of men, must have been recognized as law; and even the Roman civil law acknowledged the binding force of mercantile usage as constituting law. In 1765, Lord Mansfield (q.v.) declared 'the law of merchants and the law of the land is the same,' and so the customs of merchants became the common law.

Law of Equity.—In England in the 18th century the law courts were divided into courts of law and courts of equity. In the law courts the parties were compelled to proceed strictly according to the law and the practice, and the forms of pleading were so intricate that many cases were decided on the pleadings without the merits of the case ever being heard; and often when the cause was heard it was impossible to administer justice on account of the form of action, the parties to the action, and the cause of action on which suit had been brought. In the courts of equity they were not restricted by the technical pleadings; amendments could more readily be granted; the parties to the action could be changed by either dropping some or adding others; and the decree could be framed to meet the particular question involved; so that justice would be done to all the parties interested. After the Revolution the United States adopted the English system; but while some of them have kept strictly to that system and have had distinct courts of law and equity, other States have law and equity administered by the same judges and courts, at one time sitting as courts of law and at another time as courts of equity. Equity is divided into three great classes or divisions: Equitable titles, equitable rights, and equitable remedies. Equitable titles are those which are recognized only by a court of equity, as where, when a person gave value for a chose in action which was assigned to him, the assignment was not recognized at law, as it would violate the rules against champerty and maintenance, but equity allows the assignee to bring suit in the name of the assignor. Equitable rights arise where a guardian enters into a transaction with his former ward a very short time after the ward has obtained his majority. If within a reasonable time the ward returns what he received from the guardian, the guardian will, in equity, be compelled to return the property to the ward. Equitable remedies arise in those cases in which the law recognizes a right but cannot enforce it, as where a contract is made for the sale of a piece of property, if the seller refuses to convey, the purchaser's remedy at law is for damages for breach of the contract; but in equity the court will decree specific performance. See EQUITY; EQUITY, COURTS OF.

Law of Honor.—See HONOR.

Law of Nations.—According to Wheaton this 'may be defined as consisting of those rules of conduct which reason deduces, as consonant to justice, from the nature

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of the society existing among independent nations, with such modifications and deviations as may be established by general consent.' International jurisprudence is a science of modern origin. In its present sense the law of nations was quite unknown to the two great states of Greece and Rome. In Greece the amphictyonic council bore in some sort the character of an international tribunal, but it concerned itself chiefly with the internal affairs of the members of the league; the few relations which Greece maintained with foreign nations were defined by special compacts, and the general principles of right were rarely invoked in their adjustment. The works of Cicero, Livy, and other writers of the best age of Rome, contain allusions which imply a recognized law of nations; yet it is certain that the Roman law, as it existed at the dismemberment of the Empire of the West, embodied no system of rules for governing the intercourse of states, or for deciding questions of right which might arise between them. During the Middle Ages, the pope was often the judge and arbitrator in the affairs of nations. His authority reached its height when Alexander VI. presumed to parcel out the New World to Spanish and Portuguese princes. It is now generally recognized that Hugo Grotius was the first to give a new form to the law of nations, or rather to create a science of which only rude sketches and undigested materials were scattered over the writings of those who had gone before him. Hallam says that the publication of the treatise by Grotius marks an epoch in the philosophical, and it may be said in the political history of Europe. It was very early translated into various European languages, and great jurists made it the subject of elaborate commentaries. In 1656 it was made the text of lectures on public law in the University of Wittenberg, and in 1661 a professorship was created in Heidelberg for expounding the law of nature and of nations from the writings of its author. The sources of international law are, according to Grotius, natural law, divine law, customs, and special compacts. In the celebrated reply made by the British government in 1753 to a Prussian state paper, the law of nations is said to be founded upon justice, equity, convenience, and the reason of the thing, confirmed by long usage. The principle of national justice, founded upon the laws of morality, is, then, the basis of the positive law of nations, that is to say, of the treaties, conventions, and usages which compose it. It is the office of right reason to apply this natural law of equity to the circumstances of each case; and it is the art of applying this law, according to justice and guided by reason, which renders international jurisprudence a particular science. Treaties and usages offer evidence of the general consent of nations, and are important sources of the law. The customary law of nations is further expressed in manifestos

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and declarations of war and in the decisions of prize courts. Finally, the concurrent testimony of the great writers upon the science, and the written opinions which official jurists give to their governments, are further evidence and depositories of the law of nations. See INTERNATIONAL LAW.

Law of Nature.—Laws and just rules of conduct which the Creator has prescribed to man, as a dependent and social being, and which are to be ascertained from the deductions of right reason.

Law of the Land is the due process of law; the general, public, or common law of the land.

Maritime Law is the law of the sea; a branch of the commercial law, relating to the affairs of the sea, such as seamen, ships, navigation, etc. See LAW, MARITIME.

Martial Law is the law of military rule or occupation. See MARTIAL LAW.

Military Law, a branch of the general municipal law, consisting of rules ordained for the government of the military force of a state government, equally in peace and war. See MILITARY LAW; COURT MARTIAL.

Moral Law, a law which prescribed to men their social duties. The moral law is summarily contained in the decalogue, written on two tablets of stone and delivered to Moses for the Israelites on Mount Sinai. (Ex. xx.) See MOSES.

Mosaic Law, the institutions of Moses, or the code of laws prescribed to the Jews, as distinguished from the Gospel.

Municipal Law, a rule prescribed by the supreme power of a state, declaring some right, enforcing some duty, or prohibiting some act; a statute; a collection of rules to which men living in civic society are subjected in such a manner that they may in case of need be constrained to observe them by the application of force. See GOVERNMENT; CITY GOVERNMENT; MUNICIPAL LAW.

Parliamentary Law is the name given the rules and precedents regulating the procedure of deliberative assemblies. Certain rules of parliamentary procedure have always been necessary for the accomplishment of the purposes for which deliberate assemblies are called. Experience has shown that restrictions must be placed on individual members in the general interest of the whole body; that mere customary rules are insufficient, and hence regular parliamentary codes must be prepared for the government of deliberative assemblies. In both England and the United States parliamentary law has become almost a distinct branch of the law, and its mastery is highly essential to the success of the legislator. The necessary officers of a deliberative assembly are a chairman, usually called speaker, president, or moderator, and a secretary or clerk. It is the duty of the presiding officer to call the meeting to order; to state clearly all questions brought before the assembly; to put motions

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properly made and in their proper order; to preserve order and enforce the rules of procedure; and decide questions of order subject to the right of appeal to the whole assembly. These are his primary duties, but he may in addition participate in debate, as any other member, and vote in case of a tie. It is the duty of the secretary to keep a record of the proceedings of the meeting, including a correct statement of every motion made and the manner in which it was disposed of; the names of members of all committees appointed; a true copy of every resolution passed with the affirmative and negative votes cast therefor, etc. (See PARLIAMENTARY LAW.) For rules governing debates, motions, appeals, etc., consult Cushing, *Manual of Parliamentary Practice*, and Roberts, *Rules of Order*.

The Courts and Law Practice.—For a general survey of judicial proceeding and the methods of courts, see the articles, COURT; JUDGE; JURY; JUSTICE. In the practice of law, especially during the 19th century, many new and distinct phases of legal classifications have arisen, such as Corporation Law, Pension Law, Law of Husband and Wife, Divorce Law, the Law of Negligence, the Law of Copyright, Election Laws, Insurance Law, Mining Law, Liquor Laws, Bankruptcy Laws, etc. These are generally treated under their respective titles.

Plaintiff and Defendant.—The parties to an action in law are called plaintiff and defendant, and the former is said to sue or prosecute the latter, hence the word suit instead of action. In some few instances the redress sought by a civil action consists in the recovery of some specific article of property wrongfully and unlawfully taken by the defendant from the plaintiff, but most frequently the object of an action is to obtain compensation in money for an injury complained of, which compensation is technically called damages. The action is said to terminate properly at judgment. Civil actions are those actions which have for their object the recovery of private rights, or of damages for their infraction. Criminal actions are those actions prosecuted in a court of justice, in the name of the government, against one or more persons accused of a crime. Transitory actions are those civil actions the cause of which might have arisen in one place or county as well as another. Local actions are those civil actions the cause of which could have arisen in some particular place or county only. Personal actions are those civil actions which are brought for the recovery of personal property, for the enforcement of some contract, or to recover damages for the commission of an injury to the person or property. Real actions are those brought for the recovery of lands, tenements, and hereditaments. Mixed actions are those which partake of the nature of both real and personal actions. See DEFENDANT; PLAINTIFF.

Law of Evidence.—Evidence in law may be oral or

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documentary. Oral evidence is the statements made by witnesses during a trial; and documentary evidence consists in the production of papers, on which is writing, marks, or characters capable of being read, which are submitted during the course of the trial. Oral evidence must in all cases be direct; if it is of something that was seen, by the person who saw it; if of something heard, by the person who heard it; if of an opinion, by the person who holds that opinion; or if the knowledge was acquired in any other manner, by the person who perceived it in that manner. The general rule is that hearsay evidence is not admissible. Documentary evidence may be either primary or secondary. Primary evidence of a document is where the document itself is produced for the inspection of the court. Either oral or documentary evidence may be given of any fact in issue or relevant to the issue. See EVIDENCE.

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See also MERCANTILE LAW; LYNCH LAW; LABOR LAWS; LAW IN THEOLOGY; LAND LAWS; INSURANCE, MARINE; PATENT; COPYRIGHT; CODE; STATUTE; JUDGMENT;

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JURISDICTION; ATTORNEYS AND SOLICITORS; BARRISTER; ADVOCATE; COURTS OF JUSTICE; SUPREME COURT; LEGISLATURE; COUNTY COURT; CHANCERY; FEUDAL SYSTEM; FOREIGN COURTS; CHILDREN'S COURTS; JUDGE; JUDICIARY; JUSTICE; JURY; INFORMATION; PROSECUTION; PROSECUTOR; BURDEN OF PROOF; HUSBAND AND WIFE; FAMILY; DIVORCE; MARRIAGE; CORPORATIONS; LIBEL; PERJURY; CONTEMPT; HABEAS CORPUS; SUBORNATION; OYER AND TERMINER; MANDAMUS; BANKRUPTCY; DEBTOR AND CREDITOR; LARCENY; THEFT; MURDER; PENOLOGY; CRIMINOLOGY; RENT; MORTGAGE; DEED; DOWER; WILL; CODICIL; FEE; PARTNERSHIP; etc.

LAW, in Theology: term variously used. In the Bible, it often includes the whole of revelation, doctrinal as well as preceptive; but it is often used, in a more restricted and somewhat conventional sense, to signify the books of Moses—the whole Jewish Scriptures being comprehended under the twofold designation 'the law and the prophets.' A very natural and common use of the term law is to denote the preceptive part of revelation, in contradistinction to the doctrinal, one being designated as *the law*, and the other as *the gospel*. When employed in Scripture with exclusive reference to the preceptive part of revelation, the term law signifies sometimes the Jewish code of precepts as to rites and ceremonies, called by theologians the CEREMONIAL LAW, and which is regarded as having been abrogated when the Jewish dispensation gave place to the Christian. The ceremonial law is also regarded as having in its rites and ceremonies—'a shadow of good things to come'—symbolized the great facts which form the system of Christianity.—The MORAL LAW is that preceptive revelation of the will of God which is of perpetual and universal obligation: it is commonly regarded by theologians as summed up in the *Ten Commandments*; and, according to Christ's own statement, as still more briefly and comprehensively summed up in the two commandments of loving God with all our heart, and soul, and strength, and mind, and loving our neighbors as ourselves. Although the Ten Commandments were given to the Jews at Mount Sinai, it is not therefore held that they were intended for the Jews alone, or were then first promulgated; the moral law being regarded as really the *law of nature*, written on the heart of man at his creation, though to man fallen into ungodliness, therefore into moral blindness, a clear and express revelation of it has become necessary. One of the contested points in connection with this subject is that of the Sabbath (q.v.). Another relates to the law of nature, and the value which ought to be practically assigned to the decisions of the judgment and conscience of man, apart from express revelation.—The obligation of the moral law on the consciences of Christians is admitted by all except Antinomians (q.v.).

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LAW, ADMIRALTY. See ADMIRALTY COURTS; ADMIRALTY JURISDICTION.

LAW, ARK OF THE: a cupboard or chest in or against the wall of the synagogue facing the worshipers, and placed a few feet above the ground floor, being reached by steps. It contains scrolls of the law and is called Aron-ha-Kodesh, or the holy ark, after the ark of the covenant in the Mosaic tabernacle and Temple of Solomon. The perpetual lamp is generally hung in front, and in modern synagogues, reader's platform and pulpit are placed near it. It corresponds to the third division of the Mosaic tabernacle, the holy of holies. It is also called *tebah*, the Hebrew for the ark of Noah, and is held in great reverence, being termed *Hechal*, or sanctuary.

In its earliest forms, the ark was portable, being little more than a closet, but in later ages and especially in recent centuries, it is an essential portion of synagogue architecture, being ornamented with columns, cornices and arches, built of stone or marble, and adorned with elaborate doors and embroidered curtain. In this way it conforms to the general style of architecture. It is usually surmounted by a representation of the two tablets of the law, while the curtain has richly embroidered designs and golden Hebrew lettering. In Italy and the East, the Ark curtains and interior hangings are very costly and elaborate. In American synagogues, in particular of late years, electric light illumination beautifies the ark's interior.

LAW, CANON. See CANON LAW.

LAW, CIVIL. See CIVIL LAW.

LAW, COMMON. See COMMON LAW.

LAW OF COPYRIGHTS. See COPYRIGHT.

LAW OF CORPORATIONS. See CORPORATION.

LAW, CRIMINAL. See CRIMINAL LAW.

LAW, CROWN OF THE: an ornament, with bells, bearing the words 'crown of the law' in Hebrew, and placed upon the upper ends of the handles of the scroll of the law. The mantle of the scroll and the curtain of the ark (q.v.) are adorned with a similar emblem, which denotes the sovereignty of the law. In early rabbinical times, the one who read the last chapter of the Pentateuch in the last day of the festival of Tabernacles, had a crown of silver or gold or one of myrtle placed upon his head, like the wreath on the head of a bride-groom—the man was called 'bride-groom of the law.' Doubtless from this sprang the custom of decorating the scroll of the law with a crown.

LAW OF DEBTOR AND CREDITOR. See DEBTOR AND CREDITOR.

LAW OF DIVORCE. See DIVORCE.

LAW OF FAMILY. See FAMILY.

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LAW, FEUDAL. See FEUDAL SYSTEM.

LAW, FOREIGN. See FOREIGN COURTS.

LAW OF HUSBAND AND WIFE. See HUSBAND AND WIFE.

LAW OF INSURANCE. See INSURANCE.

LAW, INTERNATIONAL. See INTERNATIONAL LAW.

LAW, JOHN: comptroller-general of the finances of France, and famous for his credit operations during the minority of Louis XV.: 1671, Apr. 21—1729, Mar. 21; b. Edinburgh; son of a goldsmith and banker, proprietor of the estate of Lauriston, near Edinburgh. Law early showed a remarkable talent for arithmetic, algebra, and kindred studies. After the death of his father, he removed to London, where he was admitted into the first circles of fashion, but was soon compelled to flee, in consequence of killing his adversary in a duel resulting from a love-intrigue. He went to Amsterdam, and spent his time in studying the credit operations of the bank. About 1700 he returned to Edinburgh, a zealous advocate of a paper currency; but his proposals to the Scottish parliament on this subject met an unfavorable reception. He now visited different parts of the continent, where he accumulated a fortune by gambling, but sought in vain to win the favor of governments to his banking schemes. At last, he settled in Paris, and in company with his brother William, set up, 1716, a private bank, which was soon successful and prosperous to such an extraordinary degree that the Duke of Orleans, the regent, adopted tentatively, 1718, Law's plan of a national bank, and issued prodigious quantities of bank-notes, which circulated with perfect credit, while the ordinary national bonds remained, as they had long been, at a price far below their nominal value. The finances of France were in a frightful condition, through the extravagance of Louis XIV., who had died not long before; and the perplexed regent, impressed by the success of Law's bank as a method of public financial relief, granted a governmental approbation and establishment of Law's great *Mississippi Scheme* (q.v.), 1719, and Law was soon made a councilor of state and comptroller-general of finances; but on the failure of his scheme, and the insolvency of the national bank, he resigned the latter office, and thought it prudent to quit France 1720, Dec. He went first to Brussels, but finally settled in Venice, where he managed to eke out a wretched living by gambling; and there he died. A complete ed. of his works was published, Paris, 1790; another 1843.

LAW OF LABOR. See LABOR LAWS.

LAW OF LANDS. See LAND LAWS; HOMESTEAD AND LAND LAWS.

LAW, LYNCH. See LYNCH LAW.

LAW, MARITIME. See MARITIME LAW.

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LAW, MARTIAL. See MARTIAL LAW.

LAW, MERCANTILE. See MERCANTILE LAW.

LAW, MILITARY. See MILITARY LAW; COURT-MARTIAL.

LAW, MUNICIPAL. See MUNICIPAL LAW; CITY GOVERNMENT.

LAW, NATURAL. See NATURAL LAW.

LAW OF PATENTS. See PATENTS.

LAW, READING FROM THE: the custom of reading sections from the Pentateuch on Sabbath and holy days dates from the beginning of the synagogue, and is ascribed by Josephus to Moses. It is distinctly stated in Deut. xxi:10, that the entire law should be read every seventh year to Israel on the Feast of Tabernacles. The origin of reading from the prophets is less clear than that of reading from the law. In II Kings xxiii:2, King Josiah is mentioned as the first to read the book of the covenant to the people; and Ezra, on the return from Babylonia with the complete Pentateuch, read therefrom on the festival of Tabernacles (Neh. viii:1-18). The Pentateuch gradually came to be read every seventh year with variations of three years and one year most in vogue. The former was observed in Palestine and its colonies to the thirteenth century, while the one year cycle came early in vogue in Babylonia.

The importance of the custom for popular education cannot be overestimated. Thus the greater portion of the Old Testament became a people's book and not for the learned few only; for the people generally participated in the practice, which only in later ages was relegated to a special functionary of the synagogue, which was then a house of instruction as well as of prayer. The formal homily or explanation of passages from the Old Testament must have been very early at home among the Jews, and was not a late addition due to the influence of the church. See Zunz, *Gottesdienst Vorträge*; Dembitz, *Jewish Services in Synagogue and Home* (Philadelphia).

LAW, RICHARD, LL.D.: lawyer: 1733, Mar. 17—1806, Jan. 26; b. Milford, Conn.: son of Gov. Jonathan Law. He graduated at Yale College 1751, was admitted to the bar 1754, and settled in New London to practice, soon afterward becoming co. court judge. In 1776-86 he was a member of the council, and 1777-8 and 81-4 a delegate to congress. He was associated subsequently with Roger Sherman in revising and codifying the statute laws of Conn.; was mayor of New London 1784-1806; appointed judge of the Conn. supreme court 1784, and chief justice 1786; and was U. S. dist. judge for Conn. 1789-1806. He received the degree LL.D. from Yale 1802.

LAW, ROMAN OR CIVIL. See LAW: also various titles there referred to.

LAW—LAWES.

LAW, WILLIAM: notable religious, controversial, practical, and mystic writer: 1686-1761, Apr. 9; b. Kingscliffe, Northamptonshire, England. He was educated at Emmanuel College, Cambridge, where he received holy orders 1711, and took his degree M.A. 1712. At the accession of George I., Law refused to take the oath of allegiance, holding firmly to the Stuart succession, and became a non-juror, losing his official perquisites. He was for some time tutor to Edward Gibbon, father of the historian, who speaks of his piety and talents with unusual warmth. Afterward his abode became the resort of men like the Wesleys, Dr. Cheyne, and Archibald Hutcheson, M.P., who sought Law's instruction and guidance in a higher and more spiritual Christian life. About 1740, two of his friends, Miss Hester Gibbon, sister of his pupil, and the widow of Mr. Hutcheson, having resolved to retire from the world, and devote themselves to works of charity and a religious life, chose Law for their almoner and instructor. The ladies settled at Kingscliffe, where Law's father had left him a small estate; and where, after 21 years of a most exemplary and devout life, he died. Law's writings are deeply tinged with mysticism of the best type. His principal work is his *Serious Call to a Devout and Holy Life* (1729), a treatise that first awakened the religious sensibilities of Dr. Johnson, who speaks of it in high terms, and from which the brothers Wesley also derived much advantage. Next to the *Serious Call*, his most important works are his *Answer to Mandeville's Fable of the Bees*, a true gem for its style, wit, and argument (published 1724; republished, with introduction by the Rev. F. D. Maurice, (1844), his *Letters to the Bishop of Bangor*, *The Way to Knowledge*, and *The Spirit of Love*. His collected works were published, 9 vols., 1762. See Overton's *Law, Nonjuror and Mystic* (1881).

LAWIN, n. *law'in* [Gael. *lach* or *lachan*, a reckoning, the price of the drink]: in *Scot.*, the reckoning at an inn or tavern.

LAWES, SIR JOHN BENNETT: English chemist: b. Rothamsted, Hertfordshire, 1814, Dec. 28; d. there 1900, Aug. 31. He was educated at Eton and at Oxford, whence he went to London, and there remained for a while engaged in the practical study of chemistry. Reaching his majority, he came into possession of his estate, where he undertook experiments in agricultural chemistry in the interest of a more scientific method of agriculture. In 1843 he employed Dr. (afterward Sir) J. H. Gilbert as superintendent of laboratory work at the Rothamsted farm, and uniting his own labors with those of his colleague, by a course of investigations, indoors and out, developed scientific processes whereby superphosphate of lime came to be used as a fertilizer. For over 50 years they carried on these labors together, and

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important practical results for improved agriculture are recorded to their credit. In 1899 Lawes transferred his laboratories and experimental fields, with an endowment amounting to about £100,000, to a board of trustees, in order to secure their permanent usefulness. Accounts of the Rothamsted experiments may be found in the *Journal* of the Royal Agricultural Society of England; *Reports* of the British Association for the Advancement of Science; *Proceedings* and *Transactions* of the Royal Society of London; *Journal* of the Horticultural Society of London; and *Memoranda* of the Rothamsted station.

LAW-MERCHANT: name often used in law to denote the customs which have grown up among merchants in reference to mercantile documents and business, such as bills of exchange, bills of lading, etc. These customs become incorporated with, and form part of, the common law, and are binding as such. See **MERCANTILE LAW**.

LAWN, n. *lawn* [W. *llan*, an open clear place: Gael. *lann*, an inclosure: prov. Dan. *laane*, a bare place in a field: Fris. *lona*, a narrow way between gardens and houses: OF. *lande*, a wild, shrubby or bushy plain (see **LANE**)]: an open grassy space in a wood; a small grassy plain in front of or around a house. **LAWNY**, a. *lawn'i*, level like a lawn; smooth; grassy.

LAWN, n. *lawn* [Sp. *lona*, an open transparent texture, canvas: L. *lana*, wool]: a kind of very fine linen: **ADJ.** made of lawn. **LAWN-SLEEVE**, a sleeve made of lawn; part of a bishop's official dress. *Note.*—**LAWN** may be a corruption of F. *linon*, lawn—from *lin*, flax, linen.

LAWN: ornamental grass plot. If well-kept it has a singular beauty. Land for a lawn should be graded, unless it is nearly level; but gentle undulations are not objectionable. If the land is wet, underdraining will be required. Deep plowing and thorough pulverization are necessary, and a liberal quantity of well-rotted manure, wood-ashes, or commercial fertilizer should be thoroughly mixed with the soil. If immediate results are desired, turf can be cut from a rich field and placed upon land prepared as described, but a lawn produced by seeding will be likely to prove more satisfactory. Mixtures of seeds for the lawn, some containing as many as 16 varieties, are for sale at seed stores. Though much more costly, these mixtures seldom give better results than the use of only two or three kinds. On rich soils Kentucky Blue Grass (*Poa pratensis*) is very desirable; while for lighter land, Redtop (*Agrostis vulgaris*) is one of the best varieties. The addition of a moderate quantity of White Clover (*Trifolium repens*), to either of the above named varieties is highly advantageous. On account of its fragrance when drying, as well as its early growth in spring, the Sweet Scented Vernal Grass (*Anthoxanthum odoratum*) also is useful. To form a close sod, seeding

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should be very heavy, at the rate of from two to four bushels per acre. Sowing should be done early in the season, and the land thoroughly rolled. The fertility of the lawn must be maintained by the use of fertilizers or manure each year. The former can be used in spring: manure should be finely pulverized and applied in autumn. In order to allow development of the grass roots, the mowing should not be commenced in spring until considerable growth has been made. During summer the grass may be cut weekly, but cutting late in autumn should be avoided.

LAWN-TENNIS: popular out-door game, played with balls and rackets on a 'court' of turf, hard-rolled ground, or asphalt; adapted from the old English game of tennis and its modern modification, racket. The 'court' or ground required for the game is usually 78 ft. long by 27 ft. wide, and is divided in the centre by a net attached to upright stakes driven into the ground, 3 ft. outside the court line on each side. This net is 3½ ft. high at the posts, and 3 ft. in the centre. Parallel with the net and at each end of the court, base lines are drawn, and connected by side lines, the whole figure having a parallelogram form. Where the court is laid out on asphalt or other patent surface, the side, base, service, and half-court lines are painted white. Half-court lines are drawn midway between the side lines, and service lines on each side the net, parallel with it and 21 ft. from it. The balls average 2½ in. in diameter, and 2 oz. in weight; the rackets are made of ash (frame), Spanish cedar (handle), and black walnut (throat), with gut strung over and under, making a stiff mesh; the approved weight of the racket is 13—14½ oz. For 3-handed and 4-handed games the court is widened to 30 ft., and the service side lines are drawn 4½ ft. inside the side lines and parallel with them. Before beginning to play, the parties choose sides (unless in club-matches) and decide the right to serve, then take places on opposite sides of the net. The player who first delivers the ball is called the *server*. After each game the server and his partner change places, alternating to the close of the set. The player who first wins 6 games, wins the set. If both players win 5 games, the score is *games all*, and the next game won by either is scored *advantage game* for the winner; a player must win the two games immediately following the score of *games all* to win the set. When at play the server stands with one foot outside of the base line and the other on or in a perpendicular line above it; delivers the ball from the right to the left courts, beginning from the right, alternately; and the ball must drop between the service line, half court line, and side line of the court, diagonally opposite to the side of delivery. If the ball drop elsewhere or touches the server's partner or anything that he wears or carries, it is a *fault*; and after a fault the server shall again serve from the

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same court unless the fault was caused by service from the wrong court. A ball is in *play* the moment it leaves the server's racket, excepting when it drops into the net, or goes beyond the service line, out of court, or in the wrong court. A service is *volleyed* when the ball is taken on the racket before it has touched the ground; and a *return* is the taking of the ball on the racket after its rebound and throwing it across the net to the diagonally opposite court. A return may be good even if the ball touches the net, but an otherwise good service counts for nothing if the net is struck. A *let* is an accidental obstruction. The server wins a stroke if the striker-out volleys the ball or fails to return it, or returns it in play so that it drops outside his opponent's court; the striker-out wins a stroke if the server serve two consecutive faults, fails to return the ball in play, or returns it so that it drops outside of his opponent's court; and either player loses a stroke if in returning the ball in play it touches a post of the net, his person, or anything he wears or carries, excepting the racket in the act of striking, or is struck by the racket more than once, or if the player touch the net or any of its supports while in play, or if he volleys the ball before it has passed the net. The first stroke scores a player 15, the second 30, the third 40, and the fourth scores *game*, excepting as before noted and when both players have won 3 strokes. In the latter case the score is a *deuce*, and the winner of the next stroke scores an *advantage*. If the same winner gains the next stroke, he wins the game; if he loses the stroke his score goes back to deuce. The winner must win two strokes immediately after scoring deuce to win the game. In a 3-handed game the essential features are the same. The game has attained wide popularity in the United States and in foreign countries, and has its state and national associations, fixed rules, male and female champions, and literature.

LAW OF NATIONS: See INTERNATIONAL LAW.

LAWRANCE, *law'rans*, JOHN: 1750—1810, Nov. 10; b. Cornwall, England: lawyer. He removed to New York 1767; was admitted to the bar 1772; appointed an aide to Washington 1777; presided as judge-advocate-gen. at the trial of Maj. John André; was member of Congress 1785-6, 89-93, U. S. dist. judge for N. Y. 1794-96, U. S. senator 1796-1800; and pres. of the senate 1798.

LAWRENCE, *law'renss*: city, cap. of Douglas co., Kan., on the Kansas river, and on the Union Pacific and the Atchison, T. & S. Fe railroads; 29 m. e. by s. of Topeka, 34 m. s.s.w. of Leavenworth, 38 m. w. by s. of Kansas City. It is on both sides of the river, 70 m. above its mouth, the parts being connected by two bridges, and has fine water power for its manufactories, secured by a dam here built across the river. Lawrence is the seat of the State Univ. and Government Industrial

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School for Indians, of Haskell Institute; has public graded schools, fine churches, public library, several public parks, notably Bismarck Grove, waterworks, gas and electric lighting; and contains the largest pork-packing establishment in the state, one of the largest barb-wire factories in the west, paper and flour mills, iron foundries, machine shops, shirt factory, and straw-lumber factory. Lawrence was settled 1854 by friends of free labor under the auspices of the Mass. Aid Soc., and was the headquarters of the anti-slavery leaders 1854-60 (see KANSAS); and 1863, Aug. 21, was attacked by Quantrell and his guerrillas, when 150 persons were killed and many buildings burned. Pop. (1910) 12,374.

LAWRENCE: city: one of the caps. of Essex co., Mass., on both sides of the Merrimack river, and on the Boston & Maine railroad; 10 m. n.e. of Lowell, 26 m. n.w. of Boston. It contains a court house, new post-office, city hall, co. prison, city jail, public library containing over 50,000 volumes, music hall, opera house, Odd Fellows' and Masonic temples, city hospital, Rom. Cath. hospital, convent, proteotory, and Augustinian house, beautiful common of 17 acres and other public parks, handsome churches, graded public schools, a high school building which cost \$250,000, national and savings banks, daily and weekly newspapers. The two parts of the city are connected by bridges across the river, and the n. part is connected with south Lawrence by a street railway extending from Methuen to N. Andover. Lawrence has excellent drainage, model waterworks, efficient fire dept., and gas and electric light plants. The great value of Lawrence as a manufacturing center has been reached by the improvement of the river that bisects it. The Merrimack has an average width of 1,000 feet here, and a descent in $\frac{1}{2}$ m. of 26 ft. over a rocky bed. In 1845 Amos and Abbott Lawrence (q.v.), Nathan Appleton and other capitalists secured control of a large tract of land on both sides the river, and organized a company to develop the natural water-power of the locality. The company constructed a dam of solid granite across the river at a cost of \$250,000, the structure being 1,629 ft. long, 35 ft. thick at the base, 12 ft. thick at the crown, and 40 $\frac{1}{2}$ ft. high in midstream. A distributing canal, 1 m. long, 12 ft. deep, 100 ft. wide at the head, and 60 ft. wide at the mouth was built on the n. side of the river at a cost, with locks, of \$200,000. 1848, Feb. 24, water from this canal set the first mill-wheel in motion, and started the distinctive industry of the city. Subsequently the company built a similar canal on the s. side of the river.

In 1900 Lawrence had 546 manufacturing establishments, using a capital of \$49,914,035, employing 22,358 hands, paying in wages \$8,972,310, and yielding products valued at \$44,703,278. The principal establishments are the Atlantic cotton mills, Pacific mills, Washington

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mills, Arlington mills, Everett mills, Pemberton mills, Lawrence mills, and the Russell, Merrimack, and Bacon paper mills. The aggregate product of the cotton mills is valued at \$8,146,594. The buildings all are large and very substantial. Besides these industries there are numerous manufactories of carriages, flour, hardware, and machinery which with the mills give employment to over 22,000 persons.

The former village of Merrimack was incorporated as a town and named Lawrence after the Lawrence brothers, 1847, and received a city charter 1853. It was visited by a terrible calamity 1860, Jan. 10, when without warning the brick main building of the original Pemberton mills collapsed, burying 700 operatives in the ruins, causing the death of 91 in the fall and the subsequent fire, and variously injuring 134 others. Municipal control is in the hands of a mayor, six aldermen, and 18 councilmen, all elected annually. The number of wards (six) and the number of government members has not changed since the first acceptance of the original charter. Pop. (1900) 62,559; (1910) 86,892.

LAWRENCE, ABBOTT, LL.D.: merchant: 1792, Dec. 16—1865, Aug. 18; b. Groton, Mass.; son of SAMUEL LAWRENCE, founder of Groton Academy. He received an academical education, was apprenticed to his brother AMOS LAWRENCE 1808, and became a partner in the mercantile firm of A. & A. Lawrence, 1814. For a number of years the brothers engaged in selling cotton and woolen goods on commission, then entered the import trade, became agents for the Lowell manufacturing corporations, began manufacturing, and were conspicuous in the founding of the city of Lawrence. Lawrence was a member of congress 1835-37, 39-41; U. S. commissioner for settlement of the n.e. boundary (Aroostook) question, and negotiated a mutually satisfactory arrangement with Lord Ashburton 1842; and U. S. minister to Great Britain 1849-52. He was offered and declined the offices of sec. of the navy and sec. of the interior dept. 1849; founded the Scientific School of Harvard Univ. by a gift of \$100,000, established a number of scholarships and public school prizes; left \$50,000 for the erection of model dwellings in Groton; and received the degree of LL.D. from Harvard 1854.

LAWRENCE, AMOS: merchant: 1786, Apr. 22—1852, Dec. 31; b. Groton, Mass.; brother of ABBOTT LAWRENCE. He was educated in Groton (now Lawrence) Acad.; learned the dry goods business; established himself as a merchant in Boston 1807; and with his brother, carried on large business operations till ill health compelled his retirement from the firm 1831. He passed the remainder of his life in works of beneficence; gave \$639,000 for charitable purposes 1829-52; established and maintained for some time a child's dispensary in Boston; contrib-

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uted \$10,000 toward the completion of the Bunker Hill monument; and was equally generous in private benefactions.

LAWRENCE, GEORGE NEWBOLD: American ornithologist: b. New York, 1806, Oct. 20. He was privately educated, was for some years in the drug business, but in 1867 retired, and thereafter devoted himself to ornithology. From 1846 he contributed to the literature of ornithology; and he also made an extensive and valuable collection of birds, including 8,000 specimens representing almost every variety found in the United States, and an excellent series of the birds of Mexico, Central America, the West Indies, and South America. This collection he sold to the American Museum of Natural History. He assisted Baird and Cassin in the preparation of *The Birds of North America* (1860).

LAWRENCE, Sir HENRY MONTGOMERY: 1806, June 28—1857, July 4; b. Matura, Ceylon; elder bro. of Baron John Laird-Mair Lawrence. He was one of the greatest military statesman of India, chief commissioner of Lucknow, and virtually gov. of Oude when the Indian mutiny broke out. While in command of the handful of heroic men who defended the women and children in the Residency of Lucknow, Sir Henry was wounded by the explosion of a shell, and died. He was the founder of the Lawrence Asylum, for the reception of the children of European soldiers in India. He was author of valuable papers on army reform. A monument to his memory is in St. Paul's Cathedral.

LAWRENCE, JAMES: 1781, Oct. 1—1813, June 6; b. Burlington, N. J.: naval officer. He entered the U. S. navy as midshipman 1798, was promoted acting lieut. 1800, lieut. 1802, master-commandant 1810, and capt. 1811, took part in the war with Tripoli 1804-5, and distinguished himself in the destruction of the captured U. S. frigate *Philadelphia* under the guns of Tripoli Castle; was attached to the S. American squadron 1812; commanded the *Hornet*, and captured the British sloop of war *Peacock*, which sunk with several of his and her own crew after surrendering, off Demerara, 1813, Feb. 24; returned to America with his prisoners, and received a gold medal from congress for his victory over the *Peacock*; and in May was appointed commander of the U. S. frigate *Chesapeake*, then lying in Boston harbor. Two days after taking command of the frigate and discovering that she had a raw, undisciplined crew, he was challenged by Capt. Broke of the British frigate *Shannon* to a deep water fight. 1813, June 1, he sailed out of the harbor 30 m., caught up with the *Shannon*, and immediately went into action. Within a few minutes the *Chesapeake* fouled the *Shannon*, and a broadside from the latter mortally wounded Lawrence and killed or wounded nearly every one on the *Chesapeake's* deck. As Lawrence

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was being carried below, he gave his crew the memorable parting injunction, 'Don't give up the ship.' The *Chesapeake's* crew became panic-stricken, and the vessel's capture was easily accomplished. Both vessels were taken to Halifax, where Lawrence died. On the return of his remains to the United States, public honors were paid them in Salem, Mass., and they were buried in Trinity church-yard, New York. His naval uniform and sword are in the library of the N. J. Hist. Society.

LAWRENCE, JOHN: American statesman and judge: b. Cornwall, England, 1750; d. New York 1810. He emigrated to America in 1767, settled in New York, was admitted to the bar in 1772, and soon established himself in successful practice. An active patriot at the outbreak of the Revolution, he served in the army throughout the war, and on the termination of hostilities returned to New York, where for many years he was engaged in a large and lucrative professional practice. He was a member of the state senate, when in 1789 he was elected the first representative from New York city in the first United States Congress. He was a zealous and able defender of the measures of Washington, and on measures relating to the public credit and the national currency, to the neutrality of the United States as regards European belligerents, to indiscriminate foreign commerce, and to the promotion and security of all our commercial interests, spoke with eminent comprehensiveness and foresight. He represented the city of New York in the second Congress, and in 1794 was appointed by President Washington judge of the United States court for the New York district. He accepted this office at the particular solicitation of the bar, in consequence of his knowledge of admiralty law and the increasing number of admiralty cases. He resigned it in 1796 upon being elected to the United States Senate, of which body he was for a time president. He supported the measures of President Adams, upon whose retirement he resigned his seat and withdrew to private life.

LAWRENCE, Baron the Right Honorable JOHN LAIRD-MAIR: Viceroy and Governor-General of India: 1811, Mar. 24—1879, June 27; b. Richmond, Yorkshire; younger son of lieut. col. Alexander Lawrence, who served in the Mysore campaign and at the capture of Seringapatam. He obtained, 1827, a presentation to Haileybury College, where he carried off the chief prizes. His first years in the Indian civil service were spent in Delhi and vicinity. On the annexation of the Punjab, Lawrence was appointed commissioner, and afterward lieut.gov. of the Punjab. When the Indian mutiny broke out, he proved the mainstay of the British dominion in India. The formerly restless Sikhs had become so attached to his firm and beneficent rule, that Lawrence was enabled to send troops to the relief of Delhi and other

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exposed points. So timely was this succor, and so great was his foresight, that he was styled 'the savior of India.' On his return to England, he received the thanks of parliament, with the grant of a pension of £1,000 a year. He was made baronet 1858, a privy-councilor 1859. In 1861, Lawrence was nominated one of the knights of the 'Star of India.' In 1863, he succeeded the late Lord Elgin as gov.gen. of India; he was made a member of the Indian council, and the court of directors of the E. India Company granted him a life pension of £2,000 a year. In 1869, he was raised to the house of peers. Lord Lawrence was chairman of the London school-board 1870-73. See his *Life* by Bosworth Smith (1883).

LAWRENCE (LAURENTIUS), SAINT, the Deacon: one of the most celebrated martyrs of the early church, subject of many ancient panegyrics, and of one of the most elaborate of the hymns of Prudentius. According to the later and more full accounts, he was one of the deacons of Rome in the Pontificate of Sixtus II. (257-258), and as such was especially charged with the care of the poor and the orphans and widows. In the persecution of Valerian, being summoned, according to the legend, before the prætor as a Christian, and being called on to deliver up the treasures of the church, he mockingly produced the poor and the sick of his charge, declaring that 'those were his treasures;' and on his persisting in his refusal to sacrifice to the gods, being condemned to be roasted on a gridiron, he continued throughout his tortures to mock his persecutors. Many of the details of his martyrdom are probably due to the imagination of the poetical narrator; but the martyrdom is unquestionably historical, and its probable date was 258. His feast is celebrated Aug. 10. The ground plan of the Escorial (q. v.) is supposed to be that of a gridiron in reproduction of the instrument by means of which the martyr was put to death.

LAWRENCE, Sir THOMAS, President of the Royal Academy: 1769, May 4—1830, Jan. 7; b. Bristol; son of an inn-keeper. At the early age of 10 years he entered on the profession of a portrait-painter in crayons, at Oxford, where he immediately obtained full employment. There is an engraving which bears to have been 'directed by I. K. Sherwin,' celebrated engraver, of a portrait of the young artist; it is dedicated in the following terms: 'To the nobility and gentry in general, and the University of Oxford in particular, who have so liberally countenanced his pencil, this portrait of Master Lawrence is inscribed by their most devoted and most grateful servant, T. Lawrence, senior.' It was published by Lawrence, senior, at Bath, 1783, June 18, with a print of Mrs. Siddons in the character of Zara, drawn by Master Lawrence, and engraved by J. R. Smith. The young artist next wrought in his profession at Bath, where he had

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great success; and at the age of 18, settled in London, and entered as a student of the Royal Acad., having a year previously taken to painting in oil. His success was extraordinary; in 1791, before he attained the age required by the laws of the Acad., he was elected a supplemental associate by desire of the king; on Reynolds's death a year afterward, was appointed limner to his majesty; was made a royal academician 1798; knighted 1815; and on Benjamin West's death 1826, succeeded him as pres. of the Royal Acad. He died in London. Lawrence was the favorite portrait-painter of the time, had an immense practice, and obtained larger prices for his works than were ever paid to any previous portrait-painter. His artistic talent was doubtless overrated during his life, but justice has scarcely been done to it of late years; for his style, though in many respects meretricious, was greatly influenced by the fashion and dress of the period, and in time to come, impressions of the principal characters who figured during the Regency, and in the reign of George IV., will be taken mainly from his works. His portraits in the Waterloo Gallery at Windsor are of the greatest historical value. He had dexterous touch, and an agreeable conventional grace of style. He was a man of great urbanity and fine taste, and left a most valuable collection of drawings by the old masters, now unfortunately scattered. See *Life and Correspondence of Sir T. Lawrence*, by Williams (1831); and Cunningham's *Lives of British Painters* (1833).

LAWRENCE, Sir WILLIAM: 1783, July—1867, July 5; b. Cirencester, England: distinguished surgeon. In 1800 he was apprenticed in London to Mr. Abernethy, by whom he was soon appointed demonstrator in anatomy to Bartholomew's Hospital. In 1813 he was made surgeon to the hospital, and was chosen fellow of the Royal Soc.; and after holding various important surgical appointments, he became 1815 one of the professors of anatomy to the Royal College of Surgeons. In 1828-9, he succeeded his teacher, Mr. Abernethy, as lecturer on surgery to St. Bartholomew's. From this period, Lawrence was active in the great questions of reform, which divided the medical world as much as the political.

LAWRENCE, WILLIAM: American politician: b. Mount Pleasant, Ohio, 1819, June 29; d. 1899, May 8. He was graduated at Franklin College (1838), and at the Cincinnati Law School (1840). He early became prominent in politics, and from 1845 to 1847 owned and conducted the *Logan County Gazette*, and was afterward editor of the *Western Law Journal*. He served in the lower house of the State legislature, and for five years as State senator, and from 1857 to 1864 was judge of the court of common pleas, and of the district court. After seeing some military service (1862), he was elected to Congress in 1865, and in 1880 appointed first Comptroller of

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the United States Treasury, from which office he retired in 1885. He published several books on law, notably *The Law of Claims against the Government* (1875); and *The Treaty Question* (1871).

LAWRENCE, WILLIAM, D.D., S.J.D., LL.D.: American Protestant Episcopal bishop: b. Boston, 1850, May 30. He was graduated at Harvard in 1871, and at the Episcopal Theological School, Cambridge, Mass., in 1875; was rector of Grace Church, Lawrence, Mass., 1876-84; professor of homiletics and pastoral theology at the Theological School above named, 1884-93; dean of the school, 1888-93. He was university preacher at Harvard, 1888-91. In October 1893 he was elected bishop of Massachusetts, to succeed Bishop Brooks, and was consecrated to that office, which he continues to hold, in the following year. He has published a *Life of Amos A. Lawrence*, his father (1889); *Visions and Service* (1896); *Life of Roger Wolcott*; *Study of Phillips Brooks*; and other works.

LAWRENCE, WILLIAM BEACH: American jurist: b. New York, 1800, Oct. 23; d. there 1881, March 26. He was graduated at Columbia College in 1818, and after his admission to the bar in 1823 he practiced in New York, where he attained eminence. He removed to Newport, R. I., in 1850; was elected lieutenant-governor of Rhode Island in 1851, and soon after became acting governor. He became widely known by reason of his connection with the 'Circassian case' in 1873, before the American and British International Court in Washington, D. C., his arguments securing the case for his clients and leading to the only reversal of a decision by the United States Supreme Court that had ever occurred. He published *History of the Negotiations in Reference to the Eastern and Northeastern Boundaries of the United States* (1841); *Belligerent and Sovereign Rights as Regards Neutrals During the War of Secession* (1873); *Disabilities of American Women Married Abroad* (1871); *Administration of Equity Jurisprudence* (1874); etc.

LAW'RENCEBURG: city, cap. of Dearborn co., Ind.; on the Ohio river, Whitewater canal, and the Baltimore & Ohio, and Chicago, C., C. & St. L. railroads; 20 m. below Cincinnati, 90 m. e.s.e. of Indianapolis. It contains numerous churches, high and graded schools, Rom. Cath. acad., distilleries, breweries, banks, and manufactories of lumber, furniture, flour, stoves, and pumps. Henry Ward Beecher's first pastorate was here. It was settled in 1817 and was first incorporated in 1847. The government is administered by a mayor, elected every four years, and by a city council, elected every two years. Pop. 5,000.

LAW'RENCE, ST., GULF OF. See ST. LAWRENCE, GULF OF.

LAW'RENCE, ST., RIVER. See ST. LAWRENCE RIVER.

LAWRENCE SCIENTIFIC SCHOOL—LAWSON.

LAWRENCE SCIENTIFIC SCHOOL, THE: a part of Harvard University, Cambridge, Mass.; founded by Abbott Lawrence in 1847. The primary object of the institution was to afford an opportunity for special study and training in science which the then existing foundations and departments of the university did not offer. Not the least of the important benefits it conferred during the earlier years of its existence was the bringing of Prof. Louis Agassiz into close relations with the university, a special chair of zoology and geology in the scientific school having been created for him by Mr. Lawrence in 1848. It was originally intended that the Lawrence Scientific School should be independent of Harvard College, and for many years it was so maintained, but in recent years it has gradually become merged with it until it now forms a part of the university, its government together with that of the college and the graduate school being under the faculty of arts and sciences. The courses offered include civil engineering, electrical engineering, mechanical engineering, mining and metallurgy, architecture, chemistry, geology, biology, general science, science for teachers, and anatomy and physiology. So far as possible the instruction relates rather to the principles of science than to technical work, the intention being to make the graduates ready for the apprenticeship of their professions. See HARVARD UNIVERSITY.

LAWRENCE UNIVERSITY: Appleton, Wis., a Methodist Episcopal institution founded in 1847, and named in honor of its principal donor, Amos A. Lawrence, of Boston. In 1907 it had 33 professors and instructors, 527 students, 23,112 volumes in the library, and productive funds, \$205,020; grounds and buildings valued at \$210,000; benefactions, \$7,000; income, \$28,000.

LAWSON, JOHN: American colonial surveyor-general: d. 1712. He was of Scotch birth; began his surveys in 1700, and was an intelligent observer, enterprising and circumspect, but fell a victim to the jealousy of the natives, who confounded the surveyor of their territory with those who despoiled them of it. He was captured by them during one of his explorations when in company with De Graffenried, a Swiss baron who contemplated colonization. The latter was permitted to buy himself free, but Lawson failed to propitiate their hostility and perished by the fire torture. He left one of the most valuable of the early histories of the Carolinas, of their feeble condition, their resources and aspects, and their principal aboriginal tribes. It is entitled *A New Voyage to Carolina, containing the Exact Description and Natural History of that Country, together with the Present State thereof; and a Journal of a Thousand Miles Traveled through Several Nations of Indians, giving a Particular Account of their Customs, Manners, etc.* (1709). The volume is a quarto of 258

LAWSON—LAWTON.

pages, well illustrated with one of the best maps of the time, and with various other engravings, chiefly in natural history. It is now rare.

LAWSON, VICTOR FREMONT: American newspaper publisher: b. Chicago, 1850, Sept. 9. He was educated at Phillips Academy, Andover, Mass. He inherited from his father an interest in a printing establishment, and in 1876 bought the Chicago *Daily News*, which, with his partner, he developed successfully, starting a morning edition in 1881 under the name of the *Record*. In 1888 he bought out his partner and became sole proprietor; in 1901 the *Record* was merged with the *Times-Herald*. He has been president of the Associated Press; has also been active in philanthropic work, and started the *Daily News Fresh Air Fund*, which supports a sanitarium for sick children of the poor.

LAWSON, Sir WILFRID: English statesman: b. Cumberland, England, 1839, Sept. 4; d. London, 1906, July 1. He early came into notice as a temperance advocate. In 1859 he was elected to Parliament, and in 1864 introduced a 'Bill for the legislative suppression of the liquor traffic.' In 1868 he was reelected to Parliament with Mr. Gladstone's party as member for Carlisle. His local option bill passed in 1880, 1881, and 1883. After serving in Parliament two subsequent sessions he lost his seat in 1900. He was president of the United Kingdom Temperance Alliance.

LAWTON: a city and county-seat of one of three counties formed from the Comanche reservation and added to Oklahoma, 1901, Aug. 6. The city was named for Gen. Henry W. Lawton, who was killed in the Philippines. The entire tract added to Oklahoma is larger than the State of Connecticut, and within three months had a population of about 50,000.

LAWTON, HENRY WARE: an American military officer; 1843, March 17—1899, Dec. 19; b. in Manhattan, O.; entered the volunteer service at the beginning of the civil war as a private; became a sergeant, 1st lieutenant, captain, and lieutenant-colonel, and was mustered out 1865, Nov. 25; entered the regular army as 2d lieutenant, 1866, July 28; was promoted 1st lieutenant 1866, July 31; capt. 1879, Mar. 20; maj. and inspect.-gen., 1888, Sept. 17, and lieut.-colonel, 1889, Feb. 12. He took part in the expedition against the Sioux Indians in 1876 and against the Ute Indians in 1879. At the beginning of the war with Spain he was made brigadier-general, and placed in command of 2d division of 5th army corps. He exhibited great skill and gallantry at El Caney. On the capture of Santiago was promoted major-general, and placed in command of district; and after the war was transferred to the Philippines, where he rendered effective service till shot dead in battle.

LAX—LAY.

LAX, a. *lāks* [L. *laxus*, loose, open]: loose, flabby; not firm or rigid; not strict; not rigidly exact; open in the bowels. LAX'LY, ad. *-lī*. LAX'NESS, n., or LAXITY, n. *lāks'ī-tī* [F. *laxité*—from L. *laxitātem*]: looseness; want of exactness. LAXA'TION, n. *-ā'shūn*, the act of loosening; state of being loose. LAX'ATIVE, a. *-ā-tiv* [F. *laxatif*, laxative—from L. *laxativus*, loosening—from *laxāre*, to render lax]: loosening; mildly purgative: N. an opening or purgative medicine. LAX'ATIVENESS, n. *-nēs*, the quality of relaxing. LAXATOR, n. *lāks-ā'tēr*, that which relaxes or makes loose, applied to certain muscles—SYN. of 'lax': unrestrained; slack; relaxed; unconfined; vague; licentious; dissolute.

LAY, v. *lā*, pt. of the verb *lie* [pres. *lie*, pt. *lay*, pp. *lain* or *lien*]: often confounded with the verb *lay*: it is improper, for example, to say, 'He *lays* in bed too long'; it should be, 'He *lies* in bed too long.' See LIE.

LAY, v. *lā* [Icel. *leggja*; Ger. *legen*, to lay; Icel. *liggia*, to lie; pres. *lay*, pt. *laid*, pp. *laid*]: to cause to lie down; to put or place; to place in order, as bricks or stone; to spread in order, as, to lay the cloth; to extend, as on the ground; to still; to keep from rising; to impute; to wager; to fix deep; to produce, as eggs; among *seamen*, to take a position; to come or go, as to *lay* forward: N. that which lies or is laid; a stratum; a layer. LAYER, the vat in which hides are left to lie in a strong solution of tannin towards the end of the tanning process. LAY'ING, imp.: ADJ. producing eggs, as a hen: N. the first coat of plaster where two coats are to be laid on; the act or period of producing eggs; the eggs laid; mode of propagating trees (see LAYING). LAYING, a term applied to two distinct stages in rope-making: (1) the twisting of three or more yarns to form a strand; (2) the twisting of three strands to form a rope. The machine that performs this operation is termed a 'laying machine,' the wooden cone placed between the strands to prevent a slack twist is termed a 'laying-top.' LAID, pt. and pp. *lād*, did lay. TO LAY ABOUT, to strike or throw the arms on all sides. TO LAY ALONG, to prostrate. TO LAY APART, to put away; to reject. TO LAY ASIDE, to put off or away; to discontinue. TO LAY AT, to endeavor to strike at. TO LAY AWAY, to deposit in store; to lay aside for safe keeping. TO LAY BARE, to make bare; to expose completely to view. TO LAY BEFORE, to present to view; to show. TO LAY BY, to put carefully aside for future use. TO LAY DAMAGES, to express the amount in money value. TO LAY DOWN, to give as a pledge or satisfaction; to resign; to relinquish; to surrender; to offer or advance. TO LAY HEADS TOGETHER, to compare opinions; to deliberate. TO LAY HOLD OF or ON, to seize; to catch. TO LAY IN, to store. TO LAY ON, to strike; to apply with force; to add to, as expenses. TO LAY ONE'S SELF DOWN, to retire to rest; to commit to repose. TO

LAY.

LAY ONE'S SELF OUT, to exert one's self earnestly. To LAY OPEN, to make bare; to uncover. To LAY OVER, to spread over. To LAY OUT, to expand; to dispose the several parts in order, as a garden; to dress in grave-clothes, as a corpse. To LAY SIEGE TO, to surround with troops; to address one's self to a thing pertinaciously. To LAY TO, to charge upon; to impute; to check the motion of a ship, so as to cause her to become stationary, or nearly so. To LAY TOGETHER, to collect; to bring into one view. To LAY TO HEART, to allow to affect greatly; to feel deeply. To LAY UP, to store; to put carefully aside for future use; to confine to one's bed or room. To LAY UPON, to wager upon. To LAY WAIT FOR, to lie in ambush for; to be prepared to fall upon and attack suddenly. To LAY WASTE, to destroy; to desolate.—SYN. of 'lay': to set; deposit; establish; prostrate; dispose; arrange; provide; prepare; put on; allay; still; settle; appease; calm; hazard; stake; risk; impose; present; offer; allege; state; produce; bury; inter; add; conjoin; charge; enjoin.

LAY, a. *lā* [Gr. *laïkos*, pertaining to the people—from *lāōs*, the people: comp. Gael. *luchd*, the people]: not clerical; pertaining to the people as distinguished from the clergy; not belonging to the profession of the speaker. LAY BROTHER, one received into a monastery, under certain vows, but not in holy orders: this class was introduced probably in the 11th c.: their vows bind them only to obedience and constancy; they attend on the monks, but are not required to join in all the stated religious services. LAY SISTER, sometimes *sister converse*, one attached to a nunnery as an attendant, but not under the vows of a *nun*. LAY DAYS, in *maritime law*, number of days granted in the charter-party to the freighter of a vessel for loading or unloading it (see DEMURRAGE). LAY FIGURE, an artist's jointed model figure. LAYMAN, n. *lā'mān*, one not a minister or clergyman. LAY, n. *lā'i-tī*, the people as distinguished from the clergy.

LAY, n. *lā* [OF. *lai* or *lais*, a lay: W. *llais*; Icel. *hliod*, a sound, a note: Gael. *laoidh*; AS. *leod*, a hymn, a poem: Ger. *lied*, a song]: a song; a poem in simple style; a metrical tale.

LAY, n. *lā*: the old spelling of LEA, which see.

LAY, BENJAMIN: British-American philanthropist: b. Colchester, England, 1677; d. Abington, Pa., 1759. His parents were Quakers, and he illustrated in his life the humane principles which the Society of Friends has so long conspicuously represented. At 18 he adopted a sailor's life, and for some years followed the sea. In 1710, he was married and lived again for a while at Colchester; afterward went to Barbados, where he became a merchant; but having aroused hostility by his denunciations of slavery, removed from the island to Philadelphia, where his anti-slavery agitation was con-

LAY—LAYAMON.

tinued. Of numerous tracts which he wrote on slavery one was published by Franklin, entitled *All Slave-Keepers, that Keep the Innocent in Bondage, Apostates*. He was influential in bringing the Friends in this country to take a more decided stand against slave-holding. He did not, however, confine his reforming endeavors to one direction, but labored for a more humane treatment of criminals, and discouraged the eating of animal food, and the using of tea and tobacco. He is described as a singular figure, dwarfish and hunchbacked, and presenting an appearance of poverty. He was buried in the Friends' burying-ground at Abington.

LAY, HENRY CHAMPLIN: American Protestant Episcopal bishop: b. Richmond, Va., 1823, Dec. 6; d. Easton, Md., 1885, Sep. 17. He was graduated at the University of Virginia, ordained deacon (1846) and priest (1848). He was consecrated missionary bishop of the Southwest (1859) and translated to the diocese of Easton (1869). During the civil war the Episcopal charge of Kansas was assigned to him, that state being then erected into a diocese. The revision of the lectionary was largely due to Bishop Lay; while he was engaged on the Standard Prayer Book up to his death.

LAY, JOHN LOUIS: American inventor: b. Buffalo, N. Y., 1832, Jan. 14; d. New York, 1899, Apr. In 1862, July, he was appointed second assistant engineer in the United States navy, and in 1864 invented a new torpedo. By means of this apparatus Cushing destroyed the *Albemarle*, a Confederate ram. When Admiral Porter advanced up the James river after the evacuation of Richmond, Lay was employed to clear away the submarine obstructions. He was engaged by the Peruvian government to mine the harbor of Callao, in view of a Spanish attack, but his main work as an engineer and inventor was the construction of the dirigible torpedo, which bears his name and was purchased by the United States government.

LAYAMON, *lā'a-mon*, or LAWEMAN, *law'é-man*: author of the *Brut*, a metrical chronicle of Britain from the arrival of the fabulous Brutus to the death of King Cadwallader, A.D. 689; was, he himself tells us, a priest at Ernely, on the Severn, in Worcestershire, and appears to have lived about the beginning of the 13th c. Nothing more is known concerning him. The *Brut* has no pretensions to originality, being confessedly a compilation from Bede, St. Augustine (of England), St. Albin, and particularly Wace, the Anglo-Norman poet, of whose *Brut d'Angleterre* it is in fact mainly an amplified translation. But Wace's performance is itself only a translation, with additions, from Geoffrey of Monmouth's Latin *Historia Brittonum*; and that again at least declares itself to be in turn a translation from a Welsh or Breton original (see GEOFFREY OF MONMOUTH). Thus

LAYARD.

Layamon's work is only a third reproduction of a Celtic story; but in justice to the author, it must be stated that his version is more poetical and dramatic than those of his predecessors. The great value of the poem, however, is linguistic rather than literary. It shows us the Anglo-Saxon changing or changed into Early English, and a study of its peculiarities of grammar and phraseology enables us to trace the process by which the Saxon of Alfred and the Chronicle became transformed into the English of Chaucer and Wicliffe. One curious and important fact is determined by it—viz., that 200 years after the Norman Conquest, the use of words of French origin—so marked a feature of Chaucer's diction—had scarcely begun. In the 32,250 lines which the poem contains, there are not more than 50 such words. The versification is very arbitrary, exhibiting sometimes the alliteration of Anglo-Saxon, and sometimes the rhyme of French poetry. The work was edited (with a literal translation, notes, and grammatical glossary) for the Soc. of Antiquaries of London by Sir Fred. Madden (Lond. 3 vols. 1847).

LAYARD, *lā'érd*, AUSTEN HENRY: 1817, Mar. 5—1894, July 5; Eng. traveller, diplomat: b. Paris. He was intended for the law, but it was little congenial to his tastes, and he set out on a course of eastern travel, visited several districts of Asiatic Turkey, and became familiar with the manners and dialects of Persia and Arabia. On his first journey along the banks of the Tigris, 1840, he was impressed by the ruins at Nimrud—a village near the junction of the Tigris and the Zab, pointed out by local tradition as the site of the original city of Nineveh—and felt an irresistible desire to examine the remains of the 'birthplace of the wisdom of the west.' In 1842, Botta, French consul at Mosul, conducted some extensive excavations at that place, and Layard returning to the region, again directed his attention to Nimrud. It was 1845 before he could obtain the requisite means and facilities for his search, and he then, with the help of some Arabs, began secretly to dig in the mound supposed to contain the ruins. He soon came upon some sculptured remains, and became convinced that he had touched a rich vein of archæological treasure. His excavations were resumed 1846, and his energy and perseverance were awarded by the discovery of the ground remains of four distinct palatial edifices. The walls had been lined with large slabs of gypsum or alabaster, covered with bas-reliefs and cuneiform inscriptions. Many of these were sent to England by Layard, together with gigantic-winged human-headed bulls and lions, and eagle-headed idols. They were placed in the British Museum, of which they have since remained one of the chief attractions. Layard at first conducted his search at his own expense; he was, 1845, liberally assisted by Lord Stratford de Redcliffe, then British ambassador in Con-

LAYER—LAYMAN.

stantinople; and eventually, as the value of these specimens of Assyrian art began to be known, the house of commons voted £3,000, which was applied by the trustees of the British Museum, in continuing the excavations under Layard's superintendence. On his return to England, he published a narrative of his explorations, under the title *Nineveh and its Remains*, and another entitled *Monuments of Nineveh*. He was presented with the freedom of the city of London, received the degree D.C.L. from the Univ. of Oxford, and was lord rector of Aberdeen University 1855-6. In 1852, he became M.P. for Aylesbury, and 1860 for Southwick; 1861-66, he was under-sec. of state for foreign affairs, 1869 he went as British ambassador to Spain; and 1877 he was sent to Constantinople, first as temporary, then as ordinary ambassador. His markedly Philo-Turkish sympathies during and after the war provoked some criticism in Great Britain. In 1878, the order of the Bath was conferred on him. He also wrote *Nineveh and Babylon* (1853); *Inscriptions in the Cuneiform Character from the Assyrian Monuments* (1851); *Early Adventures in Persia, Susiana, and Babylonia* (1887, 1894). Consult his *Autobiography* (1902).

LAYER, n. *lā'ér* [Dut. *laag*, a layer: Low Ger. *lage*, a row of things laid in order]: that which is laid; anything carefully laid in due order; a bed; a stratum; a coat, as of paint; a row or course, as of bricks; a shoot or twig of a plant for propagating. LAY'ERING, n. the propagation of plants by layers.

LAYETTE, n. *lā-èt'* [F. *layette*, a box, then the linen in the box]: all the articles necessary for a new-born infant; baby-linen.

LAY'ING, or LAY'ERING: mode of propagating trees, shrubs, and perennial herbaceous plants, frequently employed by gardeners and nurserymen. It consists in bending and fastening a branch, so that a portion of it is imbedded in earth, there to throw out roots, the extremity being made to grow erect in order to form a new plant. The separation from the parent plant is not effected till the layer is sufficiently provided with roots. Any injury which prevents the free return of the sap greatly promotes the formation of roots, and a notch is therefore usually made in one side of the branch, at the place where the formation of roots is desired; it is also often a little split up from the notch; and sometimes a ring of bark is cut off, or a wire is twisted round it. The time which must elapse before the layer should be separated from the parent plant is very various; a few months being sufficient for some, and two years requisite for others. Many plants which can be propagated by cuttings are more easily and successfully propagated by layers.

LAYMAN, n. *lā'mān* [*lay* and *man*: see LAY 2]: one

LAYNEZ—LAZARISTS.

not a clergyman; one not a professional man, as to a medical man, all men outside his profession are laymen.

LAYNEZ (or LAINEZ), *lī-nēth'*, DIEGO: 1512—1565, Jan. 19; b. Almazan, Castile: general of the Jesuits. He was educated in the universities of Alcalá and Paris; was ordained priest in Venice 1537; became teacher of scholastic theology in Sapienza College, Rome, 1538; and was afterward assigned to special mission work in upper Italy. In 1542, a Jesuit college was founded in Padua through his efforts; 1546, he was one of the pope's theologians at the Council of Trent; 1548, was engaged in founding schools and hospitals in Sicily and the college at Palermo; 1550, accompanied the Spanish expedition to Tunis; and 1551, became provincial of the Jesuits in upper Italy, opened the debates on the reassembling of the Council of Trent, and was ordered by Ignatius Loyola (q.v.) to compile a complete summary of dogmatic theology as atonement for an act of insubordination. On the death of Loyola he governed the order of the Soc. of Jesus till 1558, when he was chosen general. He attended the conference of Poissy by order of the pope 1561, took a leading part in the Council of Trent 1562, and to the end of his life was zealous in teaching, promoting Jesuit missionary work, and establishing educational and charitable institutions.

LAYSTALL, n. *lā'stawl* [Gael. *lios-stail*, a place in the garden for the refuse—from *lios*, a garden; *stail*, to throw]: in *OE.*, a place for the refuse of a garden or farm for use as manure; a dung-heap; also spelled LAYSTOWE.

LAZAR, n. *lā-zâr* [from *Lazarus* in the parable: F. *lazare*]: one affected with a filthy and dangerous disease. LAZAR-HOUSE, a hospital for those affected with pestilential diseases. LAZARETTO, n. *lăz'ă-rēt'tō* [It.]: a lazaretto. LAZZARONI, n. plu. *lăz'ză-rō'nî* or *lăt'sér-ō'nē* [It.]: name formerly given to the poor of Naples who had no regular occupation, and who lived in the streets, occasionally obtaining employment as messengers, porters, boatmen, itinerant venders of food, etc. They were an important element in all the revolutions and movements in Naples for a long period, and in recent times allied themselves to the cause of despotism. They were wont annually to elect a chief (*Capo Lazzaro*), who was formally recognized by the Neapolitan govt., and who exercised extraordinary power over them. Of late, they have lost many of their peculiarities, have come more within the pale of civilization, and, in fact, are no longer recognized as a separate class, though the name is still given to the boatmen and fishermen of the city, who are really the most industrious and best-principled of the Neapolitan populace.

LAZ'ARISTS, or LAZ'ARITES, or LAZARIANS: congregation of mission priests of the Rom. Cath. Church, for

LAZARUS—LAZENBY.

labor in rural districts and among the poor and in foreign lands; organized by Vincent de Paul, France, 1624; confirmed as an independent order by Urban VIII., 1632. They were named from the priory of St. Lazare in Paris, whose use was granted them. Before the death of their superior, St. Vincent, they had visited and labored through France, and in Poland, Italy, Corsica, Scotland, Ireland, Barbary, and Madagascar. They were suppressed in the French Revolution, restored by Napoleon 1804, abolished by him 1809, restored by Louis XVIII. 1816. In 1817, they established themselves in the United States.

LAZARUS, *läz'a-rüs*, EMMA: 1849, July 22—1887, Nov. 19; b. New York: author. She was a highly gifted and devout Jewess; began composing verses when a mere child; published her first collection of poems 1866; a second, *Admetus, and other Poems*, 1871; a prose romance, *Alide, An Episode of Goethe's Life*, 1874; translations, *Poems and Ballads of Heine*, 1881; and her most noted work, *Songs of a Semite*, 1882. She also was author of a tragedy, *Lo Spagnoletto* (1876), and a number of prose sketches and poems in the *Century* magazine. She sang for her race and her song was always sweet and pure.

LAZARUS, JACOB H.: American painter: b. New York, 1822, Oct. 4; d. there 1891, Jan. 11. Displaying early in life marked artistic taste, before his manhood he became a pupil of Henry Inman, but soon established a studio of his own, and for nearly 50 years was a successful artist. In addition to his ability as portrait painter, he was an admirable critic of art in general. He painted the portraits of many eminent men of his time, among them those of Governors Sewell, Hubbard, English, and Walcott, of Connecticut; Governor Hoffman, of New York; John Van Buren, for the Manhattan Club; Gen. Schuyler, for the city of Philadelphia; Maj.-Gen. Halleck; Dr. Fordyce Barker, for the Academy of Medicine; John Amory Lowell and members of his family, for Harvard University; and the Rev. James Freeman Clarke. A scholarship bearing his name was given to the Metropolitan Museum of Art by his widow and daughter, supported by an endowment fund of \$24,000, the interest of which is awarded annually to the most proficient male pupil in the class of painting organized by the art school of the museum.

LAZENBY, WILLIAM RANE, B.AGR., M.AGR.: American scientific agriculturist: b. Bellona, N. Y., 1852, Dec. 5. He was graduated in agriculture at Cornell (1874) and elected teacher of botany, horticulture and forestry in that institution. He later was appointed on the staff of Ohio State University and for six years held the position of director of the Ohio Agricultural Experiment Station. He belongs to many scientific and agricultural societies, and has done much good service in lecturing before

LAZULI—LEA.

farmers' institutes and other associations. He is at present professor of horticulture and forestry in the Ohio State University, and secretary of the Ohio Medical University.

LAZULI, n. *lāz'ū-lī* [Pers. *lazur*; Sp. *azur*, azure, sky-blue: Sp. *azul*, blue]: a mineral of a fine azure-blue color, consisting of silicate of alumina, soda, and lime; also called LAPIS-LAZULI, *lāp'īs*, or ULTRAMARINE [L. *lapis*, a stone]. LAZULITE, n. *lāz'ū-līt* [*lazuli*, and Gr. *lithos*, a stone]: called sometimes AZURITE, a mineral long confounded with Lapis Lazuli (q.v.), but though somewhat similar in its light-blue color, very different in composition; consisting chiefly of phosphoric acid and alumina, with magnesia and protoxide of iron. It occurs imbedded in quartz, or in fissures in clay-slate, in North Carolina, Brazil, Styria, etc.

LAZY, a. *lā'zī* [OF. *lasche*; F. *lâche*, slack, loose, cowardly—from mid. L. *lascus* for L. *laxus*, loose, broad: Dut. *losig*, loose in texture: Ger. *lass*, slack, dull]: disinclined to exertion; indolent; unwilling to work. LAZILY, ad. *lā'zī-lī*. LA'ZINESS, n. *-nēs*, indisposition to exertion or labor; habitual sloth. LAZE, v. *lāz*, in *OE.*, to live idly; to be idle; to waste in laziness. LAZ'ING, imp. LAZED, pp. *lāzd*.—SYN. of 'lazy': idle; slothful; sluggish; slow.

LEA, n. *lē* [Dut. *ledig*, empty, fallow: AS. *leag*, the untilled field: Low Ger. *loge*, in *placc-names*, a low-lying tract, a grassy plain: comp. Gael. *lis* or *lios*, a garden or field]: land under grass or pasturage for a certain period; grass or meadow-land; spelled also LEY and LAY.

LEA, *lē*, HENRY CHARLES, LL.D.: author and publisher: b. Philadelphia, 1825, Sep. 19; of Quaker descent, son of Isaac Lea, LL.D. (b. 1792). He early became interested in the scientific researches of his father and his uncle, Thomas Gibson Lea; wrote a paper for *Silliman's Journal*, when 14 years old; and soon afterward entered the publishing house established by his father and Matthew Corey. During the civil war he formulated the plan of encouraging volunteering by means of municipal bounties. Beside attending to his publishing business, Lea has written and published a number of papers on chemistry and conchology: *Description of New Species of Shells; Superstition and Force: Essays on the Wager of Battle, the Wager of Law, the Ordeal and Torture* (Philadelphia 1866); *Studies in Church History: the Rise of the Temporal Power, Benefit of Clergy, Excommunication, the Early Church and Slavery* (1869); *An Historical Sketch of Sacerdotal Celibacy* (1867, 83); *A History of the Inquisition of the Middle Ages*, 3 vols. (1888); *Chapters from the Religious History of Spain* (1890); *Formulary of the Papal Penitentiary in the Thirteenth Century* (1892); *A History of Auricular Confession and Indulgences in the Latin Church* (1896);

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The Moriscos of Spain: Their Conversion and Expulsion (1901); *History of the Inquisition of Spain* (1905); etc.

LEA, ISAAC: American naturalist: b. Wilmington, Del., 1792, Mar. 4; d. Philadelphia, 1886, Dec. 7. In early life he engaged in commercial pursuits, and from 1821 to 1851 was partner in a large publishing business; but from boyhood he was devoted to the study of natural history, and his various collections of minerals and fossils, and especially of shells, were valuable contributions to science. He was a member of the Academy of Natural Sciences of Philadelphia, and of the Philosophical Society of the same city, in whose *Transactions* many of his observations were published; he was also elected to membership in learned societies abroad. His work in the study of fresh-water and land mollusks brought him special distinction. His principal publications are: *Observations on the Genus Unio* (1827-33); *Synopsis of the Family of Naiads* (1852-70). In the National Museum at Washington his vast collection of *Unionidæ* and his gem collections are deposited. Consult: Scudder, *Bulletin U. S. National Museum*, No. 23 (Washington). An account of Lea's work in conchology was published at Philadelphia in 1861 by G. W. Tryon, Jr.

LEAD, v. *lēd* [Icel. *leida*, to lead; *leid*, a track, a way; Sw. *leda*; Dan. *lede*, to lead—from *led*, a gate]: to guide; to conduct; to go before to show the way; to have a tendency to; to spend or use, as to lead a pleasant life; to draw; to entice; to induce: N. guidance; first place. LEAD'ING, imp. guiding; conducting; passing: ADJ. chief; principal: N. guidance. LED, pt. and pp. *lēd*, did lead. LEADER, n. *lēd'ēr*, a conductor; a chief; the head of a party or faction; performer in an orchestra, who plays the principal first violin; one of the front horses when four are driven; that which leads or conducts; pipe conveying water away from a roof; the principal article in a newspaper; in *bot.*, the primary or terminal shoot of a tree. LEAD'ERSHIP, n. state or condition of a leader. LEAD'INGLY, ad. *-lī*. LEADING-STRINGS, strings by which children are supported when beginning to walk. TO BE IN LEADING-STRINGS, to be in a state of dependence on others, and under their control. TO LEAD ASTRAY, to guide in a wrong way; to seduce from good conduct. TO LEAD OFF, to begin. LEADING ARTICLE, the principal article of a newspaper. LEADING NOTE [Fr. *note sensible*]: in *music*, usually understood to mean the sharp seventh of the diatonic scale, or the semi-tone below the octave, to which it leads. Most of the German theorists have now relinquished the term leading note, as every note, when it is felt that another immediately above or below it should follow, may be said to be a leading note. LEADING QUESTION, a question naturally conducting or leading to others, or which suggests to the person questioned the answer he is wished to make

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(see LEADING QUESTION, in LAW): in *politics*, a matter or subject which engrosses much of public attention.—SYN. of 'lead, v.': to introduce; allure; pass;—of 'leader': chieftain; commander; captain; head; principal.

LEAD, n. *lēd* [AS. *lead*; Dut. *lood*; Dan. *lod*, the metal lead—hence Sw., Dan. *lod*, a weight, a plummet]: a soft metal of a bluish-gray color (see below): the plummet or piece of lead attached to a long string or cord, used in sounding at sea (see LEAD, THE); a slip of type-metal: V. to cover with lead; in *printing*, to widen the spaces between the lines by inserting *leads*, or slips of type-metal. LEAD'ING, imp. LEAD'ED, pp. LEADS, n. plu. *lēdz*, a roof covered with sheets of lead; the slips of metal employed by compositors for inserting between the lines of type. LEADEN, a. *lēd'n*, made of lead; heavy. BLACK-LEAD, a form of carbon, known also as *plumbago*, much used in the manufacture of pencils; a preparation for blacking and cleaning grates, etc. HAND-LEAD, the sounding-lead for shallow water—so called from its being thrown by the hand. LEAD-ARMING, a lump of tallow, pressed into the lower end of the sounding-lead, for the purpose of ascertaining the quality of the bottom. LEAD-GLANCE, an early and familiar name for the sulphide of lead or *galena*. LEAD-CHRE, a massive sulphur-yellow oxide of lead, occurring among volcanic products. LEAD-PENCIL, a pencil containing a strip of black-lead or *plumbago*. LEAD-PLASTER (see DIACHYLON). LEAD-SPAR, the carbonate of lead, or *cerussite*. RED-LEAD SPAR, the chromate of lead, or *crocoisite*. WHITE-LEAD, oxide of lead, used as the basis of white paint. SUGAR OF LEAD (see SUGAR).—SYN. of 'leaden': dull; stupid, unwilling; motionless; absurd.

LEAD [symbol Pb, atomic weight 206.9 (oxygen=16); 205.35 (hydrogen=1.008)]: the chief ore of lead is the sulphide, *galena*, PbS , which is widely distributed in the United States, Spain, and England. Other ores containing the carbonate, $PbCO_3$; sulphate, $PbSO_4$; and chromate, $PbCrO_4$, are also found in different places, in smaller quantity. Lead is obtained from *galena* by roasting it with iron, which combines with the sulphur. Another method consists in heating the ore in a current of air; a portion of the sulphide is thus converted into oxide, PbO , and a portion into sulphate, $PbSO_4$; the draft of air is then shut off and the heating continued. Both the oxide and sulphate now react with unchanged sulphide, yielding lead and sulphur dioxide. Lead is a bluish white, soft, lustrous metal, giving a gray mark on paper, and soon becoming bluish gray on exposure to air (rusting). It melts at $327^\circ C.$, boils at $1470^\circ C.$, has specific gravity 11.4, and crystallizes in octohedra. On account of its softness, low melting point and stability in air, it is largely used for plumbing and roofing purposes, for making storage batteries and vessels resistant

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to certain chemicals, and also in the manufacture of water and gas pipes, especially in Europe. It dissolves in water to a limited extent, which is greatest in the case of very pure and soft water. The quantity so dissolved may be great enough to produce symptoms of lead poisoning. Lead is largely used in the manufacture of alloys, the chief of which are type-metal (lead, 60 per cent.; antimony, 25 per cent.; and tin, 15 per cent.); pewter (lead, 80 per cent.; and tin, 20 per cent.); shot metal (lead, with 0.2—0.3 per cent. arsenic); solder (usually lead and tin), and fusible metal (generally cadmium 2; lead, 1; and tin, 4 parts). The composition of the last two alloys differs widely, according to the use to which the product is to be applied. Galena always contains more or less silver and gold; these are separated generally by adding a certain proportion of zinc to the crude melted lead. A light alloy of zinc, lead, silver, and gold rises to the surface of the metal and is removed by skimming.

COMPOUNDS OF LEAD.—*Lead suboxide*, Pb_2O , a blackish powder, formed on exposure of lead to air. *Lead oxide*, or *lead monoxide*, PbO , called, technically, *litharge* and *massicot*. The former is oxide which has been fused, the latter is obtained by heating the metal in air and forms a scum on its surface. They consist of yellow or reddish-yellow powders and are largely employed in the making of paint, putty, and certain glazes for china and earthenware. The best known salts of lead are derived from this oxide, which is basic. *Red lead*, Pb_3O_4 , also called, occasionally, *minium*, is prepared by heating litharge for a considerable time in contact with air. It is a *peroxide* (see CHEMISTRY), and is largely used in the manufacture of paint and for filling the joints in steam and other pipes. For this purpose the red powder is mixed with linseed oil, the resulting paste soon hardens and the product is not affected by moisture, moderate heat, nor by many chemicals. *Lead peroxide*, or *dioxide*, PbO_2 , is a black powder, used in chemistry as a source of oxygen. *Lead nitrate*, $Pb(NO_3)_2$, colorless octohedral crystals. It is the chief soluble salt of lead, and forms the starting point for the preparation of many other compounds of the metal. It is formed from nitric acid and the metal or litharge. *Lead sulphate*, $PbSO_4$, prepared from sulphuric acid and a soluble lead salt, or by oxidation of the sulphide (see above). Its production is used as a test for lead because it is sparingly soluble. It is manufactured on a large scale for the making of paint (q.v.). *Lead silicates* are used in the production of pottery glazes and are formed by fusing sand and litharge together. *Lead carbonate*, $PbCO_3$, is found in nature and is closely related to *white lead*, which is a basic carbonate of variable composition, represented, approximately, by the formula $Pb(OH)_2 \cdot 2PbCO_3$. It can be prepared by adding a solution of sodium car-

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bonate (washing soda) to a solution of a lead salt, or, better, by the action of the vapor of acetic acid (vinegar) on lead in presence of carbon dioxide and moisture. Pots containing the acid and metal are piled in heaps and covered with a mixture of spent tan bark and stable manure. After some weeks the pots are emptied and the white, insoluble crusts which have formed are finely divided, well washed with water, dried and the powder ground up with linseed oil. This material forms the basis of most paints, because of its great 'covering power,' i.e., it is very opaque and, therefore, a thin layer of it will conceal other colors, stains, etc., on the objects to which it is applied. Of course it can be colored by mixing with any suitable pigment. *Lead chromate*, PbCrO_4 , is much used as a pigment in making paints. Its color is reddish yellow to dark orange red. *Lead acetate*, $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2$, (sugar of lead), is soluble, has a sweet taste and is used for the purification of plant juices and extracts and also in medicine, as a lotion to relieve local inflammation, such as is caused by burns or the bites of insects.

Lead and all its compounds are highly poisonous, about 12 per cent. of the total number of deaths from poison are caused by lead. All those who habitually come into close contact with lead or its compounds suffer more or less from its toxic power, though some people are much more easily affected than others. Its action is slow but continuous, and it is a 'cumulative poison,' i.e., small quantities are absorbed into the system and are stored or accumulated there. The symptoms are similar to those of colic ('lead colic'), a blue deposit of lead or of one of its compounds forms in the gums, over the teeth, and then paralysis sets in. The people who suffer in this way, in addition to those engaged in the manufacture of lead and its compounds, are painters, typesetters, and sometimes plumbers. The most effective remedies are opium and potassium dioxide; occasionally sulphuric acid is administered. The best means of protection against the poison is cleanliness, especially of the hands and face, before eating, and the frequent use of hot baths. On account of the increased use of lead for the protection of telephone and telegraph cables, the production of the metal has risen enormously. In 1891, the total quantity obtained was about 480,000 tons; in 1904, however, 927,000 tons were marketed. During 1896, the United States produced, from domestic ores, 188,000 short tons of lead, valued at \$10,528,000. In 1900 and 1905, the quantities were 270,824 and 302,000 tons, of the value \$23,561,688 and \$28,690,000, respectively. The various prices per ton were, therefore, \$56, \$87, and \$95, respectively, in the years in question.

LEAD, ANGLE OF. See ELECTRO-DYNAMICS.

LEAD. ELECTRIC: wires or conductors which convey

LEAD—LEAD-PENCILS.

current from a source of electricity to any electrical device.

LEAD, *lēd*: city in Lawrence co., S. Dak., on the Chicago & Northwestern and the Burlington & Missouri River railroads; about 18 miles from the western boundary of the state. It was settled in 1876 and incorporated in 1877. It is situated in the Black Hills in a gold mining region. The chief industries are connected with mining, the manufacturing of mining tools and the outfits for mining camps. Some of the largest mines in the vicinity are the Homestake Gold Mining Company, which employs about 5,000 men; the Hidden Fortune Gold Mining Company, employing about 500; and in several other mines about 5,000 more miners are employed. The modern methods of mining have made the Black Hills (1903) the third largest gold producing region in the world, and Lead receives its share of the industrial plants connected with preparing the ore for market. The educational institutions are the public and parish schools, Black Hills Business College, the Hearst Free Kindergarten, and the Hearst Free Library. The Lead Coliseum and several churches are among the prominent buildings. The combined capital of the banks is \$50,000; and the value of the business transacted annually is about \$17,000,000. The government is vested in a mayor and a council of 10 members, two from each ward. Pop. about 12,000.

LEADHILLITE, n. *lēd'hīl-īt*: a mineral of a yellowish or greenish-white color, occurring in tabular crystals or in foliated aggregates, consisting of sulphate and carbonate of lead—so called from being first found in the *Leadhills*, Scotland.

LEADING QUESTION, in Law: question so put to a witness as to suggest the answer that is desired or expected. Thus, if a witness is asked: 'Was he dressed in a black coat?' it is supposed the witness will answer, yes; whereas the proper way of putting the question is: 'How was he dressed?' or, 'What kind of a coat?' etc. The rule established in courts of justice as to the correct practice in such matters, is, that when a witness is examined in chief, i.e., by the party who adduces such witness, leading questions are not allowed, except in one or two rare cases; whereas, when the witness is cross-examined, i.e., by the opposing party, leading questions may be put; for the object is to make the witness contradict and stultify himself, so that the jury will disbelieve him. The above rule, however, applies only to material questions, for in immaterial questions leading questions may be put, to save time.

LEAD-PENCILS: lead-pencil manufacture in the United States did not begin until 1860, but in 1903 there is estimated to be \$4,000,000 capital invested in the industry, and American lead-pencils are sold all over

LEAD-POISONING.

the world. Germany is the pioneer country in lead-pencil manufacture, and from that nation came many of the founders of the industry in the United States. Among the first in this country were Eberhard Faber, Joseph Reckendorfer, and Henry Baulzheimer. New York city and vicinity have always been the seat of lead-pencil manufacture in this country, and among the prominent manufacturing firms now located there are the American Lead-Pencil Company, the Eagle Pencil Company, and the works and office of Eberhard Faber; while in Jersey City is the plant of the Joseph Dixon Crucible Company, founded by Joseph Dixon at Salem, Mass., as early as 1826, and moved to Jersey City in 1840. The company did not begin to make lead-pencils until 1872. It is the pioneer graphite company in the United States, if not in the world. The plumbago crucibles (which are identical with graphite) were invented by Joseph Dixon. Graphite now enters largely into every department of the mechanical arts. The American output of pencils is calculated to be 5,000 gross daily. American lead-pencils now supply nearly all the home demand and are sold everywhere. Many novelties in pencils have originated in the United States.

LEAD-POISONING: impregnation of the system with lead. This may occur in a great variety of ways. Painters are peculiarly exposed to it, as they are constantly handling white lead in their paints. Others who have to handle lead, as miners, laborers in lead works, plumbers, type-founders and type-setters, etc., also furnish many instances of so-called 'professional' lead-poisoning. Lead may be taken in the food or drink, as when flour is ground between stones, holes in which have been plugged with lead; when acid fruits or tomatoes have been long canned and have dissolved lead from the solder; when water or beer is drawn through lead pipes and is drunk without the precaution to let the part which has been standing in the pipe flow away, before drawing for drinking. The use of powder and other cosmetics containing lead is also dangerous.

The early phenomena of lead-poisoning or saturnine poisoning are: (1) a narrow blue line, due to the presence of sulphide of lead, on the margins of the gums next the teeth; (2) a peculiar taste in the mouth, and a peculiar odor of the breath; (3) a jaundiced skin, with more or less emaciation; (4) a depressed circulation.

These premonitory phenomena are followed, unless remedial means are adopted, by the four following forms of disease, each of which may exist alone, or may be complicated with one or more of the others, or may follow the others, without any definite order of succession:

1. **LEAD COLIC;** far and the most frequent of the diseases.

2. **LEAD RHEUMATISM or GOUT, or ARTHRALGIA;** in frequency next to colic.

LEADVILLE.

3. LEAD PALSY or PARALYSIS; affecting either motion or sensation; next in frequency.

4. DISEASE OF THE BRAIN; least common of all the forms of lead-poisoning, and manifested by delirium, by coma, or by convulsions.

Lead Colic is characterized by sharp, continuous abdominal pains, usually diminished on pressure; by hardness and depression of the abdominal walls; by obstinate constipation, slowness and hardness of the pulse, and general disturbance of the system. The blue line on the gums is of assistance in enabling the physician to distinguish it from other varieties of colic.

Lead Rheumatism is characterized by sharp pains in the limbs, unaccompanied by redness or swelling, diminished by pressure, increased by motion, and accompanied by cramps, with hardness and tension of the affected parts. True gout is also quite common in sufferers from lead-poisoning.

Lead Palsy is characterized by a loss of voluntary power over certain muscles. It more commonly affects the upper than the lower extremity, and the muscles most frequently affected are those of the ball of the thumb, and the extensors of the wrist, giving rise to the condition known as *wrist-drop*.

Treatment.—The patient should be placed in a sulphuretted bath, which converts all the lead-salts on the skin into the inert black sulphide of lead. These baths should be repeated till they cease to cause any coloration of the skin. At the same time, he should drink water acidulated with sulphuric acid, or a solution of sulphate of magnesia, with a slight excess of sulphuric acid, by which means an insoluble sulphate of lead is formed, which is eliminated by the purgative action of the excess of sulphate of magnesia. Iodide of potassium is then administered, which acts by dissolving the lead out of the tissues, and allowing it to be removed by the urine. The palsy may be specially treated, after the elimination of the lead, by electricity, and by strychnine in minute doses.

Persons exposed from their occupation to the risk of lead-poisoning should be especially attentive to cleanliness, being particularly careful to wash the hands thoroughly before eating. Employees in lead works and others who are exposed to the inhalation of dust, should wear respirators, and if they combine the frequent application of the warm bath with the use of sulphuric lemonade as a drink, they may escape the effects of the poison.

LEADVILLE, *léd'vil*: city, cap. of Lake co., Colo.; on the Denver & Rio Grande, the Colorado M., and the Colorado & S. railroads; 80 m. s.w. of Denver; on the Mosquito range of the Elk Mountains; 10,200 ft. above the sea. In 1877, its site had about 25 inhabitants. It

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owes its celebrity to the accidental discovery in the latter part of 1877 of chloride of silver in a quantity of stones which with earth was being washed for gold in California gulch 4 m. distant. A rich quality of lead also was found, but owing to inadequate means of transportation the miners gave it no attention. Search, however, was made for the outcrop of the silver-bearing stones, and when it had been located on Iron Hill the discoverers began mining there. News of the 'find' spread rapidly, and during the winter 1877-8 several thousand miners came to Leadville, examined its numerous hills, made further discoveries, and began mining on Carbonate, Fryer, Evans, Long, and Derry Hills. By 1879, Mar. 1, carbonates of silver and lead had been taken from the various mines to the value of \$5,000,000, the fame of Fryer Hill particularly had spread through the country, and miners, adventurers, and gamblers were flocking to Leadville at the rate of 2,000-3,000 per month. During 1880, there was much exploration and development. In 8 of the Fryer Hill mines alone more than 75,000 linear ft. of drifts, levels, winzes, and raises were made, representing about 2,000,000 cubic ft.; and in many places on Iron Hill the ore body was found to range 15-35 ft. in thickness, all of good grade. Numerous additional discoveries of chloride bodies and a score or more of rich strikes of free milling silver and gold-bearing ores and quartz were made. Since then wild speculation and the excitement that follows the opening of a new mining region have subsided; and better influences prevail. The city has fine buildings, including a Carnegie library, opera house, theatre, court-house, jail, hospital, and almshouse; has a parochial school, a high school and four grade schools, two Roman Catholic churches, two Methodist, two Presbyterian, a Baptist, a Congregational, and a Lutheran; is lighted by gas and electricity, has an excellent water supply, and well organized fire and police departments. Besides its large sampling, refining and reduction works, smelting furnaces, etc., its mines employing 4,000 workmen, its smelting 1,200, and incidental to mining and smelting 1,200; it has also iron foundries, manufactures of machinery, ice, jewelry and novelties, and a government fish-hatchery. There are two national banks, the volume of business of the Carbonate National Bank in 1902-3 being, receipts \$24,071,492, and disbursements \$24,095,624. The city is administered by a mayor and common council of six members elected biennially. Pop. (1900) 12,455; (1910) 7,508.

LEAF, n. *lēf*, LEAVES, n. plu. *lēvz* [Icel. *lauf*; Sw. *lōf*; Dan. *lōv*; foliage: Ger. *laub*; Dut. *loof*, the leaves of trees]: this, broad, and somewhat oval part of a plant growing from the stems and branches; anything resembling a leaf in thinness; one of the many thin sheets of a book; the broad movable part of a thing, as of a table or door: V. to unfold or produce leaves. LEAF'ING, imp.:

LEAF-BEETLE—LEAF-HOPPER.

N. the process of unfolding leaves. LEAFED, pp. *lēft*. LEAVED, a. *lēvd*, having leaves. LEAFLESS, a. *lēflēs*, without leaves. LEAF'LESSNESS, n. *-nēs*, the state of being destitute of leaves. LEAFAGE, n. *lēf'āj*, abundance of leaves; season of leaves. LEAFLET, n. *lēflēt*, a little leaf. LEAFY, a. *lēf'ī*, full of leaves. LEAFINESS, n. *-nēs*, state of being full of leaves. LEAF-BUD, a bud producing leaves. LEAF-STALK, the stalk or small branch which supports a leaf. LEAF-TRACE, the scar left by the falling of a leaf. TO TAKE A LEAF OUT OF ONE'S BOOK, to imitate the manner of life and doings of another. TO TURN OVER A NEW LEAF, to begin a fresh and reformed life.

LEAF-BEETLE: a popular name for many members of the family *Chrysomelidæ* (q.v.), which embraces about 18,000 widely distributed species, about 600 of which are found in North America. The larvæ, which feed upon the succulent parts, either fully exposed, in protective cases, beneath the epidermis as leaf-miners or stalk-borers, are all soft-bodied six-footed creatures with great appetites. Some larvæ feed on roots, some are aquatic, and many cover themselves with excrement as a protection against their enemies. The adults of several tropical species are of such brilliant colors as to be used for jewelry when mounted in gold settings. The family includes many species considered serious pests of cultivated plants. Some of the most noted of these are the flea-beetles, tortoise-beetles, potato and asparagus beetles, elm-leaf beetle and the diabroticas, represented by the striped, and the spotted cucumber-beetle. These are treated under their food-plant titles.

LEAF-CUTTER BEE: name given to certain species of *solitary bees* (see BEES) of genera *Megachile* and *Osmia*, in consequence of their habit of lining their nests with portions of leaves, or of the petals of flowers, which they cut out for this purpose with the mandibles. *Megachile centuncularis* uses the leaves—not the petals—of roses, fitting the pieces together to form one thimble-shaped cell within another, in a long cylindrical burrow, the bottom of each cell containing an egg and a little pollen paste. The structure of these nests is very nice and curious.

LEAF-HOPPER: any member of the family *Jassidæ*, which includes a very large number of small bugs greatly varying in form and often grotesque. They are especially numerous in grass and grain, which they are believed to injure to a greater extent than is usually supposed. Among the best-known species is the grape-vine leaf-hopper (*Erythroneura vitis*), which is often so abundant in vineyards that the leaves may turn brown from the insects' punctures. They have been effectively caught by tapping the vines to make the insects jump against a screen smeared with tar or a fan similarly covered and kept in constant motion close to the vines. This species

LEAF-INSECT—LEAF-NOSED BATS.

is sometimes erroneously called 'thrips.' Among the best known of the grass-feeding host of species is the destructive leaf-hopper (*Cicadula* or *Limotettix exitosa*). This is sometimes caught in wide pans covered with tar and dragged across the field.

LEAF-INSECT, or WALKING LEAF: tropical species of the family *Phasmidæ*, which is represented in temperate climates by the walking-stick. They are so called because of the remarkable resemblance of their wings to leaves, not only in color but also in the arrangement of the veins, etc., so that the natives believe that the insects are really leaves which have acquired organs of locomotion, digestion, etc. Their legs also look more or less like twigs, and their eggs, which are dropped upon the ground from the foliage where the insects feed, look very much like seeds. This likeness is of use as a protection from enemies.

LEAF-MINER: any insect of the superfamily *Tineoidea*, which comprises several families of very small moths, most of whose larvæ feed upon the soft tissues (parenchyma) of leaves and green stems beneath the epidermis, sometimes eating away rounded passages and sometimes long serpentine paths. More than 4,000 species have been described, of which fully 1,000 are American. The adults are often remarkably beautiful, exhibiting under the microscope a covering of lustrous scales. Among the plants that these insects attack injuriously are oaks, pines, maples, and palmettos. Some of the leaf-feeding species have developed the habit of feeding during their later larval days upon the outside of the leaf, either fully exposed or in a protective case. Others have assumed root- and seed-feeding habits; still others have become twig-borers, and gall-formers. Some of the related species live upon animal skins, fur, wool, etc. A few flies of the families *Anthomyiidæ* and *Oscinidæ* are leaf-miners, as are also some leaf-beetles of the family *Hispini* and some sawflies of the family *Tenthredinidæ*. Consult: Comstock, *Manual for the Study of Insects* (1895); Sharp, *Cambridge Natural History*, Vol. VI. (1899).

LEAF-NOSED BATS: a general term for such bats as have on the snout upright leaf-like growths of highly sensitive membrane which is presumably of great assistance to them in making their way about in darkness, and in finding and taking their insect-prey (see BAT). These folds of skin are, naturally enough, called the nose-leaf, and may be comparatively small and simple, or so large as to form a grotesque mask, such as gives so extraordinary appearance to the horse-shoe and other leaf-nosed bats of the family *Rhinolophidæ*, and to the 'false vampires' of the family *Nycteridæ*. North American bats show very little of this peculiarity. These complicated membranes are always fringed with long,

LEAF-ROLLER—LEAGUE.

fine hairs, which serve the purpose of the tactile whiskers of cats; and the bats possessing this feature are more thoroughly nocturnal than those in which it is lacking or little developed.

LEAF-ROLLER, LEAF-TYER, or LEAF-SEWER: a small moth, in most cases one of the family *Tortricidæ*, whose caterpillar rolls a leaf or a part of a leaf into a case, tying it into a cylindrical case with silken bands and lining this case with silk, so as to form a sort of cocoon in which it may transform safely into the pupa stage. In some cases the nest is formed by fastening together several leaves. 'In most cases,' says Comstock, 'the building of the nest is the work of a single larva, but in very many instances several larvæ work to build a common nest.' Each species makes its nest of a particular form, and infests some special kind of plant or tree; and many do considerable injury, especially among greenhouse plants and orchard trees.

LEAGUE, n. *lĕg* [F. *ligue*; It. *lega* or *legua*, an alliance—from L. *ligārĕ*, to bind]: a union or combination for interest, friendship, or party purposes; an alliance, as between states: V. to unite or combine for mutual aid or defense. LEAG'UING, imp. LEAGUED, pp. *lĕgd*. LEAG'UER, n. *-ĕr*, one who enters into a league; a confederate.—SYN. of 'league, n.': confederacy; combination; compact; coalition; contract.

LEAGUE, n. *lĕg* [OF. *legue* and *luie*; F. *lieue*, a league—from mid. L. *leuca*, a measure of distance: Gael. *leug* or *leag*; W. *llech*, a stone]: measure of length, of great antiquity; used by the Romans, who derived it from the Gauls, and estimated it as equivalent to 1500 Roman paces, or 1.376 modern English miles. The league was introduced into England by the Normans, probably before the battle of Hastings (1066), and had been by this time lengthened to 2 English m. of that time, or 2.9 modern English m. At the present day, the league is a nautical measure, and signifies the 20th part of a degree—i.e., 3 geographical m., or 3.456 statute m. The French and other nations use the same nautical league, but until the introduction of the metric system the French had two land-measures of the same name, the legal posting-league (2.42 Eng. m.), and the league of 25 to the degree (2.76 English m.).

LEAGUE: generally, in the 16th and 17th c., a political alliance or coalition. The most famous leagues were those of Cambray, Schmalkald, Nürnberg, etc. But the term has peculiar importance in the history of France, as applied to the opposition organized by the Duke of Guise (q.v.) to the granting of the free exercise of their religion and political rights to the Huguenots. This league, known as the Holy League (*Sainte Ligue*), was formed at Péronne 1576, for upholding the Rom. Cath. religion in its predominance; but the object

LEAGUE—LEAL.

of the Guises was rather to exclude the Prot. princes of the blood from succession to the throne. For an account of the civil war that ensued, see HENRY III.; HENRY IV.; GUISE. See Mignet *Histoire de la Ligue* (5 vols. Par. 1829).

LEAGUE, ACHÆ'AN. See ACHAIA.

LEAGUER, n. *lēg'ēr* [Dut. *leger*, a lying-place, a lair: Ger. *lager*, a bed]: in *OE.*, the lying-place of an army in the field; a camp; a siege.

LEAGUER, n. See under LEAGUE.

LEAHY, *lē'hī*, WILLIAM AUGUSTINE: American author: b. Boston, 1867, July 18. He was graduated from Harvard in 1888, was literary editor of the *Boston Traveller* in 1893-4, then entered general literary work, and contributed verse and short stories to magazines. In 1902, he was appointed secretary to the music department of Boston. His works are: *The Siege of Syracuse* (1889); *The Incendiary* (1896), which obtained a prize offered by the *Chicago Record*; and a *History of the Catholic Church in New England* (1899).

LEAK, n. *lēk* [Icel. *leka*, to drip, to leak: Dut. *lek*, a leak; *lecken*, to leak: Ger. *leck*, a leak: L. *liquārī*, to melt away]: a hole or other defect which permits the passage of a liquid; the oozing out of a fluid through a hole or a joint: V. to let a liquid out of any vessel through a hole or defective part; to let water in through a joint or defective part, as a ship *leaks*. LEAK'ING, imp.: N. the oozing or passing of a liquid through a joint or an aperture. LEAKED, pp. *lēkt*. LEAK'AGE, n. *-āj*, the liquid which escapes or enters by leaking; an allowance for liquid lost by leaking. LEAKY, a. *lēk'ī*, that admits a liquid, as water, to pass in or out. LEAK'INESS, n. *-nēs*, state of being leaky. To LEAK OUT, to find vent; to escape secrecy, as a fact or report. To SPRING A LEAK, to open or crack to such an extent as to allow the passage of water, usually said of the hull or shell of a ship.

LEAKE, *lēk*, WILLIAM MARTIN: 1777, Jan. 14—1860, Jan. 6; b. London: lieut.col. in the British army, and a traveller and antiquarian topographer. With remarkable critical acuteness and soundness of judgment, he combined great learning and an admirable power of clear statement. His principal works are: *Researches in Greece*, etc. (1814); *The Topography of Athens*, etc. (1821); *Journal of a Tour in Asia Minor, with Comparative Remarks on the Ancient and Modern Geography of that Country* (1824); *Travels in the Morea* (1830); *Travels in Northern Greece* (1835); and *Numismatæa Hellenica* (1854).

LEAL, a. *lēl* [Norm. F. *leal*; OF. *leial*; F. *loyal*, true, loyal]: in *Scot.*, loyal; honest; faithful; true-hearted. LAND OF THE LEAL: see under LAND.

LEAN—LEAR.

LEAN, a. *lĕn* [AS. *hlæne*; Low Ger. *leen*, slender, lean: It. *leno*, lean, feeble]: thin; slender; not fat; bare: N. flesh or muscle without fat. LEAN'LY, ad. *-lĭ*. LEAN'NESS, n. *-nĕs*, want of flesh; want of fat; thinness; poverty; want of spiritual power.—SYN. of 'lean, a.': meagre; slim; spare; gaunt; lank; bare-boned; barren.

LEAN, v. *lĕn* [AS. *hlynian*; Ger. *lehnen*; Dan. *læne*; It. *lenare*, to bend toward]: to deviate or move from a straight or perpendicular line; to incline or tend toward; to rest against or upon. LEAN'ING, imp. LEANED, pp. *lĕnd*. LEAN-TO, n. *lĕn'tô*, a building or part of one, of which the rafters lean on another building, or against a wall. TO LEAN ON or UPON, to trust to; to have confidence in.—SYN. of 'lean': to deviate; incline; bend; depend on; rest on.

LEAN'DER. See HERO.

LEAP, v. *lĕp* [Icel. *hlaupa*, to run, to spring; *hleypa*, to make a spring: Dut. *loopen*, to run]: to spring to, or rise from, the ground; to jump; to pass over with a spring or bound; to start; to fly: N. a jump; a spring; a bound; space passed by leaping; a sudden transition. LEAP'ING, imp.: ADJ. springing; bounding: N. act of jumping or skipping. LEAPED, pt. and pp. *lĕpt*, did leap. LEAPER, n. *lĕp'ēr*, one who leaps or bounds. LEAP'INGLY, ad. *-lĭ*. LEAP-FROG, a boy's game, in which one stoops down and another leaps over him. LEAP-YEAR [Icel. *hlaup-år*]. See below.

LEAP'ING-FISH (*Salarias tridaetylus*): curious little fish of the Blenny family, abounding on the coast of Ceylon, and remarkable for leaving the water to visit places washed by the surf. By the aid of the pectoral and ventral fins, and the gill-covers, it moves across the damp sand, ascends the roots of mangroves, and runs up wet rocks in quest of flies. 'These little creatures are so nimble,' says Sir J. E. Tennent, 'that it is almost impossible to lay hold of them, as they scramble to the edge, and plunge into the sea on the slightest attempt to molest them.' They are three or four inches long, and of dark brown color.

LEAP'-YEAR: a year of 366 days (see CALENDAR), so called because it leaps forward a day as compared with an ordinary year. It so happens that the leap-years coincide with the years that are divisible by four, and thus they may be known. Of the years concluding centuries, and known as the hundredth year, e.g., 1800, 1900, only every fourth is a leap-year, beginning with 2000; i.e., only those divisible by 400, e.g., 2400, 2800. The term *Bissextile*, applied by the Romans to leap-year, arose from their reckoning the 6th before the Kalends of March (Feb. 24) twice (*bis*), whereas we add a day to the end of the month, making it Feb. 29.

LEAR, or LEER, a. *lĕr* [AS. *ge-lær*; Ger. *leer*, empty, void]: empty; destitute; void: N. an archway or long

LEAR—LEARN.

oven with a gradually decreasing heat, open at both ends, having sliding trays on which are placed finished glass articles for annealing.

LEAR, *lēr*, EDWARD: English author and artist: b. London 1812, May 12; d. San Remo 1888, Jan. 29. In 1831 he became draftsman to the London Zoological Society. His illustrations of the 'Family of the Psittacidæ' (1832) was followed by many other illustrations for zoological works by Gould, Bell, Swainson, Jardine, and Gray. In 1837 he visited Italy and the East, and in those parts spent most of his remaining days, chiefly occupied with landscape painting. He exhibited *Dead Birds* in 1836, and in 1850 was represented at the Royal Academy exhibition by *Claude Lorraine's House on the Tiber*. As an author he is best known by his *Book of Nonsense* (1846); *Nonsense Songs and Stories* (1871); *More Nonsense Songs, etc.* (1872); and *Laughable Lyrics* (1877). He also wrote *Views in Rome and its Environs* (1841); *Illustrated Excursions in Italy* (1846); *Journal of a Landscape Painter in Greece and Albania* (1851); *Journal of a Landscape Painter in Southern Calabria* (1852); *Views in the Seven Ionian Islands* (1863); and *Journal of a Landscape Painter in Corsica* (1870). Tennyson's verses *To E. L. on his Travels in Greece* were addressed to Lear.

LEAR, TOBIAS: American diplomatist: b. Portsmouth, N. H., about 1760; d. Washington, D. C., 1826, Oct. 11. He was graduated at Harvard in 1783, and in 1785 became private secretary to General Washington, to whose domestic affairs he attended for several years, and by whom, in his will, Lear was most liberally remembered. In 1802 he was consul-general at San Domingo, and afterward consul-general at Algiers and commissioner to conclude a peace with Tripoli. He discharged this last duty in 1805 in a manner which gave offense in certain quarters, but his conduct was approved by the federal government. He returned shortly after to the United States, and at the time of his death (by suicide), was employed in Washington as accountant of the War Department.

LEARN, v. *lérn* [AS. *læran*, to teach; *leornian*, to learn: Ger. *lehren*, to teach; *lernen*, to learn: Goth. *leisan*, to know]: to gain knowledge; to receive instruction or knowledge; to acquire skill in anything; to teach. LEARN'ING, imp. gaining knowledge; acquiring skill: N. knowledge acquired by instruction or study; literature. LEARNED, pp. *lérnd*, spelled also LEARNT, *lérnt*, LEARNED, a. *lérn'éd*, versed in the knowledge of classical authors and literature; versed in literature and science. LEARN'EDLY, ad. *-éd-lī*. LEARN'ER, n. *-ér*, one who is acquiring learning or knowledge. THE LEARNED, n. *lérn'éd*, men who have great stores of that knowledge which is gained by instruction and study from books.

LEARNED—LEASE.

TO LEARN BY HEART, to learn a thing so as to understand it. TO LEARN BY MEMORY, to gain a knowledge of anything without reference to understanding it. TO LEARN BY ROTE, to gain a familiar knowledge of a thing, simply with a view to repeating it as a parrot would do. —SYN. of 'learning'; erudition; scholarship; knowledge; lore; letters; science; art.

LEARNED, *lēr'nĕd*, EBENEZER: about 1728-1801, Apr. 1; b. Mass.: soldier. He entered the army at an early age; served as capt. through the French war 1756-63; raised the 3rd Mass. regt. at the beginning of the revolutionary war; was commissioned brig.-gen. 1777; took part in the relief of Fort Schuyler and commanded the centre in the battle of Stillwater; was with the army at Valley Forge; and resigned from ill health 1778, Mar.

LEASE, v. *lēz* [AS. *lesen*, to gather: Ger. *lesen*; Goth. *lisan*, to gather]: in OE., to gather after the harvest-men; to glean. LEAS'ING, imp. LEASED, pp. *lēzd*. LEASER, n. *lēz'ēr*, one who gathers after harvest-men; a gleaner.

LEASE, n. *lēz* [F. *laissement*, the instrument by which a holding of any kind is let to a tenant—from F. *laisser*, to leave, to part with, to let: Ger. *lassen*, to let]: a letting of lands or houses for a specified period on certain conditions for a fixed rent; the contract of such letting: any tenure, as a lease of life: V. to let for a specified period. LEAS'ING, imp. LEASED, pp. *lēst*. LEASE'HOLD, n. an interest on property held by lease; of much less value than a freehold estate, as a lease must come to an end, whereas a freehold estate may be held by a man and his heirs forever. ADJ. held by lease. LEASE'HOLDER, n. a tenant by lease: see LESSEE. LEASE AND RELEASE, form of conveyance of land anciently frequent in England, now superseded by a Grant.

LEASE: a species of contract granting the possession of lands, tenements, or incorporeal hereditaments, for life or a limited term of years, or during the pleasure of the contracting parties. The grantor is called the lessor and the grantee the lessee. A lease may be in writing or by parol, but the former is more satisfactory, as it usually sets out in regular form and binding terms the respective rights of the contracting parties. A lease contract establishes the relation of landlord and tenant between the lessor and lessee, unless its terms limit the relation of the parties. A lessor who holds an estate for years only may under-lease in such a manner as to establish a technical relation of landlord and tenant between the owner of the fee and the lessee. One of the essential requisites of a lease is, that its duration must be for a shorter period than the duration of the interest of the lessor in the property leased; for if the holder of an interest less than that of a fee leases his interest for the full term of its continuance it would be in effect

LEASEHOLD—LEASH.

an assignment or sale of his interest and in no sense a lease. In a lease proper, the lessor reserves to himself a reversionary interest in the property included in the lease, the beginning and termination of which are to be determined by the agreement of the parties. This agreement must also include a designation of the premises, estate or interest, intended to pass to the lessee. A term, however, is perfected only by the entry of the lessee. Even after the making of a lease the estate remains in the lessor up to such time as the lessee actually enters into possession, and the only right the lessee has in the estate is that of making an entry, which must be exercised to give him the additional rights provided for in the lease. All persons possessed of lands or tenements, or interest therein, competent to do business and under no legal disability, as of unsound mind, immature age, or the like, may enter into a lease contract.

LEASE'HOLD: an estate held under or by virtue of a lease. An estate for years usually commences by means of a written lease. It is important to distinguish between a lease and an agreement to lease, the former being a completed contract and the latter only a stipulation for the formation of a contract at some future time. It is often difficult to determine to which of the two classes an instrument belongs, without resorting to an interpretation based upon the intentions of the contracting parties. If a lessee fails or refuses to enter into possession under and in accordance with the terms of a lease, the possession remains undisturbed in the lessor, and the remedy of the latter would be by an action for not entering into possession and for consequent damages, rather than for a breach of the conditions of the terms of the lease, the relation of landlord and tenant not having been established before an entry under the lease. A person can convey by lease no greater interest than he possesses in an estate. If the lessor has only a life estate it terminates with his death, although he may have executed a lease for a term of years not completed at the time of his death. The ordinary powers, duties, and obligations of the contracting parties may be increased, diminished, or modified by special provisions in a lease. Many lease contracts provide for all of the contingencies which can ordinarily happen. It is not infrequent that a clause in the instrument provides that the lessee may build upon land leased to him, and that he shall have the right to remove his buildings at the expiration of his term, or purchase the fee. Any provision not illegal or inconsistent with public policy may be an incident of a leasehold.

LEASH, n. *lēsh* [OF. *lesse*; F. *laisse*, a leash to hold a dog—from mid. L. *laxa*, a leash, a thong—from L. *laxus*, loose: Sp. *lazo*, a slip-knot]: in *falconry*, thong or line by which a hawk or a hound is held; a brace and a half;

LEASING—LEATHER.

three animals, as of greyhounds, foxes, hares—the sense of *three* arising from that number usually being tied or leashed together. The leash is used in heraldry: V. to bind or hold by a string. LEASH'ING, imp. LEASHED, pp. *lēsh't*.

LEASING, n. *lē'zīng* [AS. *leas*, empty; *leasian*, to lie: Goth. *laus*, empty: Dut. *loos*, false]: in *Scrip.*, lies; falsehoods. LEASING-MAKING [see LEZE-MAJESTY]: in *Scots law*, seditious words: under ancient statutes (1584-5) punishable with death; the penalty was long ago mitigated to fine and imprisonment, or both.

LEAST, a. *lēst* [see LESS]: superlative of *little*; little beyond all others; smallest: AD. in the lowest degree; in a degree below others. LEASTWAYS, or LEASTWISE, ad. least. AT LEAST, or AT THE LEAST, at the lowest; to say no more; in any or the smallest degree.

LEAT, n. *lēt* [Ger. *leiten*, to lead]: a trench or canal to conduct water to or from a mill; a small mill-race.

LEATHER, n. *lēth'ér* [AS. *lether*: Icel. *lethr*; Ger. *leder*; W. *llethr*, leather]: prepared skins of animals: V. in *low language*, to beat or thrash—from *leathern belts* being sometimes employed as weapons in street quarrels. LEATH'ERING, n. a beating or thrashing. LEATHER, or LEATHERN, a. *lēth'érn*, made of leather. LEATH'ERY, a. *-ér-ī*, resembling leather; tough.

LEATH'ER: essentially the skins of animals chemically altered by the vegetable principle called Tannin, or Tannic Acid (q.v.), so as to arrest that proneness to decompose characteristic of soft animal substances. Its invention reaches beyond the dawn of history, and was probably among the earliest steps of civilization; for as the skins of animals would naturally be among the first articles of clothing, any means of preserving them more effectually than by drying would be highly prized. The discovery that bark had this effect was doubtless the result of accident. The principle of its action was unknown till the present century; and the same unvarying method had been employed from the earliest times until the last few years, when the invention of new processes has much facilitated the manufacture.

The skins of all animals used in production of leather consist chiefly of gelatine, a substance which easily enters into chemical combination with the tannic acid found in the bark of most kinds of trees, and forms what may be termed an insoluble *tanno-gelatin*. This is the whole theory of tanning, or converting the skins of animals into leather. Formerly, oak-bark was supposed to be the only tanning material of any value; but lately, very numerous additions have been made to this branch of economic botany.

In addition to the process of tanning in making leather, there are other modes, one of which is *tawing*, another *dressing in oil*. The following are the skins

LEATHER.

which form the staple of leather manufacture: ox, cow, calf and kip, buffalo, horse, sheep, lamb, goat, kid, deer, dog, seal, and hog.

In 1905 there were 1,049 establishments engaged in currying, tanning and finishing leather; the capital invested amounted to \$242,584,254; the average number of wage-earners was 57,239, and the value of products was \$252,620,986. For the entire industry, including boots and shoes, gloves, etc., there were 4,945 establishments, with capital of \$440,777,194, and employing 255,368 persons whose wages amounted to \$116,694,140; the cost of materials used was \$471,112,921, and the products were valued at \$705,747,470.

The term *pelt* is applied to all skins before they are converted into leather. When simply made into leather in the state seen in shoe-soles, it is called 'rough leather;' but if, in addition, it is submitted to the process called

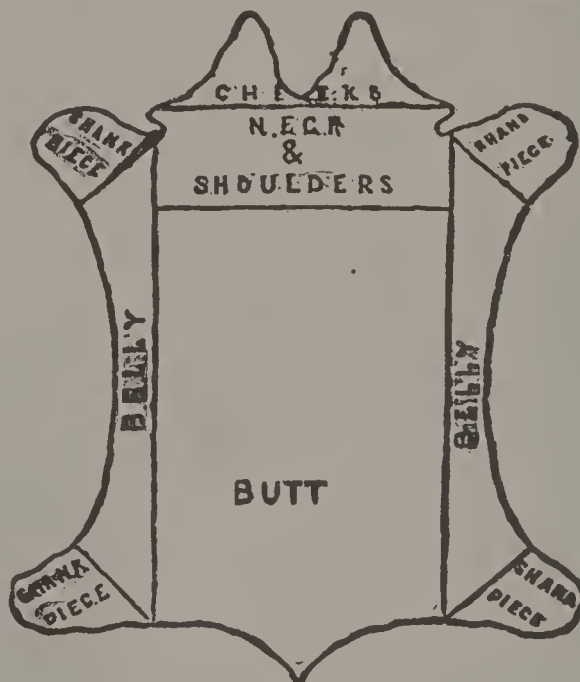


Fig. 1.

currying, described below, it is termed 'dressed leather.'

The following trade-terms are in general use: hides or crop-hides, butts and backs, bends, offal, and skins. The complete hide is seen in fig. 1. The same rounded, with the cheeks, shanks, and belly-pieces, etc., pared off, is called a *butt*; the pieces cut off constitute the *offal*; and *skins* are all the lighter forms of leather, such as sheep, goat, deer, etc.

Besides domestic ox and cow-hides used in the manufacture, vast numbers are imported from Monte-Video, Buenos Ayres, Russia, and Northern Germany; also the E. Indies supply buffalo-hides in considerable numbers to Europe.

Calf-skins and kip-skins (skins of beasts older than calves, but not full-grown oxen) are, when tanned, used chiefly for the upper-leather of boots and shoes.

LEATHER.

Sheep and lamb skins are exported (in the wool) in large quantities from Australia and the Cape of Good Hope; and tanned, from the E. Indies. The latter skins, with the Cape skins, are used for bookbinding, furniture, gloves, etc. Lamb-skins are exported also from Italy, Sicily, and Spain, and tawed and dyed for making gloves, in imitation of kid. A great portion of all sorts of lamb and sheep-skins are tawed and used for masons' aprons, sewing harness, plaster-skins, tying up bottles, lining shoes, and other jobbing and inferior purposes.

Deer-skins are dressed by the oil process, and form a great portion of the so-called *shamoy* leather, named from the chamois of the Alps, from whose skin it was formerly made.

Dog-skins are tanned or tawed for gloves, and for thin shoes and boots. *Seal-skins* are manufactured into the so-called 'patent leather,' by varnishing their upper surface. The manufacture of this kind of leather has of late become important.

Hog or pig skins are exported from Russia and other European continental countries; their use is chiefly in the manufacture of saddles for horses, etc.

Walrus and hippopotamus hides are tanned in considerable numbers for the use of cutlers and other workers in steel goods, 'buffing-wheels' being made of them, often an inch thick, of great importance in giving the polish to metal and horn goods. Lately, belts for driving machinery have successfully been made from them.

Kangaroo skins of various species are tanned or tawed in Australia, and form a kind of leather in great favor for gentlemen's dress-boots.

The first process in making *tanned sole leather* is to soak the skins or hides in water for a greater or less time, to wash and soften them; they are then laid in heaps for a short time, and afterward hung in a heated room, by which means a slight putrefactive decomposition is started, and the hair becomes so loose as to be easily detached. This process of 'unhairing' is usual in America; but in Great Britain, milk of lime is used for soaking the hide till the hair loosens. Hides or skins intended for dressing purposes, such as shoe, coach, harness, or bookbinding, after the hair is taken off by lime, have to be submitted to a process called 'bating,' for reducing the thickening or swelling occasioned by the introduction of the lime, and for cleansing the skin from grease and other impurities. This is effected by working the skins in a decoction of pigeons' or dogs' dung and warm water, and no dressing-leather is ever submitted to bark or sumac without undergoing this process.

If the old method of *tanning* is followed, the hides, after unhairing, are placed in the tan-pits, with layers of oak-bark or other tanning materials between them; and when as many layers of hides and bark are arranged as the pit will hold, water is let in, and the hides remain to be acted upon by the tanning material for months, and

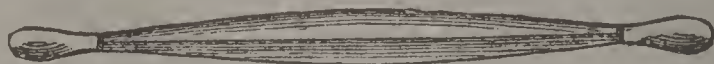
LEATHER.

even in some cases for years, being only occasionally turned. But this primitive process is now rare; so much improvement has been effected in the tanner's art since its chemical principles were discovered, that much less time suffices; and materials are now used which act so much more quickly than oak-bark alone, that even when the old process is used, it is greatly accelerated. The most useful of these materials are catechu and cutch (of which 9,000 tons are annually imported into Great Britain from India and Singapore), gambier (about 1,200 tons, from Singapore), divi-divi (3,000 tons, from Maracaibo, etc.), valonia (the acorns of the *Quercus Ægylops*, 25,000 tons of which are yearly imported from Turkey), and sumac leaves (16,000 tons, chiefly from Turkey).

The first attempts at improvement in tanning were by a method invented in England 1823, and an improvement on it 1831. The principle consisted in causing the *ooze* or *tan-liquor* to filter through the hides under pressure. For this purpose, the edges of the hides were sewed up so as to form a bag. The bags being suspended, were filled with cold tan-liquor, which gradually filtered through the pores of the hides, and impregnated them with the tannin. The processes by infiltration, however, have been entirely abandoned for heavy L., as they have the effect of rendering it porous and deficient in firmness.

Various patents for improvements in tanning have been in operation of late years. In one method hides were tied to each other to form a long belt, and pressed between rollers, to squeeze out the partially exhausted tan-liquor from the pores, so that a stronger liquor might be absorbed. An improvement on this mode was to attach the hides to a revolving drum, so that the hides press on each other on the top of the drum, but hang suspended in the tan-liquor from the lower part; and thus, by the hides being alternately in and out of the liquor, the tanning is quickly effected.

After the hides have become thoroughly tanned in the pit by the action of the tannic acid on their gelatinous substance, and when partly dried (if for 'struck' sole-leather), they are operated on by a two-handled tool with three blunt edges, called a pin (fig. 2, and section, *a*),



a ▲

Fig. 2.

which, by being rubbed with great pressure backward and forward on the grain-side of the L. makes it more and more compact; and this is still further accomplished by submitting the L. to the action of a heavily loaded brass roller.

The tanning of goat-skins (from which morocco is made), sheep for imitation-morocco, and small calf-skins

LEATHER.

for book-binding, is done by sewing up the skins, and filling the bag with a warm decoction of sumac. They are kept in an active state for about 24 hours, which sufficiently saturates them.

A process patented in England within the last few years, converts the heaviest skins into L. in a very short time; but the process is tawing rather than tanning, and is used for machinery-belts principally.

Tawing consists in dressing the skins with antiseptic materials, to preserve them from decay; but by this operation no chemical change is effected in the gelatine of the skins; hence, tawed L. can be used in the manufacture of glue. In tawing, the first process is careful washing, next dressing the skins with lime, then removing the hair or wool, and lastly, steeping them in one or more of the various mixtures used for converting skins into L. by this method. The British method of tawing lamb-skins gives an idea of the process, which is, however, much varied, according to the kind of skin and the experience of the worker. Lamb-skins of British production are generally lined on the flesh side with cream of lime, which enables the wool to be easily pulled off. Dried lamb-skins are generally submitted to the *heating process*, for removal of the wool. The pelts, after being washed, are rubbed on the convex piece of wood called the *beam*; and when supple, the flesh-side of each skin is thickly besmeared with a cream of lime; and when two are so treated, they are laid with the limed surfaces in contact; and a pile of them being made, they are left for a few days, when they are examined by pulling the hair. If it separates easily, then the lime is washed out, and the hair is removed with the unhairing knife (fig. 3), as in the case of hides, unless it is required to

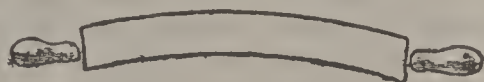


Fig. 3.

be kept on, as in the case of skins for door-mats, etc. After thorough cleansing, the pelts are steeped two or three weeks in a pit filled with water and lime, being taken out from time to time, and drained on sloping benches. When removed finally from the lime-pit, the skins are worked with the knife, to render them still more supple, and they are then put into the *brannine* mixture. This consists of bran and water, in the proportion of two lbs. of bran to a gallon of water. From this mixture, in about two days, they are transferred to another bath, consisting of water, alum, and salt. After the proper amount of working in this mixture, they undergo what is called the *pasting*, if intended to form white leather. The *paste* is a mixture of wheaten-bran and sometimes flour and the yolks of eggs. They are usually worked in a rotating cylinder with this paste and water, and are found in time to have absorbed the

LEATHER.

paste, leaving little more than the water. If the skins are not intended to be white, other materials are often used, and much pigeons' and dogs' dung is employed, some large leather-dressers expending as much as \$500 per annum for each of these materials. Lastly, the skins are dried and examined, and, if necessary, the pasting is repeated; if not, they are dipped into pure water and worked or staked by pulling them forward and backward on what is called a *stretching* or *softening* iron, and smoothed with a hot smoothing-iron.

Another kind of dressing is by treating the skin with oil. By hard rubbing with cod oil, or by the action of 'stocks,' after the skin has been properly cleaned with the lime, the oil works into the skin, displaces all the water, and becomes united with the material, rendering its texture peculiarly soft and spongy. Wash-leather or chamois leather is so prepared, and for this purpose the flesh-halves of split sheep-skins are chiefly used.

Besides *tanning* and *tawing*, many kinds of L. require the currier's art to bring them to the state of completion required for various purposes. The currier receives the newly tanned skins, and finds them harsh to the feel, and rough on the flesh side. He removes all the roughness by carefully shaving with a peculiar knife. After a soaking in clean water, he then scrapes the skin with considerable pressure upon a scraping-tool or *slicker*, and thus removes any irregularities. The moisture is then removed as much as possible, and oil, usually cod-oil and tallow, are rubbed over the L., which is laid aside to dry completely, and as the moisture leaves it, the oil penetrates. When quite dried and saturated with the oil, the skin is rubbed on a board with rounded ridges, by which a peculiar grained appearance is given, and the L. is rendered very pliable. In currying, almost every variety of L. requires some variation in the processes employed, but the currier's object is in all cases to give suppleness and fine finish to the skins.

Morocco leather, formerly an article of import from the Barbary coast, is now prepared in large quantities in Europe and America, from goat-skins; sheep-skins also are used for imitation. It is always dyed on the outer or grain side with some color, and the leather-dresser in finishing gives a peculiar ribbed or a roughly granulated surface to it, by means of engraved boxwood balls which he works over the surface.

Russia leather is much valued for its aromatic odor from the peculiar oil of the birch-bark used in tanning it. The fact that this odor repels moths and other insects, renders this L. particularly valuable for binding books; a few books in a library, bound in Russia L., being effective safeguards against insect enemies. It is said also to destroy or prevent the vegetable evil called mildew, to which books are so very liable.

LEATHER, VEGETABLE: composition whose base is supposed to be oxidized oil. It is spread over cotton

LEATHER-CLOTH.

or other cloth as a water-proof material for carriage-hoods, seats, gaiters, boots, etc. At present, it is made by a company which holds the secret of its manufacture. See LEATHER.

LEATHER-CLOTH, or ARTIFICIAL LEATHER: common name for coated or enamelled textile fabrics intended to possess some of the good qualities of leather, without being so costly. A material under this name was invented in the United States 1849; and many specimens of it were placed in the Great Exhibition, London 1851. In 1855 and since, large factories of it were established in England. The best American made stuff is preferred by consumers generally, even in England. Both American and English makes are much used for covering cheaper articles of furniture, instead of leather or haircloth; and for this purpose the better qualities last well. These dearer kinds do not exceed one-eighth of the price of morocco leather, and are also much cheaper than haircloth or sheep's-skin. Like floorcloth, or any other kind of fabric coated with oil-paint, American leather-cloth wears best in apartments not subject to extremes of heat and cold. Several varieties of enamelled or painted calico, more or less resembling the original leather-cloth, have at different times been made on a considerable scale, but none have been found so serviceable as the ordinary kind, so that they have speedily been withdrawn from market. There is a cheap kind of this enamelled cloth, more highly glazed than is usual for furniture, much used for covering trunks, making small sacks, valises, and the like.

The process of making L.-C. is in general the following, though with minor variations. Linseed oil is heated in large coppers to a certain high temperature, then removed to cool; then mixed with other ingredients, two of which are turpentine and lampblack. This composition is used as a kind of varnish to be applied to the surface of unbleached cotton. The cotton, woven to various widths and lengths, is calendered to make it smooth, and then passed over a roller; the composition is applied to it, and a peculiar kind of knife scrapes the layer to an equable thickness and a smooth surface. After being dried in a heated oven, the cloth is passed between rollers covered with pumice-dust, to rub the composition smooth. These processes are repeated four or five times. The cloth is next painted three or four times with a kind of enamel paint. Some kinds are grained like morocco leather, by being passed between rollers peculiarly grooved on the surface; others receive a pattern in relief by passing between embossing rollers.

Those kinds of imitation leather which consist essentially of calico or other woven fabric coated with a layer of india-rubber, previously dissolved by some solvent, such as naphtha, and mixed with other materials to give it body, are numerous, and pass under different names; but no real line of distinction can be drawn between

LEATHERWOOD—LEAVED.

them and the almost endless varieties of textile fabrics made waterproof by a thin layer of india-rubber. Few of these retain very long the properties they have when newly made. The vulcanized rubber eventually decays, or at least undergoes some change by which it loses its elasticity, and then it cracks, tears, or peels off.

L.-C. made on what is known as Seager's patent, is in fact leather, not cloth. It consists of leather parings and shavings, reduced to a pulpy mass, and moulded to any useful or ornamental forms. Le Jeune's *leather substitute* consists of a cement or mastic of caoutchouc or of gutta-percha on cloth, felt, or leather, pressed by rollers, and then pressed upon a layer of leather. By a peculiar splitting machine, a sheet is produced with an extremely thin layer of leather upon it. Spill's *vegetable leather* is made chiefly of caoutchouc and naphtha, the sheets being thickened to any degree by successive backings of canvas. The material is tough, resists damp, and takes a polish. Szerlemy's *leather cloth* is made by the application of oily pigments to cloth.

LEATHERWOOD (*Dirca palustris*): deciduous shrub, 3-6 ft. high, with the habit of a miniature tree, native of N. America; of nat. ord. *Thymeleaceæ*. The bark and wood are exceedingly tough, and in Canada the bark is used for ropes, baskets, etc. The leaves are lanceolate-oblong; the flowers are yellow, and appear before the leaves.

LEAVE, n. *lēv* [AS. *leaf*; Icel. *lof*, permission: Icel. *leyfa*, to permit: AS. *lyfan*, to permit]: grant of liberty; permission; a farewell; a formal parting. To TAKE LEAVE, to bid farewell. LEAVE'-TAKING, a bidding farewell—see LEAVE 2.—SYN. of 'leave': liberty; license; allowance; adieu.


LEAVE, v. *lēv* [Goth. *laiba*; AS. *laf*; Icel. *leifar*—from Icel. *leifa*, to leave: Gr. *loipos*, leavings, overplus—from *leipein*, to leave]: to withdraw or depart from; to quit; to cease; to abandon; to forsake; not to deprive of a thing; to suffer to remain; to reject; to bequeath; to give, as an inheritance; to permit without interposition, as I leave it to you; to cease to do; to desist. LEAV'-ING, imp. LEFT, pt. and pp. *lēft*, did leave. LEAVINGS, n. plu. *lēv'ingz*, refuse; offal; parts thrown aside or rejected. LEAVE AND LICENSE, in *law*, common defense in actions of trespass, in which claim is made that leave or permission was given to do the act complained of. To LEAVE OFF, to desist from; to forbear; to stop; to cease wearing, as a coat. To LEAVE OUT, to omit; to neglect. To BE LEFT TO ONE'S SELF, to be forsaken; to be permitted to follow one's own way: see LEAVE 1.—SYN. of 'leave': to desert; depart from; give up; resign; part with; desist from; forbear; relinquish; commit; intrust; permit; allow.

LEAVED, a. *lēvd* [from LEAF, which see]: furnished with foliage or leaves. LEAVES, *lēvz*, plu. of leaf.

LEAVEN—LEAVENWORTH.

LEAVEN, n. *lĕv'n* [F. *levain*, yeast or ferment—from L. *levāmen*, alleviation, mitigation, in mid. L. sense, that which raises—from L. *levāre*, to raise]: sour dough, or dough in which putrefaction has begun, and which, owing to the presence and rapid growth or multiplication of the yeast-plant, quickly communicates its character to fresh dough with which it is mingled, hastening the process of fermentation which 'raises' the dough in a spongy form. The use of leaven in baking dates from very remote antiquity; the use of yeast is more recent: see YEAST: BREAD. Leaven denotes also anything which makes a general change in the mass. LEAVEN, v. to ferment with leaven; to taint; to imbue, generally in a good sense. LEAVENING, imp. *lĕv'nĭng*. LEAVENED, pp. *lĕv'ĕnd*.

LEAVENWORTH, *lĕv'ĕn-wĕrth*: largest city in Kan., and co.-seat of Leavenworth co.; on right bank of Missouri river, 500 m. from its mouth, 496 m. by river from St. Louis, 309 m. by rail. The Missouri P., Union P., Atchison, T. & S. Fe, Kansas City N. W. and C. G. W. railroads enter the city, which also is the eastern terminus of the Kansas Central railway, and the Rock Island and Burlington systems. The city is situated in a rich agricultural district, with apparently inexhaustible beds of bituminous coal. Its trade by river and rail is extensive, and two immense iron bridges cross the river, while a paved levee borders on the river the entire length of the city. Besides its coal mines in a deposit which underlies the city at a depth of 700 ft. and employs over 1,000 miners, Leavenworth has extensive flour mills, woolen mills, foundries, manufactures of mill machinery, mine machinery, steam engines, lumber, furniture, saddlery, brooms, baskets, buggies, wagons, shoes, etc. The Missouri bluffs form a crescent around the city, about 300 ft. high, with its points upon the river.

The city, which is protected from inundation by a limestone stratum, is well laid out, electrically lighted, has an excellent water supply, and a complete system of electric street railroads, connecting with Fort Leavenworth on the n., and the National Soldiers' Home on the s. The principal buildings are the Catholic pro-cathedral of the Immaculate Conception, over 25 churches of all denominations, the Kansas State Orphan Asylum and protective home, Cushing and St. John's hospitals, two theatres, three national banks, two savings banks, etc. The educational institutions include Mount St. Mary's Academy, a high school, state normal school, and the Whittier library. The suburban Soldiers' Home accommodates 3,000 veterans of the civil war, and is situated amid attractive grounds. The United States Infantry and Cavalry School for the instruction of army officers, and the United States military prison holding 800 prisoners are also situated here, and a mammoth bronze statue of Gen.  S. Grant. The city is administered by a mayor and council elected biennially. Pop. (1900) 20,735; (1910) 19,363.

LEAVENWORTH—LEAVES.

LEAV'ENWORTH, HENRY: 1783, Dec. 10—1834, July 21; b. New Haven: soldier. He studied law, was admitted to the bar, and practiced; was appointed capt. in the 25th N. Y. inf. 1812, Apr., in the war with England; promoted maj. of the 9th inf. 1813, Aug., lieut.col. of the 5th U. S. inf. 1818, Feb., col. 1825, Dec., and brevetted brig.gen. 1824, July; commanded his regt. in the battles of Chippewa and Niagara Falls, and was wounded in the latter; was in command of an expedition against the Arickaree Indians on the Upper Missouri river; and founded several milit. posts on the w. frontier, including Fort Leavenworth, site of the present city of Leavenworth, Kan. (q.v.).

LEAVES (see LEAF): Organs of plants, springing from the sides of the stem or branches, generally more or less flat and green, never bearing flowers, and essential in the vegetable economy, as exposing the sap to air and light on their extensive surfaces. It is usually in the axils (q.v.) of leaves that buds and branches are developed; and where there are buds and branches, L. are never situated otherwise than beneath them, though in the axils of many L. no development of bud or branch ever takes place. After its full development, a leaf retains its form and size unchanged till death. As to the duration of their life, L. exist either for one year—that is, during a year's period of active vegetation—in which case they are called *Deciduous* (q.v.), or for more than one year, when the plants are said to be *Evergreen* (q.v.).

A leaf appears first as a little conical body pushed out from the growing point of the stem or branch. At first, it consists entirely of cellular tissue continuous with the bark, but vascular tissue, afterward generally appears in it. When fully developed, it usually comprises two parts: an expanded part, the *blade* or *limb*; and a stalk supporting this part, the *leaf-stalk*, or *petiole*, which sometimes assumes the form of a *sheath* about the stem, as in grasses. The leaf-stalk, however, is often wanting, in which case the leaf is called *sessile*; and when the base of the leaf embraces the stem, it is said to be *amplexicaul* or clasping. A leaf which has a leaf-stalk is called stalked or *petiolate*. Sessile L. often extend in wing-like prolongations down the stem, and are then called *decurrent*. They are sometimes *perfoliate*, entirely surrounding the stem with their base, so that it seems to pass through the leaf. Opposite L. are sometimes combined in this way. L. are called *simple*, when all their parts are united into one whole by a connected cellular tissue; they are called *compound*, when they consist of a number of distinct, completely separated parts, which are called *leaflets*, as in clover.—As to the place where L. arise from the stem, they are either *radical* (root-leaves), when they arise from the very base—and many plants have radical L. only; or *cauline* (stem-leaves), when they arise from the *developed* stem or branches—the radical L. arising really from the stem; or *floral*, when they arise from the flowering axis.—As to their arrange-

LEAVES.

ment on the stem, L. are *verticillate*, or *whorled*, or *opposite*, or *alternate*, or *scattered*. Opposite L. are usually placed so that each pair is at right angles to those next above or below, but this may vary. All these modes of arrangement on the stem can be reduced either to the *whorl* or to *the spiral*. One can think of either form of arrangement as a modification of the other. In the spiral arrangement, the number of L. requisite to form a complete *cycle*, or to encircle the stem, is very constant in the same species. In the Common Houseleek, the cycle consists of no fewer than 13 L., grouped together to form the *rosette* of this plant.

L. consist either exclusively of soft, cellular tissue, as in mosses, or, of cells, wood fibers and bundles of spiral vessels, etc., as in the L. of trees and most other phanerogamous plants. The stronger bundles of vessels form *nerves*, externally conspicuous, the finer ramifications of which are called *veins*. In endogenous plants, *monocotyledons*, the nerves of the L. run mostly in straight lines, and nearly parallel; whereas, in exogenous plants, *dicotyledons*, a net-like ramification of the nerves prevails.

The L. of phanerogamous plants and ferns are covered with a well-developed separable *epidermis*, which extends over all their parts, and which is provided with numerous small pores—*Stomata* (q.v.)—sometimes on one, sometimes on both sides, serving for the absorption and exhalation of gaseous substances and vapor. Submerged L., however, and the under side of L. which float on the surface of water, have no stomata, no true epidermis, and no true vascular tissue.

Some plants have no true L., their functions being performed by the green juicy rind of the stalks, as in *Cactaceæ* and some of the genus *Euphorbia*; or by the general surface of the Thallus (q.v.) in many thallophytes.

It is chiefly in the L. of plants that the elaboration of the sap takes place. Leaf-green, chlorophyl, gives the general color to foliage leaves. It is only formed in the presence of light and through its activities, in the presence of light and air, starch and allied carbon compounds arise. When a tree is deprived of its L., no wood is formed until they are again developed. The incessant removal of L. as they are formed destroys a plant, and this method is sometimes advantageously adopted as to weeds having deep or spreading perennial roots, and otherwise difficult of extirpation. This is, now, usually accomplished through special methods of cultivation, by smothering, or through leaf destruction by means of chemical sprays.

L. exhibit more or less decidedly a periodical alternation in their direction and expansion, generally corresponding with the alternation of day and night. Some exhibit peculiar irritability under various influences, and those of two or three species of plants, by their closing together, catch and kill insects which alight on them. Such plants, usually, live in boggy soils deficient in nitrogen. It seems

LEAVES.



Forms of Leaves.

1, lyrate; 2, sagittate; 3, hastate; 4, cordate; 5, lanceolate; 6, subulate; 7, ternate; 8, impari-pinnate; 9, digitate; 10, sinuate; 11, palmate, or quinate; 12, ovate; 13, linear; 14, pinnate; 15, runcinate.

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probable that the habit thus has a certain nutritive relation. See IRRITABILITY IN PLANTS: SLEEP OF PLANTS: DIONÆA.

The forms of L. are extremely various. *Simple L.* vary from a form almost perfectly circular, or even broader than long, to an extreme elongation, as *linear* or *filiform* (thread-like). The breadth of some increases toward the apex, and this is indicated by the terms *obovate*, *obcordate*, etc., and sometimes by the word *inversely* prefixed to the term which describes the form. *Simple L.* are either *entire*, or they are more or less deeply *toothed* or *serrate*; or they are *cut* or *lobed* by divisions extending from the margin toward the base; or the division may extend toward the midrib of the leaf, when the leaf is *pinnatifid*, or *sinuate* or *runcinate*, etc. The accompanying figure exhibits some of the forms of L., and explains some of the terms used in describing them. Similar terms are employed as to the leaflets of compound L., but the variety of forms is not nearly so great. Compound L. exhibit two chief varieties of form, according as the divisions which form the leaflets extend toward the base of the blade, or toward the midrib. Of the former class are *ternate*, *quaternate*, *quinate* leaves, etc., the latter are called *pinnate* leaves. But the same mode of division may be repeated in the leaflets, and thus a leaf may be *biterminate*, or, if again divided, *triternate*, etc., and very many leaves are *bipinnate*, *tripinnate*, etc. When the division is often repeated, the leaf is called *decompound*. A pinnate leaf, terminating in a pair of leaflets, is called *pari-pinnate*, or *abruptly pinnate*; but a pinnate leaf very often terminates in an odd leaflet, and is then called *impari-pinnate*, *odd-pinnate*. The blade of a leaf is generally in the same plane with the stalk, but is sometimes at right angles to it, as in *orbicular* and *peltate* leaves. The different forms and arrangements of leaves seem fitted especially to the work they are found performing in nature. This, in part, indicates the reasons for the great diversity of form.

The *Vernation* (q.v.) of L., or the manner in which they are folded in bud, is, like the *æstivation* of flowers, very characteristic of different plants and tribes of plants.

Root-leaves are generally larger than *stem-leaves*, but are present only in herbaceous plants, and are generally the first to fade. The upper stem-L. are generally smaller and less divided than the lower, those nearest the flowers often passing into bracts. All bracts, involucres, etc., and all the different parts of flowers, as calyx, corolla, stamens, carpels, and even fruits are, structurally, leaves; and the mode of their arrangement relatively to the axil corresponds with that of leaves. All organs, thus evolved, are called *leaf-organs*. See MORPHOLOGY.

Seed-leaves are the cotyledons of the seed which serve chiefly as storage parts for the embryo. In some plants, as the bean, the seed-leaves are raised above ground after germination, and serve the purposes of L. to the young plant, though generally very unlike its future leaves.

LEAVITT—LEBANON.

LEAVITT, *lěv'it*, JOSHUA, D.D.: 1794, Sep. 8—1873, Jan. 16; b. Heath, Mass.: Congl. minister. He graduated at Yale 1814; was admitted to the bar 1819; practiced in Heath and Putney, Vt.; abandoned his practice to study theol. 1823; graduated at Yale Divinity School 1825; and was pastor of a Congl. church in Stratford, Conn., 1825-28. In 1828 he removed to New York and became sec. of the American Seamen's Friend Soc., and editor of the *Sailor's Magazine*; 1831 became editor and proprietor of the *New York Evangelist*, which he conducted successfully till the panic of 1837; 1837-48 was editor of the *Emancipator*, and part of the time editor and proprietor of *The Chronicle*, both in Boston; and from 1848 till his death was editorially connected with the *New York Independent*. He established one of the first Sunday schools in w. Mass.; organized sailors' chapels in several American and foreign ports; founded the first city temperance soc. in New York; aided in organizing the N. Y. Anti-Slavery Soc., and was a member of the executive committee of the National Soc. He received a gold medal from the Cobden Club of England for a free-trade essay on the commercial relations of the United States and Great Britain 1869.

LEBANON, *lěb'a-non*: city, co.-seat of Boone co., Indiana; on the Chicago & S. and the Cleveland, C., C. & St. L. railroads; about 30 m. n.w. of Indianapolis. The first permanent settlement was made in 1824, and the city was chartered in 1875. Its chief industrial establishments are flour and lumber mills, grain elevators, novelty works, and a natural-gas plant. The government is vested in a mayor, whose term of office is four years, and a council. The waterworks are owned and operated by the city. Pop. (1900) 4,465; (1910) 5,474.

LEBANON: city, co.-seat of Marion co., Kentucky; on the Louisville & N. railroad; about 52 m. s.w. of Lexington, the capital of the state, and 70 m. s. of Louisville. It is situated in an agricultural region, and is the trade centre for an extensive section. The chief manufactures are flour, meal, whiskey, furniture, wagons, and carriages. A large amount of live-stock is shipped from Lebanon. It is the seat of St. Augustine's Academy, under the auspices of the Roman Catholic Church, and of a public and parish high school and good graded schools. Several churches, and the city and county buildings are among the prominent buildings. The city owns and operates the waterworks. Pop. (1910 est.) 3,150.

LEBANON: city, co.-seat of Laeclde co., Missouri; on the St. Louis & S. F. railroad; about 55 m. n.e. of Springfield. It is situated in an agricultural region and is the trade centre for a large extent of country. Its chief manufactures are flour, machine-shop products, lumber, bricks, and dairy products. Its trade is principally in the manufactured products, live-stock, fruit,

LEBANON.

hay, and vegetables. The city, though small, is a well-known health resort because of its mineral springs. Pop. 2,200.

LEBANON: town, one of the co.-seats of Grafton co., New Hampshire; on the Mascoma river, a few miles from its junction with the Connecticut river; and on the Boston & M. railroad. It is about 68 m. n.w. of Concord, the capital of the state. It was settled about 1762, by people from the vicinity of Lebanon, Conn., who named their new home after the Connecticut town. It is situated in an agricultural region, but the extensive water-power supplied by the Mascoma river has made it an important manufacturing town. The chief manufactures are woolen goods, machinery, agricultural implements, woodenware, men's clothing, sash, doors, and blinds, snow-shovels, flour, dairy products, and lumber. It has large brick-yards and granite-works. Over 1,000 persons are employed in the manufactories. The annual town-meeting is still the governing power. Pop. (1900) 4,965; (1910) 5,718.

LEBANON: village, co.-seat of Warren co., Ohio; on the Dayton, L. & C. and the Cincinnati, L. & N. railroads; about 73 m. s.w. of Columbus and 25 m. n.e. of Cincinnati. It was laid out as a village in 1802. It is situated in an agricultural region and its industries are connected with farm products. It is the seat of the National Normal University, a private institution, which, in 1903, had in attendance nearly 3,000 pupils. The Mechanics' Institute Library has about 5,000 volumes. There is one orphan asylum. The city owns and operates the electric-light plant and the waterworks. Pop. (est.) 3,000.

LEBANON: city, co.-seat of Lebanon co., Pennsylvania; on the Cornwall & L. and the Philadelphia & R. railroads; about 66 m. n.w. of Philadelphia and 23 m. n.e. of Harrisburg. Lebanon was settled as early as 1700 by German emigrants. The borough of Lebanon was laid out by George Steitz, in 1750, and was first called Steitztown. It was incorporated in 1820 and chartered as a city in 1885. It is situated in the Lebanon Valley, noted for the fertility of its soil; but the largest part of the wealth of the city comes from the quarries and mines of the vicinity. The Cornwall iron mines, about five m. distant from the city, the limestone and brownstone at the base of the mountains, the brick-clay, the iron ore, all contribute to the industrial wealth of Lebanon. Its chief industrial establishments are furnaces and foundries, rolling-mills, steel-plants, machine-shops, a very large nut and bolt works, chain-works, a creamery, employing a total of about 10,000 persons.

The educational institutions are the public and parish schools, the Lebanon Business College, the School of Telegraphy, and four libraries. It has a large number of

LEBANON.

churches. Some of the prominent public buildings are the court-house, county-house, and postoffice. There are six banks with a combined capital of \$700,000. The annual business amounts to over \$10,000,000. The predominating nationalities are, in order of numbers: American (a large majority), Irish, Germans, Hungarians, Italians, and a few Chinese. Pop. (1910) 19,240.

LEBANON: town, co.-seat of Wilson co., Tennessee; on the Nashville, C. & St. L. railroad; about 35 m. e. of Nashville. It is situated in an agricultural region, and its trade and industries are connected with farming products. It ships large quantities of hay, butter, and poultry. It is the seat of Lebanon College for Young Women, and of Cumberland University, founded in 1842 by the Cumberland Presbyterians. Pop. (1910) 3,659.

LEBANON, *lěb'a-non*, MOUNT, or JEBEL LIBNAN, *jěb'-el lib'nan* [from Semitic *laban*, to be white]: western and higher of two mountain-ranges which traverse Syria from n. to s. parallel with the coast of the Levant. Its average height is about 7,000 ft., but its loftiest peak, Dahrel-Khotib, in the range called Jebel Makmel, attains 10,050 ft. For six months of the year, this mountain is covered with snow.—The next highest point is Jebel Sunnin, 8,555 ft. The road from Baalbek to Tripoli crosses Lebanon at an elevation of 7,330 ft. From the w. side of the range, several spurs strike off across the narrow strip of level coast, and project upon the Levant in bold promontories. In the s. are the sources of the Jordan, the most important river that rises in Lebanon; not far from Dahrel-Khotib, those of the Orontes, next largest stream, flowing northward, and intersecting the chain at Antaki (*Antioch*). Lebanon derives its name, not from the snow that whitens its peaks, but from its whitish chalk cliffs. The vegetation of Lebanon is, on the whole, scanty; here and there, woods and willow-groves are seen; the lower parts of the mountains, however, are everywhere well watered and cultivated, and the valleys are often covered with orchards, vineyards, olive and mulberry plantations, and cornfields. The habitable districts are mostly in the possession of Maronites (q.v.) and Druses (q.v.). Everywhere the range of Lebanon is wild and solitary; almost the only sound that falls on the ear of the traveller is the scream of the eagle. Numerous monasteries offer comfortable accommodation to the weary traveller at the close of almost every day's wanderings. The once famous Cedars of Lebanon have almost disappeared; only a solitary grove remains: see CEDAR OF LEBANON.

ANTI-LIBANUS (improperly *Antilebanon*) (Heb. *Jebel-esh-Sherki*), is the eastern of the two ranges; it is less compact, and its average height inferior. The great plain between the two is known as Cœle-Syria (q.v.). Anti-Libanus terminates southward in Mt. Hermon, its

LE BAS—LEBAUDY AIRSHIP.

highest point, 8,376 ft. Exclusive of its southern offshoots it is 67 m. long, and $13\frac{1}{2}$ to 16 m. wide. Its sides are clothed with green poplar-trees, but it has no cedars. On its table-lands are found numerous little lochs or tarns, characteristic feature of this range, and distinguishing it from Mt. Lebanon.

LE BAS, *lè-bâ*, PHILIPPE: French historian and archæologist: b. Paris 1794, June 17; d. there 1861. At 16 he entered the navy, which he left three years later for the army and he shared in the campaigns of 1813-14. In 1820 he was chosen by Queen Hortense to act as tutor to Prince Louis Napoleon, now Napoleon III., with whom he remained until October, 1827. After holding professorships at Paris successively of history and of the Greek language and literature, he was commissioned in 1842 by the French government to undertake a tour of archæological investigation in Greece and Asia Minor, during which he made many valuable discoveries. He published books on very varied subjects, embracing essays on classical inscriptions, editions of ancient authors, travels, ancient and mediæval history, politics, instruction in German, and translations from German and English. His best known works are his *Explication des Inscriptions Grecques et Latines recueillées en Grèce* (1835-7), and *Voyage archéologique en Grèce et en Asie Mineure* (1847 et seq.).

LEBAUDY AIRSHIP, THE: a remarkable invention of M. Lebaudy, of Paris, France; an airship of the balloon type which is symmetrical in form, its midship frame being situated slightly toward the front. The total length is 190.24 ft. The midship frame is situated at 81.67 ft. from the prow and 108.57 from the stern. The extreme diameter of the balloon is 32.14 ft. With respect to the length of 190.24 ft. we have thus an elongation of 5.6 diameters. In the entire median part the section of the fusiform bag is not a complete circle, but a segment limited by a chord at its lower part. This means that the balloon presents a flat portion fixed to a linen-covered plane and held by a rigid frame which is attached to the side of the bag and, on the other hand, supports the suspension. The surface of the bag is about 13,000 sq.ft. Its weight, stitching included, is about 880 pounds. The car has the form of a flat-bottomed pontoon with pointed extremities. It is 15.75 ft. in length, 5.25 in width, and 3.28 in depth. It is formed of a metallic frame. The motive power is furnished by a 40-horsepower motor cooled by a circulation of water and a radiator. The gasoline tank is placed beneath the car and the motor, as a measure of precaution against fire. A little compressed air is sent to it by means of a bicycle pump for feeding during the setting in operation. The exhaust pressure afterward suffices. The motor uses 30.8 pounds of gasoline per hour, say about 6 fluid ounces per horsepower. The motor actuates two double-bladed

LEBEL--LEBLANC.

propellers arranged on each side of the car at the extremities of a hollow horizontal journal, in the interior of which revolves the driving shaft. The transmission to the propellers is effected through the intermedium of bevel wheels protected by casings. The most remarkable flight of the Lebaudy airship was made 1903, Nov. 12. The airship covered about 38 m. in 1 hour 41 minutes, and came back to the starting point. After passing over the Seine region to the west of Paris it crossed the Forest of St. Germain, then entered the city by way of the Bois de Boulogne. The airship was then headed direct for the Eiffel Tower, which it reached, and landed just behind it, carrying out the original intention. At the start the operator had 640 pounds of ballast, and threw out 286 during the trip. The maximum altitude reached was 1,000 ft., and the mean 330 ft. The speed of the airship was reckoned at 22.4 m. an hour. See also BALLOON; FLYING MACHINE.

LEBEL, NICHOLAS: French soldier and inventor: b. Angers 1835, Aug. 18; d. Vitré, Ile-et-Vilaine, 1891, June 6. He entered the Military School of Saint Cyr in 1855, served as captain in the northern army during the campaign of 1870, and became director of the Musketry School at Tours, and in 1883 at Chalons. The same year he was appointed member of the commission on securing an improved rifle for the infantry. The commission decided in favor of the small-bore rifle offered by Lebel, and known as the 'fusil Lebel,' which was introduced into the French army in 1886. He was present as colonel at the battle of Sedan, but sickness cut short his military career, and in 1890 he was placed on the retired list. He was subsequently put in charge of the Inland Revenue Department at Vitré.

LEBLANC, NICHOLAS: French chemist: b. Issoudun, department of Indre, 1766; d. 1806, Jan. 16. He studied medicine, was appointed surgeon to the Duke of Orleans and, after the Revolution, administrator of the department of the Seine. His name is associated with the process of converting common salt into carbonate of soda, a matter to which he turned his attention in 1786, when the Academy offered a prize of 2,400 livres for the discovery. His first endeavors did not yield a decisive result, but led to an accidental discovery by Dizé, an assistant of Jean Darcet at the College of France, through which success was attained. With the Duke of Orleans and another, Leblanc and Dizé formed a partnership and began to make soda. The Revolution wrecked their enterprise. Despite his patent, secured in 1791, Leblanc was compelled by the committee of public safety to disclose the secret of the process, and the manufacture became open to all. After years of poverty and fruitless efforts for redress, he committed suicide. The discovery of the essential features of the process was as-

LEBRUN.

signed to him in 1855 by a commission of the Academy, although the claim of Dizé was strongly advocated. As to the value of the process itself there is no doubt. It has made soda cheap, thereby facilitating the manufacture of soap, the cleansing and bleaching of cloth, etc.; has promoted the manufacture of sulphuric acid, and thereby the utilization of metallic sulphides; and has originated the manufacture of chlorine and of bleaching-powder. The Leblanc soda-process is still in extensive use, but is now dependent more on its by-products than on its output of soda. One-half of the world's soda is now made by the ammonia-soda or Solvay process. See SODA.

LEBRUN, CHARLES: French painter: b. Paris 1619, Feb. 24; d. there 1690, Feb. 12. He was the son of a sculptor, but early turned his attention to painting and became the pupil of P. Perrier and S. Vouet. He was especially attracted by the Italian masters, examples of which he copied in the gallery at Fontainebleau so that in his fifteenth year his works won the patronage of Cardinal Richelieu. Chancellor Seguier provided means for him to visit Rome and during his residence there (1642-6) he studied under Poussin, at the same time paying much attention to the antique, and the paintings of the early masters. In 1646 he returned to France, and assisted in founding the Royal Academy of Arts and Sciences, in which he became professor, chancellor, and in 1683 director. He was also director of the Gobelin tapestry manufactory. In 1662 Louis XIV. appointed him court painter, ennobled him and made him curator of his art collections. He was meanwhile engaged in decorating the Apollo gallery in the Louvre. In 1668 the king appointed him superintendent of works in the building of Saint Germain. He also decorated with paintings the royal chateau at Sceaux, and designed the statues and fountains for the park, etc. In 1679 he undertook his greatest work, the interior decoration of the palace at Versailles, and in the Great Gallery portrayed the achievements of Louis XIV. Many paintings of his are still to be seen in the Louvre. His works are characterized by abundant invention and facility of execution; they reflect the spirit of the contemporary Italian school, but are marred by excessive straining after effect, flatness of design, and falsity of color-tone. His vast canvas, *Portrait of the banker Jabeesh of Cologne and Family*, is in the Berlin Museum. He exercised a despotic influence over French art of his time. He wrote *Traité sur la Physiognomie* and *Méthode pour apprendre à dessiner les Passions*. Consult: Generay, *Le Style Louis XIV.* (1885); and Jovin, *Charles Lebrun, et les Arts sous Louis XIV.* (1890).

LEBRUN, CHARLES FRANÇOIS, DUC DE PIACENZA: French administrator: b. St. Sauveur-Landelin 1739, Mar. 19; d. near Dourdan 1824, June 16. He was ap-

LEBRUN—LECANORA.

pointed inspector of crown-lands, later entered the States-General and the Constituent Assembly, was appointed governor of Seine-et-Oise in 1791, sat in the council of Five Hundred, of which he was chosen president, and was made third consul by Bonaparte for services on the 18th Brumaire. In 1807 he reorganized the administration of the exchequer, and after a long retirement re-entered public life as governor of Holland in 1810. He translated the *Iliad*, the *Odyssey*, and the *Jerusalem Delivered*. Consult his *Memoirs* (1829).

LEBRUN, MARIE LOUISE ELISABETH: French painter: b. Paris 1755, Apr. 16; d. there 1842, Mar. 30. She was trained under Doyen, Joseph Vernet and Greutze and chose portrait painting as her specialty. She left a great number of portraits in oil and pastel. About 600 are identified as her works, of which the most important are, her portrait of herself with her little daughter (in the Louvre); her portrait of herself (in the Uffizi Gallery at Florence); Marie Antoinette with her three children (in the museum at Versailles). In 1783 she was elected a member of the Academy. During the French Revolution she took refuge in the various European capitals, where she painted portraits of the reigning princes, and members of their families; as well as of the most famous people of the time. Few works of hers are to be met with except in private collections. She published *Souvenirs de ma Vie* (Paris 1837).

LE BRUN, NAPOLEON EUGENE CHARLES HENRY: American architect: b. of French parents, Philadelphia, 1821, Jan. 2; d. New York 1901, July 9. He was a pupil of Thomas U. Walter, the architect, and from 1842 to 1861 practiced his profession in Philadelphia where his most notable work is the Roman Catholic cathedral in Logan Square. He removed to New York in 1861 and among structures there which were designed by him with his son, are the Foundling Asylum and the Metropolitan Life Insurance building in Madison Square.

LEBRUN, PONCE DENIS ECOUCHARD: called LE BRUN-PINDARE, French poet: b. Paris 1729, Aug. 11; d. there 1807, Sep. 2. His title *Pindar* is due to the form and the mythological allusions of his odes, not to any large poetical merit, either in them or the lyrics; and as a satirist, he alternately groveled before and libeled the same men. His best odes are addressed to Buffon. He excelled in the composition of madrigals and epigrams; the latter relate for the most part to his quarrels with other authors.

LECANORA, n. *lĕk'ă-nō'ră* [Gr. *lekănē*, a dish, a basin]: a genus of lichens comprising some valuable plants, so named in allusion to the form of the shields: *Lecanōra tartărĕă*, a species which supplies the dye cudbear. LEC'ANO'RIC ACID, *-rĭk*, or LECANO'RINE, or LECANO'RIN, n. *-rĭn*, an acid used for the production of pig-

LECCE—LECHFORD.

ments, found in the lichen *Roccella tinctoriā* and the *Lecānōrā*.

LECCE, *lēt'ehā*: chief town of the province of Lecce, s. Italy, 10 m. from the Adriatic, 25 m. s.s.e. of Brindisi. It is the Lupice of the ancient Salentines, the name having become Lycia in the middle ages, and hence Lecce. It contains fine churches and public edifices, whose architecture is enhanced by the beauty of the fine white stone found in abundance in the neighborhood, which admits of exquisitely minute cutting. At the gate of St. Biagio is a triumphal arch erected in commemoration of the entrance of Charles V. There is a public library and there are well-established day and evening schools and numerous charitable institutions. Lecce was very flourishing during the Roman period, escaped the barbarians, and in 1000 A.D. was governed by its own counts. Lecce has large trade in olive-oil. Pop. (1901) 32,687.—The province of Lecce has 2,623 sq.m.; pop. (1901) 706,520; called formerly OTRANTO, TERRA DI.

LECCO, *lĕk'kō*, LAKE OF (It. *Lago di Lecco*): the name given to the southeastern arm of Lake Como in Italy. Some of the large streams of the northern part of Italy flow into Lake Lecco. The town of Lecco and many pretty villages are on its shores.

LECH: a river which has its rise in the Alps, in Vorarlberg, in Switzerland, flows e. and n. until it enters Bavaria, after which its course is almost directly n. to Donauwörth, where it unites with the Danube. Its length is nearly 200 m. It is not a navigable stream but it has extensive water-power. On this river, near Rain, about five m. below Donauwörth, Tilly was defeated and killed, 1632, April 5, by a Swedish force under Gustavus Adolphus.

LECHE, n. *lĕ-chĕ'*: an antelope of the genus *Eleotragus*. It is a water antelope, frequenting damp places and swamps. It allows its horns to recline, almost touching the withers.

LECHEROUS, a. *lĕh'ĕr-ŭs* [OF. *leseheur*, a glutton, an adulterer—from *lescher*, to lick; F. *lécherie*, to gormandize; *lécher*, to lick]: addicted to debauchery; lustful; provoking lust. LECH'EROUSLY, ad. *-lĭ*. LECH'EROUSNESS, n. *-nĕs*, or LECH'ERY, n. *-ĕr-ĭ*, lewdness; the indulgence of lust. LECHER, n. *lĕh'ĕr*, in OE., a man addicted to lewdness: V. to commit lewdness.

LECH'FORD, THOMAS: d. in England about 1645. He was a lawyer in London, emigrated to Boston 1638, and was the first legal practitioner in New England. Disliking the colonial management, he returned to England 1641, and published *Plaine Dealing, or News from New England's Present Government*, etc. (reprinted by J. Hammond Trumbull, 1867, with introduction and notes).

LECITHIN—LECLAIRE.

If due allowance be made for its unfriendly spirit, it is of some value in the study of New England History.

LECITHIN, n. *lēs'ī-thīn* [Gr. *lek'ithos*, yolk of an egg]: a complex substance found in the brain, nerves, etc, and in the yolk of eggs. It is of a faint yellowish-white color and waxy consistence, and is a phosphorized fat having the chemical formula $C_{44}H_{90}NPO_3$. LECITHOUL, a. *lēs'ī-thūs*, yellow-colored like the yolk of an egg.

LECKY, *lĕk'ī*, WILLIAM EDWARD HARTPOLE: English historian: b. Newtown Park, near Dublin, 1838, Mar. 26; d. London 1903, Oct. 23. He was educated at Cheltenham College, and at Trinity College, Dublin, whence he was graduated in 1859, and in 1861 published anonymously his first work, *Leaders of Public Opinion in Ireland*, dealing with Swift, Flood, Grattan, and O'Connell, which appeared under his name in a new edition in 1871. An important *History of the Rise and Influence of the Spirit of Rationalism in Europe* followed in 1861-5 and ensured him wide reputation as scholar and thinker. His *History of European Morals from Augustus to Charlemagne* (1869) displayed a profound knowledge though its conclusions were not always sound. His most elaborate and valuable work is a *History of England in the Eighteenth Century* (Vols. I.-II., 1878; III.-IV., 1882; V.-VI., 1887; VII.-VIII., 1890), in which he treats very fully of Irish affairs to the time of the Addington ministry. In a new edition of this history, published in 12 volumes in 1893, the chapters on Ireland were removed from their original context and arranged in a continuous narrative occupying the last five volumes. This work is in reality a history of civilization for the period covered; treating of the forces contributed to the making of 19th century England, whether of native or of foreign origin. Lecky's other works are: *Poems* (1891); *Democracy and Liberty* (1896), in which he arraigns modern British political life, and makes some comments upon Gladstone which once aroused considerable discussion; and *The Map of Life: Conduct and Character* (1899). In 1895 he was elected to the House of Commons as member for the University of Dublin, and in 1897 was sworn of the Privy Council. In politics he was at first a Liberal and from 1886 a Liberal-Unionist with an undisguised aversion to democratic government. He became corresponding member of the Institute of France in 1894, and an honorary member of the Royal English Academy upon its organization.

LECLAIRE, EDMÉ-JEAN: French social scientist: b. Aisy-sur-Armançon, 1801, May 14; d. Herblay, 1872, Aug. 10. At first a farm-worker, then apprentice to a mason, he afterward apprenticed himself to a house-painter in Paris, and in 1827 began the painting business on his own account. He proved remarkably suc-

LECLAIRE.

cessful, and soon took a leading position in his trade. In 1835 the principle of profit-sharing was proposed to him, and in 1842 he began to put it in practice in his own establishment, dividing the amount available in sums proportioned to yearly wages. A mutual-aid society which he formed in 1838 and reorganized in 1853 sustained itself from the latter year on the profits which were shared among the members. In 1864 the right to a division of the funds of the society was superseded by a system of retiring pensions. Leclaire was elected maire of Herblay in 1865. In the company which he founded his plan of distribution is still adhered to with continued success.

LECLAIRE: village, in Madison county, Ill., adjoining Edwardsville, the county-seat and postoffice; on the Toledo, St. L. & W., the Chicago, P. & St. L., and a spur of the Wabash railroads; 18 miles northeast of St. Louis. It contains the factories of the Nelson Manufacturing Company, the residences of its officers, of a number of the employees, and of some others. The village was founded by the Nelson Manufacturing Company, which, in 1886, adopted what is known as the 'profit-sharing plan'—dividing the profits of the business with the employees. After testing this plan, it was decided that more and better service could be rendered to the employees by providing good homes and social and educational facilities, than by simply paying a contingent increase in wages. In 1890 the company acquired 125 acres of high, rich, gently undulating corn land, well adapted to growing everything from bluegrass to watermelons. The tract abuts on the railroads mentioned. Coal underlies the land and there are coal-fields nearby. About 10 acres are reserved for factory purposes, 10 for a campus and other public uses, and the remainder for homes and farming use. All of the improvements, industrial, educational, and the buildings for homes, were started simultaneously. The manufacturing establishments are five factory buildings, a powerhouse, a dry-house, and some miscellaneous buildings, all made of brick. There are about 250 employees, who are engaged in making plumbing goods of iron, brass, wood, and marble; all of which goods are made from the raw product up to the finished article. None of what is called 'raw material' is manufactured here. Adjoining the factory acres are first the bowling alley and the billiard room, then the ball grounds, next the school-house, the lecture and dancing-hall, and a skating lake. The houses built for the employees by the company may be purchased and, if desired, paid for in installments about equal to city rents. The houses are mostly three to six rooms, and are built on lots with from 50 to 100 ft. frontage, by 140 to 180 ft. depths. They have well-kept lawns, flower beds, shade trees, fruit trees, and gardens.

LE CLEAR—LE CLERC.

There is no political organization in Leclaire; all are subject only to the state laws. There are no saloons. The church needs are supplied by Edwardsville. There has always been a kindergarten, and an 'industrial school' has been founded, wherein the pupils work half the time at productive labor and study the other half. The pupils living at home are not obliged to work. Those from a distance get their tuition and living free; they learn how to work and acquire a trade at the same time that they learn from books and capable teachers. No examination is required for entrance. The school is prepared to teach all from the lowest to the highest grade, and the pupils are promoted as rapidly as the results of their work merit. The work in the school consists of house building, farming, and varied factory work. Whenever a pupil becomes sufficiently proficient to earn, at the regular value of his work, more than the cost of his schooling and living expenses, he is paid the excess in money. The intention is to civilize work, to take it out of the category of drudgery and put it in the list of arts and crafts, to make the pupils intelligent workmen and skilled craftsmen. In this school there is a weekly lecture on hygiene, given by an experienced, broad-minded physician. The village has a free library, and each winter a course of lectures is given, two each month, with occasional musicales. A singing school is held one night each week, and a bowling party for the school and the children also one night a week, and occasionally excursions to St. Louis. In the summer there are excursions from St. Louis to Leclaire, sometimes entire train-loads of children for a day's outing.

LE CLEAR, THOMAS: American painter: b. Owego, N. Y., 1818; d. New York 1882. He painted portraits in London, Canada, before he had received any instruction in art, and left that place about 1832 for New York, where he made his principal residence. He was elected a national academician in 1863. Besides his portraits, which are clever in characterization and full of life and expression, he has painted many genres, such as *Marble Players*; *The Itinerant* (1862); and *Young America*. Among his portraits are those of *William Page* in the Corcoran Gallery at Washington; and *George Bancroft* in the Century Club, New York.

LE CLERC, JOHN, or JOHANNES CLER'ICUS: Swiss theologian: b. Geneva, Switzerland, 1657, March 19; d. Amsterdam, Netherlands, 1736, Jan. 8. He began to study theology and philosophy in his native town, and continued his studies at Grenoble, Saumur, Paris, and London. He gradually adopted the views of the Remonstrants, as the adherents of Arminius were then called. In 1684 he was appointed to the faculty of the Remonstrant College at Amsterdam; but in 1728 a stroke of apoplexy deprived him of his power of speech, which he

LE CLERQ—LECOMPTON CONSTITUTION.

never recovered. His influence has been most widely felt through his writings, which are voluminous. He edited the *Apostolic Fathers of Cotelerius* (1698), and the views he held about Mosaic authorship, inspiration and kindred topics seemed to anticipate some recent deductions from the Higher Criticism. Besides a Bible commentary he published: *Bibliothèque universelle et historique* (25 vols. 1686-93); *Bibliothèque choisie* (28 vols. 1703-13); and *Bibliothèque ancienne et moderne* (29 vols. 1714-26).

LE CLERQ, CHRÉTIEN: French missionary: b. Artois, France, about 1630; d. Lens, France, about 1695. He labored for six years on the Island of Gaspé as a Recollet missionary with others of his order (1651-61), and then built a house for the Recollets in Montreal with money collected in France. After resuming his unsuccessful missionary work at Gaspé he returned to France. His works are interesting as throwing a side light upon early Canadian history, but are tinged with ecclesiastical partiality for Frontenac, who favored the Recollets at the expense of the Jesuits. These works are: *Nouvelle Relation de la Gaspésie* (1691); and *Establishment of the Faith in New France* (English translation by John G. Shea 1881).

LECOCQ, lé-kōk, ALEXANDER CHARLES: French composer: b. Paris, 1832, June 3. He received his musical education in the Conservatory of the Capital, under Bazin and Halévy, and the earliest of his operas to appear was *Le Docteur Miracle*, which had won the first Offenbach prize. His operetta *Fleur de Thé* gained him the widest recognition. In this as in his later productions he followed the advice he had received from Offenbach, that the operetta should be elevated into a work of art. His principal operettas are: *Les Jumeaux de Bergame* (1868); *Gandolfo* (1869); *Le beau Dunois* (1870); *La Fille de Madame Angot* (1872); *Giroflé Girofla* (1874); *La petite Mariée* (1875); *Kosiki* (1876); *Le Dompteur* (1877); *Le petit Duc* (1878); *La Rousette* (1881); *Plutus* (1886); etc. They are 42 in number, and have attained the most remarkable popularity in France and elsewhere.

LECOMPTON: city, in Douglas county, Kan.; on the Kansas river, and on the Atchison, T. & S. Fe railroad; about 15 miles east of Topeka. It was settled in 1854 by sympathizers with the slavery side of the question which was then before the people, in relation to the admission of new states. Lecompton was the headquarters of the pro-slavery men, and it was here that the Lecompton constitution (q.v.) was framed, in the fall of 1857. The Lane University was founded here in 1865. The place was named in honor of Judge S. D. Lecomte, one of the early workers in Kansas. Pop. 600.

LECOMPTON CONSTITUTION: form of government

LECOMTE DU NOUY—LE CONTE.

for Kansas, adopted by an illegally constituted convention at Lecompton, 1857. The attempt was made to impose it upon the people of Kansas by violent measures. The convention was composed of persons known to be in favor of slavery, elected by men from Missouri who took possession of the polls. A large majority of the Kansas settlers were opposed to slavery, and if the government had kept out the men from Missouri, or its officers had not encouraged the intruders, Kansas would have been organized as a 'free state.' The Lecompton constitution declared the right of slave-holders to be inviolable, and prohibited the legislature from emancipating slaves. Gov. Walker denounced it as a fraud, but the people were permitted to vote on the question whether they would have the constitution with or without slavery, it having, however, been so arranged that slavery would be fastened on the state in either case. It was submitted to the ballot 1857, Dec. 21. The number of votes returned for the constitution 'with slavery' was 6,226, most of them being from counties along the Missouri border where there were only 1,000 legal voters. For its adoption 'with no slavery' only 569 votes were returned; very many of the free-state party, however, would not vote, saying that it was all a fraud. The territorial legislature then submitted the Lecompton constitution unreservedly to the people, 1858, Jan. 4, when there was a majority of 10,226 against it. It was carried to congress, which recommended another election on Aug. 3, when it was again defeated by 10,000 majority. This ended the struggle for the establishment of slavery in Kansas. An anti-slavery constitution was legally adopted 1859; and Kansas was admitted as a free state, 1861, Jan. 29.

LECOMTE DU NOUY, JULES JEAN ANTOINE: French artist: b. Paris, 1842, June 10. A pupil of Gleyre, Gérôme, and Signol at the Ecole des Beaux Arts, he won there the second Prix de Rome in 1865, and was afterward an annual exhibitor at the salon. Among his canvases, somewhat dull in color but admirably correct in drawing and archæological exactness, are: *The Sorcerer; Bearers of Evil News before Pharaoh; Job and his Friends; The Madness of Ajax*; and a portrait of Béranger.

LE CONTE, *lě kōnt*, JOHN, M.D., LL.D.: physicist: b. Liberty co., Ga., 1818, Dec. 4—1891, Apr. 20. He was graduated from Franklin College, now the University of Georgia, 1838, and at the New York College of Physicians and Surgeons 1841; began practicing medicine in Savannah 1842; was elected professor of natural philosophy and chemistry in Franklin College 1846; was lecturer on chemistry in the New York College of Physicians and Surgeons 1855; became professor of natural and mechanical philosophy in South Carolina College 1856, professor of physics and industrial mechanics in

LE CONTE.

the University of California 1869; was president of the university 1875-81; and after 1881 was professor of physics there. In 1857 he delivered a course of lectures on the *Physics of Meteorology* at the Smithsonian Institution; 1867 a lecture on the *Stellar Universe* at the Peabody Institute, Baltimore; 1878 was elected a member of the National Acad. of Sciences; and 1879 received the degree LL.D from the University of Georgia. He had published *Philosophy of Medicine* (1849); *Study of the Physical Sciences* (1858); and *The Nebular Hypothesis* in the *Popular Science Monthly* (1873, Apr.). A nearly completed treatise on *General Physics* was destroyed in the burning of Columbia, S. C., 1865.

LE CONTE, JOHN EATON: American naturalist: b. near Shrewsbury, N. J., 1784, Feb. 22; d. Philadelphia, 1860, Nov. 21. He was a brother of Lewis Le Conte (q.v.). In 1813 he entered the army as a topographical engineer, and in 1831 was retired with the grade of major. He published *Monographs of North American Species of Utricularia, Gratiola, and Ruellia*, and other studies in natural history.

LE CONTE, JOHN LAWRENCE, M.D.: American entomologist: b. New York, 1825, May 13; d. Philadelphia, 1883, Nov. 15. He was a nephew of Lewis Le Conte (q.v.). He was graduated from Mount St. Mary's College (Emmitsburg, Md.) in 1842, from the College of Physicians and Surgeons in 1846, became a surgeon of volunteers in the federal army in 1862, and was later made medical inspector United States army, with rank of lieutenant-colonel. In 1873 he was chosen to the presidency of the American Association for the Advancement of Science. He was generally recognized as an important authority on entomology; and published on that subject: *Classification of the Coleoptera of North America* (1862-73); *List of the Coleoptera of North America* (1866); and *New Species of North American Coleoptera* (1866-73).

LE CONTE, JOSEPH, M.D., LL.D.: American geologist: b. Liberty county, Ga., 1823, Feb. 26; d. Yosemite Valley, Cal., 1901, July 6. He was a son of Lewis Le Conte (q.v.). He was graduated from Franklin College, Georgia, in 1841, from the College of Physicians and Surgeons, New York, in 1845; practiced medicine at Macon, Ga.; in 1850 became a pupil of Louis Agassiz, whom he accompanied on an expedition to Florida; and later was professor of natural science in Oglethorpe University, Georgia, and of natural history in Franklin College. In 1856-69 he was professor of chemistry and geology in the University of South Carolina, and from 1869 until his death held the chair of geology in the University of California. During the civil war he was chemist in the Confederate medicine laboratory and later in the nitre and mining bureau at Columbia, S. C. He

LE CONTE—LECONTE DE LISLE.

was vice-president of the International Geological Congress in 1891, and president of the American Association for the Advancement of Science in 1892. His contributions to geology include the determination of the character and age of the Cascade range; the description of the ancient glaciers of the Sierra Nevada; the development of what is called the 'contractual theory' in mountain building; and researches in vein formation. He wrote also on optics, philosophy, biology, and other subjects. He was an editor of the *Journal of Geology and of Science*, and published *Religion and Science* (1873), a collection of lectures; *Elements of Geology* (1878), his best known book; a *Compend of Geology* (1884); *Evolution: Its Nature, its Evidences, and its Relation to Religious Thought* (1887); and other writings. Consult his *Autobiography*, edited by W. D. Armes (1903).

LE CONTE, LEWIS: American naturalist: b. near Shrewsbury, N. J., 1782, Aug. 4; d. Liberty county, Georgia, 1838, Jan. 9. He was graduated from Columbia in 1799, studied medicine, on his plantation of Woodmanston, Ga., established a botanical garden, particularly rich in bulbous plants of the Cape of Good Hope, and a chemical laboratory where he conducted numerous researches. He published nothing, but was of admitted aid to many botanists in their labors.

LECONTE DE LISLE, *lé kônt de lîl*, CHARLES MARIE RENÉ: French poet: b. Saint Paul, Ile de Bourbon (now Réunion), 1818, Oct. 23; d. Louveciennes, 1894, July 17. When a young man he went to France, studied law at Rennes, and after a course of travel settled in Paris. His progress was slow, but gradually he gathered a group of young writers, and expanded his own work, whereby he won recognition as leader of the modern Parnassian school of poetry. It was some years before he found a publisher for *Poèmes antiques* (1852), his first volume of real significance, but with *Poèmes barbares* (1862) he gained an academic prize of 10,000 francs. In 1884 he published *Poèmes tragiques*, and in 1895 appeared *Derniers Poèmes*, a posthumous volume containing also critiques on his precursors in lyric poetry. His hand gave its impress to *Le Parnasse contemporain*, a series of volumes published in 1866, 1869, and 1876, which is representative of his school, and in these some of his own most notable work was first seen. He also rendered valuable service to French literature by his superior translations of the *Iliad* (1867); *Hesiod* (1869); *the Orphic Hymns* (1869); *the Odyssey* (1870); *Horace* (1873); *Sophocles* (1877); and *Euripides* (1885). In imitation of the Greek he wrote the dramas *Les Erinnyes* (1872) and *L'Apollonide*, based on the *Ion* of Euripides. His poetry embodies a philosophy of human life in which he sought to combine art with scientific principles and to weave in one poetic fabric the mythical past with

LECOTROPAL—LECTION.

ideal visions yet to be realized by the race. In 1887 he was elected a member of the Academy.

LECOTROPAL, a. *lě-kōt'rō-pāl* [Gr. *lekos*, a dish; *tropē*, a turning]: in *bot.*, shaped like a horse-shoe, as some ovules.

LE CREUZOT. See CREUZOT, LE.

LECTERN, n. *lěk'těrn*, or LECTURN, n. *-těrn*, and LETTERN, n. *lět'těrn* [OF. *lectrin*, and *letrin*; F. *lutrin*—from mid. L. *lectrīnum*, a reading-desk, a choir desk—from L. *lectus*, a couch: Gr. *lektron*, a couch, a rest for a book]: reading-desk or stand for the larger service-books used in the Rom. Cath. Chh. service; in the *Chh. of England*, the desk in the choir whence the lessons are read. *Note.*—LECTERN has no connection with *lecture* etymologically, though at present closely identified with it both in spelling and in the actual meaning attached to it of 'a reading-desk.'

The lectern, which properly is movable, is of very ancient use, of various forms and different materials. The most ancient lecterns are of wood, a beautiful example of which is that of Ramsey Church, Huntingdonshire (about 1450); but they were frequently of brass, and sometimes in the form of an eagle (the symbol of St. John the Evangelist), the outspread wings of which form the frame supporting the volume.—In some parts of e. Scotland, the precentor's desk in the Presby. churches is called the *lettran*.—The lectern is in use as a convenience in some churches of other denominations.

LECTION, n. *lěk'shŭn* [L. *lectiō* or *lectiōnem*, a reading, as of a book—from *lectus*, gathered, read]: a difference or variety in some passages of the words in copies of the same manuscript, or book; a reading; a portion of Scripture read in divine service. LEC'TIONARY, n. *-ěr-ĭ* [Lat. *Lectio-narium*]: one of the service books of the mediæval church, so called because it contained the lessons (*lectiones*) of the church-service. Two of these are noticeable. The first is the so-called 'Roman Lectionary,' which contained the epistles and gospels of the Roman missal, and sometimes all the lessons of all the various services in use in the Roman Church, in which case it was named the *Plenarium*. The most ancient form of the Roman Lectionary was called 'Comes' or 'Liber Comitit.' Its compilation was attributed to St. Jerome, and it appears certain that it belongs in substance, though not in form or in details, to his times. The collection was revised and remodelled in the 8th c. The second of the ancient Lectionaries is that known as the Gallican Lectionary, published by Mabillon from a manuscript of the monastery of Luxeuil, and believed to represent the rite of the ancient Gallican Church, chiefly because one of the few saints' offices which it contains is that of St. Geneviève. LECTOR, n. *lěk'těr* [L.]: a reader of Scripture in church.

LECTURE—LECYTHIDACEÆ.

LECTURE, n. *lĕk'tūr* or *lĕk'chūr* [F. *lecture*—from mid. L. *lectūrā*, a reading: Sp. *lectura*, a reading, a lecture—from L. *lectus*, read; *lego*, I read]: a discourse read on any subject; a formal discourse intended to instruct; a formal reproof; pedantic discourse; V. to instruct formally or dogmatically; to instruct by formal discourse or explanation, as an audience or a class of students; to reprove. **LEC'TURED**, pp. *-tūrd* or *-chūrd*. **LEC'TURER**, n. *-tūr-ēr* or *-chūr-ēr*, one who instructs by lecturing; a preacher. **LEC'TURESHIP**, n. office of a lecturer.

LECT'URESHIP: permanent establishment of lectures in series, whose financial basis is provided usually by gift or bequeathal. Well-known English examples are the *Bampton*, the *Boyle*, and the *Hulsean Lectures* (see these titles).—The *Merchants' Lectures* were instituted London 1672 by Congregationalists (then known as Independents) and Presbyterians, to maintain the essential Prot. doctrine against Romanism, Socinianism, and infidelity; the funds were provided by leading merchants, and the lectures were by distinguished men, and were delivered in Pinner's Hall. Later the two denominations separated. The Congl. ministers of London deliver the lectures monthly in rotation in their chapels, a course on a given subject being completed in a year or two.—The *Congregational Lectures* in London are an annual theological series by British Congl. ministers.—The *Hibbert Lectures* were founded London 1878 in the interest of liberal and advanced thought.—The *Dudlean Lectures* at Harvard Univ. were founded for defense of Christianity, by a lawyer, Paul Dudley (1675-1751); they have been continued till within a recent period.—The *Lyman Beecher Lectureship* in Yale Univ. is a course on preaching, founded by Henry W. Sage, of Brooklyn: the first course was delivered 1872 by Henry Ward Beecher.—The *Ely Lectures* in Union Theol. Seminary (Presby.) are on a foundation provided by Zebulon Stiles Ely of New York.—The *Stone Lectures* in Princeton Theol. Seminary were founded by Levi P. Stone of Orange, N. J.—The *Vedder Lectures* are a course on the cause and cure of modern infidelity, at the Theological Seminary (Ref. Dutch), New Brunswick, N. J.—The *Bohlen Lectures* are a course at the Church of the Holy Trinity (Prot. Episc.), Philadelphia, established 1878.—All the above lectureships are well known as supplying lectures of the highest order from men of acknowledged eminence, and in most cases the courses appear in volumes which have permanent value. There are also other lectureships of high repute.

LECYTHIDACEÆ, *lĕ-sĭth-ĭ-dā'sĕ-ĕ*: nat. ord. of exogenous plants, or sub-order of *Myrtaceæ*, the distinguishing characteristic being that the fruit is a large woody capsule, with a number of cells, which in some species remains closed, and in some opens with a lid.

LED—LEDGER-LINE.

All the known species, about 40, are natives of the hottest parts of S. America. All are large trees. They have alternate leaves, and large showy flowers, solitary, or in racemes. The stamens are numerous, and a portion of them sometimes connected into a kind of petal-like hood. Brazil-Nuts (q.v.) and Sapucaia Nuts (q.v.) are the *seeds* of trees of this order. The Cannon-ball Tree (q.v.) belongs to it. The capsules of some species are known as *monkey-pots*. Monkeys are very fond of the seeds.

LED, v. *lěd*: pt. and pp. of the verb LEAD, which see. LED-HORSE, a sumpter-horse. LED-CAPTAIN, a humble and obsequious follower.

LEDA, *lě'da*, in Grecian Mythology: wife of the Spartan king Tyndareus. The legend was that Jupiter visited her one night in the disguise of a swan, and she became mother of Castor and Pollux, and after her death, was raised to a divinity under the name of Nemesis. The story has supplied a theme for many works of art.

LEDEN, or LEDDEN, n. *lěd'ěn* [AS. *lyden* or *leden*, the Latin language in general, a corrupt spelling of Latin: comp. Icel. *hlíod*, the sound of the voice]: in OE., speech; language; true meaning.

LEDGE, n. *lěj* [Icel. *logg*; Sw. *lagg*; Scot. *laggen*, the projecting rim at the bottom of a cask]: a narrow strip standing out from a flat surface; a ridge of rock in the sea near the surface of the water; a prominent part; a small molding; a row; a layer. LEDGER, a. *lěj'ěr*, applied in music to extra lines added to the staff—but LEGER is the proper spelling. See LEGER-LINES.

LEDGER, n. *lěj'ěr* [OE., *leiger* or *ledger*, a resident appointed to guard the interests of his master at a foreign court, an object that lies permanently in a place: Dut. *legger*, he who remains permanently in a certain place: Dut. *legger*, the nether millstone—from O. Dut. *leggen*, to lie]: *literally*, a business book which always lies ready in a fixed place; the principal book of accounts in a merchant's office, to which the entries from the day-book or journal are carried and placed under separate headings; in OE., a horizontal slab of stone.

LEDGER-LINE, in Fishing: a kind of tackle, consisting of a bullet or piece of lead with a hole through the centre; through which a gut-line is threaded, having at its end a hook. About 18 or 20 inches above the hook, a shot or bead is fastened firmly to the line, to prevent the lead from slipping down the line nearer to the hook. The hook being baited, the tackle is then cast into the water. The lead rests on the bottom, and the line is kept tight, but without lifting the lead from the bottom. The moment a fish bites at the bait, it is felt by the angler, who immediately gives a strong pull or strike. This method of fishing is used chiefly for barbel or bream.

LEDRU-ROLLIN—LEDYARD.

LEDRU-ROLLIN, *lêh-drû'rôl'in*, F. *lêh-drü-rol-läng'*, ALEXANDRE AUGUSTE: noted French democrat: 1807, Feb. 2—1874, Dec. 31; b. Fontenay-aux-Roses; grandson of a celebrated quack doctor of the reign of Louis XV. He studied for the bar, to which he was admitted 1830. He was counsel for the defense in most of the prosecutions of opposition journals during the reign of Louis Philippe, and obtained great reputation among the lower orders. In 1841, he was elected deputy by the dept. of Sarthe, and became prominent in the extreme Left. In 1846, he published an *Appel aux Travailleurs*, in which he declared 'universal suffrage' the only panacea for the miseries of the working-classes. He was also an ardent promoter of the reform-meetings that preceded the crash of 1848. On the outbreak of the revolution, he advocated the formation of a Provisional Government, and when this was carried out, was intrusted with the portfolio of the interior. He was afterward one of the five in whose hands the national assembly placed the interim government. In this high position he showed lack of perception, firmness, and energy. In consequence of the insurrection of 1848, June, he ceased to hold office, and then sought to recover (what he had lost by accepting office) his influence with the extreme democrats. He partially succeeded, and even ventured on a candidature for the presidency, but obtained only 370,119 votes. The unsuccessful *émeute* of 1849, June, put an end to Ledru-Rollin's political rôle. He fled to England, and in less than a year not very politely published a work against the land which had given him asylum. *De la Décadence de l'Angleterre*. For the next 20 years he lived alternately in London and Brussels. His name was excepted from the amnesties of 1860 and 69; but in 1870, a decree having been published permitting him, he returned to France. In 1871, Feb., he was returned to the national assembly, but at once resigned.

LEDUM, n. *lê'düm* [Gr. *lēdon*, a species of *Cistus*]: genus of plants, of nat. ord. *Ericææ*, sub-order *Rhodoreæ*, consisting of small evergreen shrubs, with comparatively large flowers, of which the corolla is cut into five deep petal-like segments. The species are natives of Europe and N. America; some are common to both. The leaves of *L. latifolium* are said to be used in Labrador as a substitute for tea, whence it is sometimes called LABRADOR TEA. Sir John Franklin and his party, in the arctic expedition of 1819-22, used in the same way the *Ledum palustre* (Marsh Ledum or Wild Rosemary), which produced a beverage with a smell resembling rhubarb, yet they found it refreshing. The leaves of both these shrubs possess narcotic properties, and render beer heady. They are regarded as useful in agues, dysentery, and diarrhea.

LEDYARD, *lêd'yêrd*, JOHN: explorer: 1751—1789, Jan. 17; b. Groton, Conn.; nephew of William Ledyard. He

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studied law a short time; entered Dartmouth College to prepare for missionary work among the Indians 1772; spent several weeks among the Indians of the Six Nations, and gave up his missionary projects; shipped as a common sailor at New London; enlisted in a British regt. at Gibraltar but was soon discharged; accompanied Capt. John Cook on his third and last voyage around the world; deserted from the British navy off Long Island 1782; and spent several months trying to fit out an exploring expedition to the n.w. coast of N. America. After various failures to secure a ship for his purpose in the United States and France, he determined to make the journey overland and alone. He started from London 1786, walked around the whole coast of the Gulf of Bothnia from Stockholm to St. Petersburg, a distance of 1,400 m., in 7 weeks, in the depth of winter, and after traveling a long distance in s. Siberia, was suddenly arrested at Irkutsk 1788, Feb. 24, by order of the empress, and expelled from Russia without any explanation. On his return to London, he undertook an expedition fitted out by the Assoc. for Promoting the Discovery of the inland parts of Africa, and died soon after reaching Cairo, Egypt. He was of restless disposition, and some features of his career seem unaccountable.

LED'YARD, WILLIAM: 1738-1781, Sep. 7; b. Groton, Conn.: soldier. As col. of Conn. militia he was given command of Forts Trumbull and Griswold, erected for the protection of New London, during Benedict Arnold's raid along the Conn. coast 1781. On Sep. 7 his hastily collected, poorly armed, and undisciplined force of 157 men in Fort Griswold was attacked by a British force of 800 men, and resisted assaults, for nearly an hour, till the fort was taken by storm. After fighting had ceased, he was killed with his own sword as he placed it in the hand of the British commander, and nearly 100 of his garrison were massacred.

LEE, n. *lē* [AS. *hleō*, shade, shelter: Icel. *hié*, *lee*; *hlifa*, to protect, to shelter: Dut. *luw*, shelter from the wind]: a calm or sheltered place; a place defended from the wind. UNDER THE LEE, on the side which is sheltered from the wind; protected from the wind. LEE SHORE, the shore not exposed to the wind—said by persons on the land: but—to sailors on board a ship—the shore or land to the leeward of a ship, that is, the land next the lee side, and toward which land the wind blows. LEEWARD, a. and ad. *lē'wērd* or *lō'ērd*, in the direction of the part toward which the wind blows, that is, the part next the lee side; opposite the *windward*, which is the direction whence the wind comes—said of the position of a ship. LEEWAY, n. *lē'wā*, the side movement of a ship to the leeward of her course. THE LEE SIDE OF A SHIP, the side or part not exposed to the wind, as distinguished from the *weather side*, which is the side or part against which the wind blows.

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LEE: town of Berkshire co., Mass.; on the Housatonic river and the N. Y., N. H. & H. railroad; 38 m. e. of Albany, 99 m. n. of Bridgeport, 110 m. w. of Boston, 115 m. n. by e. of New York. It is noted for extensive quarries of beautiful marble, from which much of the material for the extension of the national capitol and the Rom. Cath. cathedral in New York was taken. Lee also has paper and woolen mills, foundries and machine shops, and dairying interests; high and graded schools, public library, churches, etc. The town was settled in 1760 and incorporated in 1777. Situated amid the beautiful scenery and healthful climate of the Berkshire Hills, Lee and vicinity are favored summer resorts. Pop. (1900) 3,596; (1910) 4,106.

LEE, ALBERT: American author and editor: b. New Orleans, 1868, May 11. He was graduated from Yale in 1891, having during his senior year edited the *Yale Literary Magazine*. In 1891-4 he was on the editorial staff of the *New York Sun*; in 1895 became editor of *Harper's Round Table*; and in 1899 was for a short time associate editor of *McClure's Magazine*, becoming managing editor of *Harper's Weekly* in the same year. In 1901-3 he was associate editor of *Collier's Weekly*, taking the position of managing editor in January 1903. He has written *Tommy Toddles* (1896); *Track Athletics in Detail* (1897); *The Knave of Hearts* (1897); *Four for a Fortune* (1898); *He, She, and They* (1899).

LEE, ALFRED: American Protestant Episcopal bishop: b. Cambridge, Mass., 1807, Sept. 9; d. Wilmington, Del., 1887, April 12. He was graduated at Harvard in 1827, and after studying law practiced for three years in New London, Conn. Feeling, however, that his vocation was elsewhere he was admitted to the General Theological Seminary, where he was graduated in 1837. He was elected rector of Calvary Church, Rockdale, Pa. (1838), but on being consecrated first bishop of Delaware in 1841, took charge of Saint Andrew's, Wilmington, the following year. He was a member of the American Committee for Revision of the New Testament (1881) and presiding bishop (1884-7). He wrote *Life of Saint Peter* (1852); *Life of Saint John* (1854); *A Treatise on Baptism* (1854); *Harbinger of Christ* (1857); *Coöperative Revision of the New Testament* (1881); etc.

LEE, ANN: foundress of the Society of Shakers in America: b. Manchester, England, 1736, Feb. 29; d. Watervliet, N. Y., 1784, Sept. 8. She was the daughter of a blacksmith and uneducated, and in 1758 joined the Shakers, who had seceded from the Society of Friends. In 1762, she was married to a blacksmith named Standerin, or Stanley. She believed herself inspired, and in 1770 was imprisoned for preaching the new doctrine of celibacy. In 1774, she emigrated to America and founded at Watervliet two American societies of Shakers. By her adherents she was called 'Mother Ann.' See SHAKERS.

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LEE, ARTHUR: American diplomatist: b. Stratford, Westmoreland county, Va., 1740, Dec. 21; d. Urbana, Middlesex county, Va., 1792, Dec. 12. He was educated at the University of Edinburgh; entered the practice of medicine at Williamsburg, Va.; studied law in the Temple, London (1766-70); practiced in England in 1770-6; closely observed colonial questions; was a member of the society known as 'The Supporters of the Bill of Rights,' by which ministerial measures were discussed; and in 1770 was appointed associate of Franklin as London agent of Massachusetts colony. When congress appointed Franklin, Jay, and Dickinson a committee to correspond with friends of the colonies in other parts of the world, Lee became secret agent in London of the committee; and in 1776 he was chosen by congress joint commissioner with Franklin and Deane to obtain a treaty of alliance with France. In 1777 he dispatched special missions to the governments of Spain and Prussia; in 1778 became commissioner to Spain; but in 1779 was recalled owing to his disagreements with Franklin and Deane. He was a representative in the Virginia general assembly in 1781; a delegate to the Continental congress in 1781-4; and a member of the board of treasury in 1784-9. He opposed the adoption of a federal constitution. Consult R. H. Lee, *Life of Arthur Lee* (1829).

LEE, CHARLES: American soldier: b. Dernhall, Cheshire, England, 1731; d. Philadelphia, 1782, Oct. 2. In 1751 he entered the English army as lieutenant of the 44th, which he accompanied to America in 1754, and with which he was present at Braddock's defeat on the Monongahela 1755, July 9. He was wounded in Abercrombie's attack on Ticonderoga 1758, July 1, took part in the capture of Montreal in 1760, and was promoted major in 1761. He served in Burgoyne's division in Portugal in 1762, and was for a time busy with a scheme for establishing in America two colonies, one on the Ohio, the other on the Illinois, to be recruited from Switzerland and Germany as well as New England. In 1764 he went to Poland, there was appointed to the staff of King Stanislaus Augustus, in 1766 accompanied the Polish embassy to Turkey, in 1769 as a major-general in the Polish army fought in a campaign against the Turks, and having called his superior officers fools, left the service and returned to England. He was made lieutenant-colonel on half-pay in 1772, but was further unrecognized by the British government, and in disappointment came to America 1773, Nov. 10, and by skilful display of what military knowledge he possessed attracted the attention of the Continental congress, then eager to obtain competent leaders for the revolutionary army. His career thenceforth was perhaps the strangest in the annals of the revolution. He wished to become commander-in-chief of the American forces, but ac-

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cepted the appointment as second of the major-generals, Artemas Ward (q.v.) being the first. To inspire public confidence he purchased for £5,000 Virginia currency (about £3,000 sterling), an estate in Berkeley county, Va.; but he did not assume his rank until guaranteed by congress pecuniary indemnity for possible losses incurred in so doing. He undeservedly received popular credit for Moultrie's successful defense of Charleston, S. C., 1776, June 28, and was called the 'Hero of Charleston.' In 1776 he became first major-general upon the resignation of Ward. He failed to obey when ordered by Washington to cross the Hudson from Westchester county with his 7,000 troops and join the latter in New Jersey; but when Washington was compelled to fall back on Princeton 1776, Dec. 2, crossed the river to Morristown and encamped there with 4,000 troops. Gates marched from Ticonderoga with seven regiments for Washington's aid, but Lee diverted three of the regiments to Morristown. Washington crossed the Delaware into Pennsylvania, and Lee diligently spread reports of the commander-in-chief's incapacity and planned a flank movement upon the British army whose success he intended should secure his own appointment to replace Washington. He was, however, captured at Baskingridge 1775, Dec. 13, and imprisoned at New York, where he deserted the American cause, and designed a plan for the subjugation of the American colonies, the original draft of which was found among the private papers of the Howes in 1857. He was exchanged in 1778, and reentered the American service for reasons not fully known; but his insubordination at Monmouth 1778, June 28, nearly lost the day, and he was suspended from command for one year. A subsequent disrespectful letter to congress caused his dismissal from the army. His treasonable correspondence with the British authorities was not discovered till many years after. He wrote *Strictures on a Friendly Address to all Reasonable Americans* (1774) in reply to Dr. Myles Cooper; and made a foolish claim to be the author of the 'Junius' letters. Consult the *Memoirs*, edited from his papers by Langworthy (1792); and Moore, *The Treason of Charles Lee* (1858).

LEE, CHARLES: American cabinet officer: b. Leesylvania, Va., 1758; d. Fauquier co., Va., 1815, June 24. He was a brother of Henry Lee, soldier (q.v.). He was graduated from the College of New Jersey in 1775; studied law in the office of Jared Ingersoll at Philadelphia; practised in Westmoreland co., Va.; and sat in the Virginia assembly. On Dec. 10, 1795, he was appointed by Washington attorney-general of the United States, and this office he filled until the last month of Adams' administration (1801). He declined an appointment by Jefferson as chief justice of the United States circuit court for the 4th circuit.



MAJOR-GENERAL CHARLES LEE.

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LEE, ELIZA BUCKMINSTER: American prose writer: b. Portsmouth, N. H., 1794; d. Brookline, Mass., 1864, June 22. She was married to Thomas Lee of Boston, where the greater part of her life was spent. She was a popular author in her day and among her books are *Sketches of New England Life* (1837); *Delusion* (1839); a translation from the German of the *Life of Jean Paul Richter* (1842); *Naomi: or, Boston Two Hundred Years Ago* (1848); *Parthenia: or, The Last Days of Paganism* (1858); and a translation of Berthold Auerbach's *Bare-foot Maiden* (1860).

LEE, FITZHUGH: American soldier and diplomatist: b. Clermont, Fairfax co., Va., 1835, Nov. 19; d. Washington, D. C., 1905, Apr. 28. He was the nephew of Robert E. Lee (q.v.). Appointed as cadet at large to West Point by President Fillmore, he entered the Academy at 16, and was graduated in 1856, receiving an appointment to the famous Second Cavalry of which A. S. Johnston was colonel and R. E. Lee was lieutenant-colonel. After serving for a year at Carlisle Barracks as cavalry instructor of recruits, he reported to his regiment on the frontier of Texas and was greatly distinguished in several fights with the Indians, being mentioned in the official reports for skill and gallantry. In a fight with the Comanches, 1859, May 13, he was so severely wounded, being pierced through the lungs with an arrow, that the surgeons despaired of his life, but he recovered and joined his command, and led a part of his company in 1860, Jan., in a very notable and successful fight with the Indians, in which he greatly distinguished himself in a single combat with an Indian chief. In 1860, Nov., he was ordered to West Point as instructor of cavalry tactics. When Virginia seceded from the Union he promptly resigned his commission and tendered his services to his native state. He served for a time on the staff of General R. S. Ewell, and in 1861, Sep., he became lieutenant-colonel, and in 1862, Apr., colonel of the 1st Virginia cavalry. Henceforth he was intimately connected with Stuart's cavalry and won constant reputation for dash, daring, and intelligent execution of duty. After the battles around Richmond he was made brigadier-general, his brigade consisting of the 1st, 3d, 4th, 5th, and 9th Virginia cavalry, and a battery of horse artillery. In the campaign against Pope and the Maryland campaign the cavalry rendered most important service, and Gen. Lee did his full duty in these operations. When General Robert Lee withdrew from Sharpsburg, Fitzhugh Lee's brigade relieved the pickets and held the lines till the army had crossed the Potomac. On Mar. 17, 1863, Averell's division of 3,000 cavalry crossed the river at Beverly's Ford, and attacked him; though he could only put 800 troopers in the saddle, he successfully resisted Averell, and after one of the most hotly contested cavalry battles of the war drove him

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back across the river. In the Chancellorsville movement he protected Jackson's flank, and made a very important reconnoissance by which he located the flank and rear of the enemy, and enabled Jackson to attack it to the best advantage. In the autumn of 1863, he was made major-general, and given command of a division of cavalry. In the campaign of 1864, he rendered important service, holding in check the advance of Grant's army until General R. E. Lee's infantry could occupy Spottsylvania, repelling Sherman's raid on Richmond, defeating Sheridan at Trevilians and Samaria Church, routing Wilson at Reams Station, and operating with Early in the Valley, being severely wounded at the battle of Winchester. When Hampton was sent south Lee was given the command of the entire cavalry corps of the army of northern Virginia, conducted the retreat to Appomattox, was one of the council of war whom Robert Lee consulted, and one of the leaders in the last charge of the army of northern Virginia. He 'accepted the situation' after the surrender, and went to work on his farm at Richland. From 1886 to 1890, he was governor of Virginia. In 1896, he was appointed consul-general to Cuba, in which position he kept the state department thoroughly informed of the Spanish policy during the rebellion, and vigorously upheld the rights and interests of the United States; after the destruction of the Maine he did much to prevent the premature outbreak of war with Spain, but when war was inevitable he was recalled. In 1898, May, he was appointed major-general of United States volunteers, and assigned to the command of the 7th army corps. At the close of the war he was made military governor of the province of Havana, and later was given the command of the department of the Missouri.

LEE, FRANCIS LIGHTFOOT: signer of the Declaration of Independence: 1734, Oct. 14—1797, Apr. 3; b. Stratford, Va.; son of Thomas Lee. He was educated by private tutors; inherited a large estate; was a member of the Va. house of burgesses 1765-72; delegate in congress 1775-79; signed the Declaration of Independence, and was a member of the committee that drew up the articles of confederation, insisting that peace with England should not be signed till she had guaranteed to the United States the rights to the free navigation of the Mississippi river, and to the Newfoundland fisheries. Afterward, excepting a short service in the Va. legislature, he led the life of a country gentleman.

LEE, FREDERIC RICHARD, R.A.: 1798, June—1879, June 4; b. Barnstaple, Devonshire, England: landscape painter. He was compelled by ill-health to quit the army, and 1818 became a Royal Acad. student. A constant exhibitor 1822-70, he was elected an A.R.A. 1834, an R.A. 1838. Lee was one of the most thoroughly national painters of his day. Among his best pictures are *The Broken Bridge*,

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The Mill, The Watering-place, The Fisherman's Haunt, The Silver Pool, The Plowed Field, A Devonshire Village, A Village Green, Cover Side, Harvest Field, A Devonshire Lane, Penshurst Avenue, Avenue in Shobrook Park. In 1848, he began to paint a series of works with S. Cooper, the cattle-painter—the former executing the landscape, and the latter the animals. Lee died in Cape Colony.

LEE, GERALD STANLEY: American Congregational clergyman and author: b. Brockton, Mass., 1861, Oct. 4. He was graduated from Middlebury College, Vt., in 1885, and from Yale Divinity School in 1888. He has lectured on literature and the arts, and is the author of *About an Old New England Church* (1893); *The Shadow Christ* (1896); *The Lost Art of Reading* (1902); *The Confessions of an Unscientific Mind* (1902); etc.

LEE, GUY CARLETON, A.B., A.M., PH.D., LL.B.: American educator and author. He was graduated from Dickinson College, Pa., where he was for a time professor of history. He has since filled other educational posts and has been literary editor of the *Baltimore Sun* from 1901. He is the author of *Hincmar: An Introduction to the Study of the Church in the 9th Century* (1898); *Principles of Public Speaking* (1899); *Historical Jurisprudence* (1900); *Source Book of English History* (1900); *A History of England* (1901); *True History of the War Between the States* (1903); *Robert E. Lee* (1905); etc. He has also edited *The World's Orators* (10 vols. 1900); *The History of Woman* (10 vols. 1902-3); *The History of North America* (20 vols. 1903-5); etc.

LEE, MRS. HANNAH FARNHAM SAWYER: American novelist and miscellaneous writer: b. Newburyport, Mass., 1780; d. Boston, 1865, Dec. 27. She was married to G. G. Lee of Boston. Her works, several of which exerted considerable influence during the second quarter of the 19th century, are: *Grace Seymour* (1835); *Three Experiments in Living* (1838); *Elinor Fulton*, a sequel to the preceding; *Rich Enough*; *The Huguenots in France and America* (1842); *Stories from Life* (1849); *Memoir of Pierre Toussaint* (1853); *History of Sculpture and Sculptors*; etc.

LEE, HARRIET: sister of Sophia Lee (q.v.): b. London, 1756; d. Clifton, 1851, Aug. 1. In 1786, she published the *Errors of Innocence*, a novel succeeded by several others now forgotten. In 1797-1805, appeared her *Canterbury Tales*, 8 of the 10 tales of which were her own, the others being by her sister Sophia. They enjoyed a great popularity in the early part of the 19th century, and a new edition was published in New York in 1856-7. One of the most remarkable is *The German's Tale-Kruitzner*, from which Lord Byron borrowed not merely the plot and the machinery down to the most trivial incidents, but in some instances the language, of his

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Werner. She also wrote two dramas, the *New Peerage* and the *Three Strangers*.

LEE, HENRY: American soldier: b. Leesylvania, Westmoreland co., Va., 1756, Jan. 29; d. Cumberland Island, Ga., 1818, Mar. 25. He was graduated from the College of New Jersey in 1774; in 1775, became a captain in Col. Theodoric Bland's legion of Virginia cavalry; and in 1777, Sep., joined Washington's army in Pennsylvania. Promoted major for services in battle (1778, Jan.), he was given command of a partisan corps consisting of two troops of horse, and later increased by a third troop and an infantry company. This corps, which was employed in the annoyance of the British march and camp, was known as 'Lee's legion,' and its commander as 'Light Horse Harry.' On Aug. 19, 1779, Lee surprised and captured the British post at Paulus Hook, N. J. For this achievement, which is regarded as one of the most brilliant exploits of the Revolution, congress voted him a gold medal. He was promoted lieutenant-colonel, and in the autumn of 1780 was sent to South Carolina to join Greene's army. He covered the American retreat through North Carolina (1781, Feb.), and was involved in some smart skirmishes with Tarleton's dragoons. After Greene had crossed into Virginia, Lee remained in North Carolina to harass the enemy, and, although he could not surprise Tarleton, did defeat 400 loyalists under Col. Pyle. He outfought Tarleton at Guilford Court House 1781, Mar. 15, and with Marion, by cutting Rawdon's line of communication, compelled that officer to abandon Camden 1781, May 10. He took Augusta, Ga., 1781, June 5, and having rejoined Greene, fought with distinction at Eutaw Springs 1781, Sep. 8, and captured some of Rawdon's rear-guard in the British retreat. After having been present at Yorktown, he shortly resigned his commission. In 1785-8, he was a Virginia delegate to the Continental Congress; in 1788, was a member of the Virginia convention for the ratification of the Federal constitution; in 1789-91, sat in the general assembly of the state; and in 1792-5, was governor. In 1794, he was appointed by Washington to command the 15,000 troops sent to suppress the 'Whiskey Insurrection' (q.v.) in western Pennsylvania. After service as a representative in the Sixth Congress (1799-1801), he withdrew from public life. In his *Funeral Oration upon President Washington*, pronounced in 1799 before both houses of congress, occurs the since famous phrase, 'First in war, first in peace, first in the hearts of his fellow-citizens.' He wrote *Memoirs of the War in the Southern Department of the United States* (1812), published in revision with a memoir by his son, R. E. Lee (q.v.), in 1869.

LEE, HENRY WASHINGTON: American Protestant Episcopal bishop: b. Hamden, Conn., 1815, July 26; d. Davenport, Iowa, 1874, Sep. 26. He was graduated from

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Trinity College, Hartford, in 1835; studied theology, and received deacon's orders in 1838. In 1840-8, he was rector at Springfield, Mass., and in the latter year took charge of St. Luke's Church in Rochester, N. Y. In 1854, he was made bishop of Iowa, holding the position till his death; he was one of the founders of Griswold College at Davenport, and was instrumental in obtaining an endowment for his diocese and the erection of the cathedral. He published *Manual of Family Prayers*, and a number of sermons and addresses; also *Prayers for Children*, and other books for young people.

LEE, JAMES WIDEMAN: American Methodist clergyman: b. Rockbridge, Ga., 1849, Nov. 28. He was graduated from Emory College, Ga., in 1875; in 1876, was ordained to the ministry of the Methodist Episcopal Church South, and held Georgia pastorates in Carrollton, Dalton, Rome, and Atlanta. In 1893, he went to St. Louis as pastor of St. John's Church; was presiding elder in St. Louis from 1897 to 1901, when he returned to his pastorate at St. John's. In 1894, he was the head of an expedition to Palestine to secure material for the *Earthly Footsteps of Christ and His Apostles*, which he published in 1895 (with J. H. Vincent). He has also written: *The Making of a Man* (1892), translated into Japanese and Chinese; *Henry W. Grady, Editor, Orator and Man* (1896); *History of Methodism* (1900); *History of Jerusalem* (1904); and has edited and illustrated the *Self Interpreting Bible*.

LEE, JENNETTE BARBOUR PERRY: American novelist: b. Bristol, Conn., 1860, Nov. 10. She was graduated from Smith College, Mass., in 1886, was professor of English in the College for Women at Western Reserve University 1893-6, and in the year last named was married to Rev. G. S. Lee (q.v.). Since 1904, she has been professor of English language and literature at Smith College. She has published: *Kate Wetherell* (1900); *A Pillar of Salt* (1901); *The Son of a Fiddler* (1902).

LEE, JESSE: 1758, Mar. 12—1816, Sep. 12; b. Prince George's co., Va.; fervent and devoted Meth. missionary. He joined the Meth. Church 1773; entered the ministry and preached his first sermon 1779; was received into the N. C. conference 1783; was on missionary service in N. C., Va., Md., and N. J. till 1787; formed the first Meth. class in New England at Stratford, Conn., 1787, Sep. 26, and one in Boston 1792, July 13; travelled and preached through New England six years; and became asst. to Bp. Asbury 1796; and was chaplain to the U. S. house of representatives 1807, 12, 13, and to the U. S. senate 1814, retaining the latter office till his death. He published *A History of Methodism* (1807).

LEE, JOHN D. See MOUNTAIN MEADOW MASSACRE.

LEE, LUTHER, D.D.: Meth. Episc. clergyman: b. Schoharie, N. Y., 1800, Nov. 30; d. Flint, Mich., 1889, Dec.

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13. He joined the Meth. Episc. Church 1821; became a travelling preacher 1827; began lecturing and preaching against slavery 1836, and was several times mobbed; established and edited the *New England Christian Advocate* at Lowell, 1841; withdrew from the Meth. Episc. Church 1842; joined the Wesleyan Methodists, established *The True Wesleyan*, and became pastor of a church in Syracuse, N. Y., 1843; and was president of the first Wesleyan Meth. general conference 1844. In 1856, he became pres. and prof. of theology in Michigan Union College; 1857, resumed preaching; 1864-67, was prof. in Adrian College; and 1867, returned to the Meth. Episc. Church. He published *Universalism Examined and Refuted* (New York 1836); *The Immortality of the Soul* (1846); *Revival Manual* (1850); *Church Polity* (1850); *Slavery Examined in the Light of the Bible* (1855); and *Elements of Theology* (1856).

LEE, MARGARET: American novelist: b. New York, 1841, Nov. 27. Among her numerous fictions may be cited *Lorimer and Wife* (1881); *Divorce* (1882); *One Touch of Nature* (1892); *Dr. Wilmer's Love* (1868); *Marriage* (1882); *Adriance* (1882); *Since First I Saw Your Face* (1883); *Missing Marriage Certificate* (1883); *A Brighton Night* (1884); *A Brooklyn Bachelor* (1886); *A Story of a Story* (1883); *Separation* (1902); *The Master Chivalry* (1903); *A Broken Engagement* (1904); *The D'Estimanvilles* (1905); etc.

LEE, MARY CATHERINE JENKINS: American novelist: b. New Bedford, Mass. She has published: *A Quaker Girl of Nantucket* (1889); *In the Cheering Up Business* (1891); *A Soulless Singer* (1895); *An Island Plant* (1895); *Lois Mallet's Dangerous Gift* (1903); etc.

LEE, RICHARD HENRY: 1732, Jan. 20—1794, June 19; b. Stratford, Va.; great-grandson of the RICHARD LEE who emigrated with a numerous household to America, in the reign of Charles I., and settled in the country between the Rappahannock and Potomac rivers. This English ancestor was a bold royalist, and during the Protectorate of Cromwell, was mainly instrumental in inducing the colony of Virginia to assume a semi-independent attitude. Richard Henry was educated first at home, afterward in England. When the British parliament had passed (1764) the act declaring its right to tax the colonies, and also the Stamp Act (1765), he immediately became the centre of an active opposition among the colonists, associated himself with Patrick Henry (q.v.), and was sent as a delegate from Virginia to the first American congress, at Philadelphia, 1774, Sep. 5, in which he at once became a leader. He wrote many of those vigorous and sagacious addresses to the king, the people of England, and the colonies, which set forth appropriately the dignity of the great struggle. Lee was placed on the committees charged with prepar-

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ing the munitions of war, and with devising all other means of offering a vigorous resistance to the British government. His labors at this time were enormous. 1776, June 7, Lee made the most celebrated of all his speeches, when introducing before the congress a measure declaring the 'united colonies' to be 'free and independent states,' and 'absolved from all allegiance to the British crown.' Notwithstanding ill-health he was active throughout the war, chiefly, however, as a civilian. In 1784, he was elected pres. of congress, and when the federal constitution was established, he entered the senate for Virginia. Toward the close of his career, he became a decided federalist, though originally he had viewed that system of government with great suspicion, as tending towards a despotic centralization of power. In 1792, he retired from public affairs, and died in his native state. His *Life and Correspondence* was published by his great-grandson, R. H. Lee (2 vols. Phil. 1825).

LEE, ROBERT EDWARD: commander-in-chief of the Confederate army in the war of secession: 1807, Jan. 19—1870, Oct. 12; b. Stratford, Westmoreland co., Va.: son of Gen. Henry Lee ('Light-Horse Harry'), of the Revolutionary army. He graduated at the U. S. Milit. Acad., West Point, 2d in a class of 46 (1829), and entered the U. S. army as 2d lieut. of engineers. From that time till the beginning of the Mexican war he was employed in establishing the boundary line between O. and Mich., superintending the improvements in the harbor of St. Louis and of the Missouri and upper Mississippi rivers, and supervising those in the navigation of the Ohio and the lower Mississippi rivers. He attained the rank of captain 1838, July 9. At the beginning of the Mexican war he was assigned to the staff of Gen. John E. Wool (q.v.) as chief engineer; but when Gen. Winfield Scott (q.v.) took command and began planning his operations against Mexico City, he called Capt. Lee to his own staff. He rendered conspicuous professional and military service through the war; was brevetted major, lieutenant-colonel and colonel for his work before and in the battles of Vera Cruz, Cerro Gordo, Contreras, Churubusco, Chapultepec, and Mexico City; and was frequently commended by Gen. Scott for his engineering skill. After the war he served some time as assistant to the chief engineer of the army. In 1852, Sep., he was appointed superintendent of the U. S. Military Academy, and held the office till 1855, Mar., when he resigned to become lieutenant colonel of the newly-formed 2d U. S. cavalry. This regiment was stationed on the Texas frontier, and he remained with it till his withdrawal from the Union army, excepting the period 1859, Oct. 17-25, when he was in command of the Federal forces detailed to suppress the John Brown insurrection. He was in command of the department of Texas the greater part of 1860; was promoted colonel of his regiment 1861,

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Mar. 16; and resigned his commission Apr. 20, after the secession of Virginia. He wrote his old friend and commander, Gen. Scott, that the separation from the service had cost him a great struggle, and that he never desired again to draw his sword save in defense of his state. To his sister he declared he recognized no necessity for the existing state of affairs, but had not been able to make up his mind to raise his hand against his relatives, his children, his home. On the acceptance of his resignation, he went to Richmond, and Apr. 23 was appointed by the governor of Virginia commander-in-chief of the military and naval forces of the state with the rank of major-general. In May, when the Confederate capital was established in Richmond, he was commissioned third in rank of five full generals authorized by the Confederate congress. He remained some time in Richmond superintending military preparations, had a brief service in the field in West Virginia, and late in autumn was sent to South Carolina, where he planned and partially constructed effective coast lines of defense. In 1862, Mar., he was recalled to the capital and assigned to the conduct of military operations in the armies of the Confederacy, under the direction of President Davis; and June 1 was appointed commander of the army assembled for defense of Richmond, succeeding Gen. Joseph E. Johnston (q.v.), wounded at Fair Oaks the previous day. This was his first opportunity for commanding a great army and exhibiting his military genius; and from that day till his surrender he was the most conspicuous personage in the Confederacy. He at once recalled all the scattered troops to the vicinity of Richmond, to check the advance of the Union army under Gen. McClellan on the capital, had an army of 80,000 men at his disposal by June 25, and on the following day began an offensive movement against McClellan, which resulted in the battles of Mechanicsville, Gaines's Mills, Savage Station, Frazier's Farm, and Malvern Hill, and the defeat of McClellan's plans. Aug. 29-30, Lee defeated Pope at Manassas (second Bull Run); Sep. 5 invaded Maryland; Sep. 17 fought the indecisive battle of Sharpsburg (Antietam) with McClellan; and being checked in his progress by McClellan, recrossed the Potomac Sep. 18-19. He successfully repulsed the Union army under Burnside, who had succeeded McClellan, at Fredericksburg (see FREDERICKSBURG, BATTLE OF) Dec. 13; fought a great battle with Hooker at Chancellorsville (see CHANCELLORSVILLE, BATTLE OF) 1863, May 2-3; again crossed the Potomac to invade Pennsylvania June 24; while marching toward Harrisburg was confronted at Gettysburg by the Union army under Gen. Meade and was defeated in a 3-days' struggle (see GETTYSBURG, BATTLE OF) July 1, 2, 3; and again retired to Virginia. Early in 1864, May, Gen. Grant, who had succeeded to the command of the Union armies, crossed the Rapidan



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and began another campaign against Richmond. The great opposing armies met in battle at the Wilderness May 5, 6; Spottsylvania Court House May 9-12; North Anna river May 23; and Cold Harbor June 3. Grant operated by flank movements; Lee acted mostly on the defensive in fortified positions. June 14, 15, Grant crossed the James river south of the Appomattox, laid siege to Petersburg, and maintained it for 300 days. Early in 1865, Lee would have evacuated Richmond and retreated from Petersburg—the key to the capital—and risked a general engagement in the field; but the Confederate civil authorities, who had impeded his work from the beginning, insisted on his retaining the capital at all hazards. He had not only the two cities but all their communications to defend. Beyond his lines Grant was stretching his larger army further south and in a surrounding grasp. Late in March, Grant moved his army to cut the Danville and Southside railroads, Lee's chief artery of supplies. Sheridan defeated the right wing of the Confederate army at Five Forks Apr. 1; Grant made a general and successful attack on the works at Petersburg Apr. 2; and the same night Lee evacuated Petersburg and Richmond, and retreated toward Danville. Sheridan hastened after him; fought him near the Appomattox river and took 6,000 prisoners Apr. 6. Apr. 9, Lee, seeing the hopelessness of continuing the struggle, surrendered the remainder of his army to Grant at Appomattox Court House under terms of great magnanimity on the part of Gen. Grant. This virtually ended the civil war, though Johnston did not surrender the army at the southward till Apr. 26. After the surrender Lee retired to private life, but was soon afterward elected president of Washington College, Lexington, Va., where he remained till his death.

Gen. Lee, admired and extolled throughout the Southern states, may be said to have been esteemed scarcely less by his foes in war—as far, at least, as regards their appreciation of his rare military genius, his many private virtues, and his unblemished record for bravery, modesty, and unselfishness. He was keen in foresight, masterly in strategy, swift in execution, unflinching in his spirit. In the still air of his college, in which he passed his few remaining years after the tremendous struggle, he served quietly, without bitterness, with an elevating influence on the students that were drawn by the charm of his name.

LEE, SAMUEL, D.D.: 1783, May 14—1852, Dec. 16; b. Longnor, Shropshire, England: orientalist and linguist. He studied at Queen's College, Cambridge, and took his degree B.A. 1817. Two years later he was chosen Arabic prof. in the same univ., received the degree D.D. from Halle (unsolicited) 1822, and from Cambridge 1833; was appointed regius professor of Hebrew 1831, and died rector of Barley, Hertfordshire. His *Grammar of the*

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Hebrew Language (2d ed. Lond. 1831), *Book of Job*, translated from the Original Hebrew, 3 vols. (Lond. 1837), *Hebrew, Chaldaic, and English Lexicon* (Lond. 1840), and his translation from the Arabic of the Travels of Ibn-Batuta (Lond. 1833) have secured for him high reputation. He published also *Sermons on the Study of the Holy Scriptures* (1830), and *Events and Times of the Visions of Daniel and St. John* (Lond. 1851). He took charge, for the British and Foreign Bible Society, of editions of the Syriac Old Testament, and of the Syriac New Testament or Peshito, of the Malay, Persian, and Hindustani Bibles, and of the Psalms in Coptic and Arabic,

LEE, SIDNEY, B.A., LITT.D.: English author and literary editor: b. London, 1859, Dec. 5. He was educated at Balliol College, Oxford; was assistant editor *Dictionary of National Biography*, Vols I.-II. (1883-90); joint-editor with Leslie Stephen (q.v.) Vols. XXII.-XXVI. (1890-1), and sole editor Vols. XXVII.-LXIII. (1891-1901), and of its Supplement, Vols. LXIV.-LXVI. (1902). To this work he contributed 820 articles. He is the author of *A Life of William Shakespeare* (1898); *A Life of Queen Victoria* (1902); etc. In 1903, he delivered a course of Lowell Institute lectures in Boston, Mass., repeating them in other American cities also. These lectures, revised and somewhat extended, were collected in book form entitled *Great Englishmen of the 16th Century* (1904).

LEE, SOPHIA: English author: b. London, 1750, May; d. Clifton, near Bristol, 1824, Mar. 13. She was the eldest daughter of John Lee, an actor. She was the author of a comedy entitled *The Chapter of Accidents*, brought out at Haymarket Theatre in 1780 with great success. The next year her father died, and she removed with her sisters to Bath, where she devoted the profits of her play to the establishment of a young ladies' seminary over which she and her sister Harriett (q.v.) long presided. She wrote two or three novels and contributed *The Young Lady's Tale* and *The Clergyman's Tale* to the *Canterbury Tales*, published by herself and her sister.

LEE, STEPHEN DILL, LL.D.: American soldier: b. Charleston, S. C., 1833, Sep. 22; d. Vicksburg, 1908, May 28. He was graduated from West Point in 1854; served on the frontiers of Texas, Kansas, and Nebraska; was promoted 1st lieutenant in 1856, and served in Florida in 1857. On the secession of South Carolina, he resigned from the United States army, and was made captain of volunteers, and gradually rose to the rank of lieutenant-general. He was at Seven Pines, at the Seven Days' Battles around Richmond, in the campaign against Pope, and at the second battle of Bull Run. He was placed in command of the forces at Vicksburg, but was succeeded by Gen. Pemberton before the

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capture of the city by the Federals. After the war he settled at Columbus, Miss., and soon took a prominent part in the affairs of the state. He was elected to the state senate in 1870, and was a prominent member of the constitutional convention in 1890. In 1880, he was made president of the State Agricultural and Mechanical College at Starkeville, holding this position till 1899, when he became commissioner of the Vicksburg National Park.

LEE, VERNON. See PAGET, VIOLET.

LEE, WILLIAM: American diplomatic representative: b. Stratford, Va., 1737; d. near Williamsburg, Va., 1795, June 27. He was a brother of Arthur Lee (q.v.), Francis Lightfoot Lee (q.v.), and Richard Henry Lee (q.v.). Prior to the Revolution he was active as a merchant in London; and there he was for a time agent of Virginia colony. In 1777, he became associated with Thomas Morris (q.v.) as superintendent of the commercial affairs of the United States at Nantes, France, and in 1778 was appointed commissioner to Prussia and Austria, but accomplished nothing. A treaty drawn up by him with Neufville, a merchant of Amsterdam, in the year 1778, and approved by the burgomaster of that city, became the avowed cause of the war declared by Great Britain against Holland. Regarding him, consult Wharton, *Revolutionary Diplomatic Correspondence of the United States* (1889).

LEECH, n. *lēch* [AS. *læce*, a physician: Icel. *læknir*; Goth. *leikeis*, a physician, a leech—from Goth. *leikinon*; Icel. *lækna*, to heal: Bohem. *lek*, medicine: comp. Gael. *lighich*, to let blood; *leigheis*, to heal, to cure]: formerly the name of a physician; an aquatic worm of several species, one of which is employed to suck blood from diseased parts: V. to draw blood by leeches. LEECH'ING, imp. LEECHED, pp. *lēcht*. Note.—LEECH, the aquatic worm, is so called because it is supposed to act as a healer—the name of a *leech* as applied to a physician is not taken from the blood-sucking worm, but the reverse.

LEECH, n. *lēch* [Icel. *lik*, a leech-line: O.Dut. *lyken*, a bolt-rope]: one of the side borders or edges of a sail. LEECH-LINES, the small ropes from the middle of the leeches of a sail.

LEECH (*Hirudo*): Linnæan genus of *Annelida*, of ord. *Suctoria*, now forming the family *Hirudinidæ*, and divided into a number of genera, some of which contain many species. They are distinguished from most other annelids by the nearly complete obliteration of the cœlom or body-cavity, owing to the development of parenchymatous connective tissue, muscles, etc., the presence of an anterior or oral sucker and a posterior or subanal sucker, and by the absence of setæ, except in *Acanthobdella*. In all leeches which have been carefully studied there are exactly 34 segments or somites, each represented by a ganglion in the central nervous system, and

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being of smaller size and simpler structure toward the ends than in the middle of the body, where each is divided into from 2 to 12 rings, one of which, sometimes regarded as the first, sometimes as the middle ring, bears metameric, eye-like sense organs. Most leeches are temporary parasites, a few nearly permanent parasites; the rest are predatory hunters or scavengers, or they may change from one mode of life to another. They are marine, fresh-water, or terrestrial. The first class is most abundant, both in individuals and species, in cold seas; the second is both temperate and tropical, and the third is confined to warm regions. Four families are distinguished: the *Ichthyobdellidæ* or fish-leeches, the *Glossiphonidæ* or tortoise and snail leeches, the *Herpobdellidæ* or worm-leeches, and the *Hirudinidæ* or jawed leeches. The first two families possess a long protrusible proboscis and are much more closely allied than the *Herpobdellidæ* and *Hirudinidæ*, which have no proboscis. The *Ichthyobdellidæ* are chiefly parasitic on fishes and, except a few fresh-water forms, are marine. Some of them, as *Branchellion*, are branchiate. The *Glossiphonidæ* are richly represented in the fresh-water lakes and streams of North America by a great variety of species, most of which attach themselves to tortoises, whose blood they suck, or else they devour water-snails and small worms. A few are parasitic on fishes. In all of them the oral sucker is small and the eyes in one to four pairs placed near the median line. The *Herpobdellidæ* contains slender, six or eight-eyed, predaceous leeches, which are extremely abundant in fresh-water ponds and feed on small leeches and worms. They have no toothed jaws and the digestive tract is simple and straight. The *Hirudinidæ* have 10 eyes, generally three-toothed jaws and a spacious sacculated digestive tract. Here belong the true blood-sucking leeches, the medicinal leech of Europe, and our native *Macrobdella decora*, also formerly largely employed in this country for blood-letting. The only terrestrial leech of the United States belongs to this family. It inhabits garden soil, feeds on earth-worms, and is one of the largest leeches known. Consult: Leuckart and Brandes, *Parasiten des Menschen*; Whitman, *Quarterly Journal Microscopical Science* (1886); and Moore, *Bulletin Illinois State Laboratory of Natural History* (1901).

LEECH, JOHN: English artist of most genial humor: 1817, Aug. 29—1864, Oct. 28; b. London; son of the landlord of the London Coffee House. He received his education at the Charter-house with Thackeray, his lifelong friend. His reputation is associated almost entirely with *Punch*, to which, beginning about 1840, he contributed thousands of humorous sketches. These sketches are frequently as full of grace as of humor; the drawing is often excellent; and his female faces have a quiet, healthful beauty, attractive in the ball-room, but more

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attractive by the fireside and with children on the knee. In the *Punch* sketches, he satirized keenly, yet on the whole humanely, the vagaries of male and female attire, the precocity of the young, the pomp of Paterfamilias, the pride of domestic servants, and the singular relations which sometimes subsist between the parlor and the kitchen. To the future historian of the Victorian era, these admirable sketches will be invaluable.

A collection of Leech's best contributions to *Punch* has been published separately, in several series, as *Pictures of Life and Character*; also a vol. of *Pencillings from Punch*. See the essay on Leech by Dr. John Brown (1882).

LEECHING, or the application of leeches, for abstracting blood, is not often employed at the present day, though recourse is still had to it in inflammatory affections of the eyes or ears, in meningitis, and in other forms of local inflammation. In applying leeches, the part should be thoroughly cleaned, and the leeches, after being dried by folding them gently in a clean linen cloth, should be placed in an open pill-box, or in a wine-glass, and applied to the spot at which it is desired that they should attach themselves. When it is wished to affix a leech to a particular spot it is placed in a narrow tube called a leech-glass. When the animals will not attach themselves readily, they may sometimes be induced to bite by moistening the part with milk or blood.

The quantity of blood which a leech is capable of drawing may be estimated at an average at about a drachm and a half, though occasionally a leech will abstract between three and four drachms; and this quantity does not include that lost after the animal has fallen off, which is often considerable, especially in children. To cause the leech to disgorge the blood, salt is usually applied to its body.

When the leeches have fallen off, it is usually desirable to promote to some extent the flow of blood from their bites, and this is readily done by the application of warm fomentations or poultices. The bleeding generally stops spontaneously after a short time; if it goes on longer than is desirable, mere exposure to the air, or the application of cold or of heat, or pressure, will arrest it. If these means fail, the bite should be touched with a stick of nitrate of silver (lunar caustic) scraped to a point.

Leeches, when applied to the mouth or interior of the nose, have been occasionally swallowed, and have given rise to very unpleasant symptoms. The best treatment in a case of this kind is the swallowing of a moderately strong solution of common salt.

LEEDS: England, a municipal, parliamentary, and county borough and large manufacturing town, in the West Riding of Yorkshire, on the river Aire, 185½ miles north of London. The river, which in passing through

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the city is spanned by eight bridges, is navigable from its mouth in the Humber, and connects with the Leeds and Liverpool canal. The town extends for about seven and one-half miles from east to west, and about seven from north to south. From the extent of the manufactures the town is naturally smoky, and on the whole its appearance is not prepossessing, although much modern improvement has been effected. The most conspicuous building is the Roman-Corinthian town-hall, considered one of the finest municipal buildings in the kingdom. The greater portion of one wing is allotted to the Free Public Library, to which has been added the Fine Art Gallery. Leeds Infirmary, in the Gothic style, can accommodate 300 patients. Other notable buildings are the new general postoffice, in the Renaissance style; the school-board offices, the Royal Exchange, the stock exchange, the Leeds Institute of Science, Art, and Literature; the Yorkshire College, the Grand Theatre, the new Empire Theatre, the grammar-school, the Coliseum (a public hall), etc. Among the places of worship are the parish church of St. Peter's; St. George's, with a tower and spire 160 feet high; Holy Trinity, a fine building in the Early English style; some of the Dissenting places of worship, and the Roman Catholic Church of St. Ann's. The chief educational institution is the Yorkshire College, a branch of the Victoria University (whose headquarters are in Manchester, having taken its origin in Owens College). It comprises two chief departments, a department of science, technology, and arts, including classics, modern languages, history, philosophy, mathematics, physics, chemistry, engineering, etc., and a well-equipped medical department. Other institutions are the Leeds Medical School (1894), Young Men's Christian Institution, a large training college for students for the Wesleyan ministry, and a literary and philosophical society. There is an admirable central library with several branches, the number of volumes being over 200,000. The charitable institutions of Leeds are numerous. Parks have been laid out by the corporation and recreation grounds, the chief being Roundhay Park (two miles from Leeds), 300 acres in extent and containing a lake of 33 acres. The fine ruins of Kirkstall Abbey (3 miles from Leeds), with the adjacent grounds, presented to the town by Colonel North in 1889, form an attractive resort. The waterworks supply Leeds with water from the Washburn, a tributary of the Wharfe, the daily available supply being 28,000,000 gallons.

Leeds is and has been for generations the chief seat of the woolen manufacture of Yorkshire and has become the seat of other important industries. Chief of these is the wholesale clothing trade, in which several thousand hands are employed, many being also employed in the steel-works, iron-foundries, rolling-mills, tool and machine factories; in the boot and shoe factories and the leather

LEEF—LEEK.

trade, and in the cloth-cap trade, which is also becoming a great branch of industry. There are also locomotive works, tobacco manufactories, color-printing works, extensive chemical and glass works, important works for the making of drainage pipes, fire-bricks, ornamental terra-cotta and pottery ware, etc. One of the great sources of the wealth of Leeds is its abundant supplies of coal and iron. Nearly 100 collieries are worked in the district. The history of Leeds extends over more than 1,200 years, the town being mentioned under the name of Loid or Loidis by the Venerable Bede as the capital of a small British kingdom about 616. It was made a city in 1893, and its mayor was raised to the dignity of lord-mayor in 1897. The vicinity is crowded with villages, most of the inhabitants of which are employed in manufacturing for the Leeds market. Pop. (1901) 428,953.

LEEF, a. *lēf*: OE. for LIEF, which see.

LEEK, n. *lēk* [AS. *leác*; Bohem. *luk*; Ger. *lauch*; Icel. *laukr*, a leek], (*Allium Porrum*, ord. *Liliaceæ* (see ALIUM): biennial plant, native of s. Europe; with no proper bulb at the root, but generally a slight increase of the thickness of the stem; a stem about 3 ft. high, leafy at bottom; the leaves about an inch wide; the flowers in a large and very dense terminal globular umbel, which is not bulbiferous. It has been long in cultivation, and some of the varieties exhibit the effects of cultivation in greatly increased size and delicacy. The lower part of the stem, before it has run up into a flower-stalk, blanched by earthing up or other means which also induce it to swell and extend, is much esteemed for culinary purposes. Its flavor is much milder than that of the onion, or any other species of *Allium*. The leek has long been an especial favorite of the Welsh, and is adopted as the national emblem of Wales. It is generally sown in spring, and is used during the following winter. It delights in a rich but light and dry soil. Gardeners often transplant seedling leeks, instead of merely thinning out the original rows; and sometimes make deep holes for them with the dibble, into which they merely throw a little earth to cover the roots, leaving the stem to swell in the open hole. LEEK-GREEN, in *min.*, the green color which is peculiar to the leek. TO EAT THE LEEK, in *familiar language*, to withdraw under compulsion injurious statements or assertions, and to apologize.

LEELITE, n. *lē'lit* [after Dr. Lee of Cambridge]: a variety of compact felspar of a reddish color, waxy texture, and horn-like translucency.

LEER, n. *lēr* [AS. *hleór*; Icel. *hlyr*, the cheek, the face: Dut. *loeren*, to look askance, to wink: Sw. *lur*, a wink; Ger. *lauern*, to spy]: a peculiar sidelong glance or look, usually considered not reputable; a libidinous side-

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look; in *OE.*, the complexion; look; a winning look: *V.* to look with a leer. LEER'ING, imp. LEERED, pp. *lērd*. LEER'INGLY, ad. *lī*: connected with LOWER or LOUR, which see.

LEER. See LEAR.

LEES, n. plu. *lēz* [*F. lie*, lees—from mid. *L. līā*]: the dregs or sediment from a liquor; refuse; the sing. LEE, is not now in use.

LEESER, ISAAC: American rabbi and journalist: b. Neuenkirchen, Prussia, 1806, Dec. 12; d. Philadelphia, 1868, Feb. 1. In his 18th year he removed to Richmond, Va., where he at first engaged in business. In 1829, he became Hazan or minister of Congregation Mikveh Israel of Philadelphia. His first work, *The Jews and the Mosaic Law*, appeared in 1833, followed in 1837 by his sermons in two volumes. He edited in 1841 *Grace Aguilar's Spirit of Judaism*, and began in 1843 his monthly magazine, *The Occident*, which he conducted until near the end of its 25th volume. In 1845, he published his Pentateuch in Hebrew and English, and in 1840 his edition of the *Daily Prayers*, according to the German ritual. Retiring from the ministry in 1850, he issued an English translation of Schwarz's classic *Geography of Palestine*, and an edition of the Hebrew Bible, with Jaquett. He began now an English translation of the Old Testament, completed in later years. In 1857, he was elected minister of the Beth El Emeth Synagogue, but continued his literary labors, editing *Dias Letters* (1859); *The Inquisition and Judaism* (1860); *Mrs. Hester Rothschild's Meditations and Prayers* (1864); *Grace Aguilar's Jewish Faith and Spirit of Judaism* (1864). In addition to his work as editor, translator, author and lecturer, he gave the impetus to nearly every Jewish charity in the city, while he suggested institutions that have since been established, so far-sighted was his vision. He was for decades the leader of the conservative party in American Israel and was aggressive and fearless in his opposition to the reform movement, whose progress, however, he could not check.

LEET, n. *lēt* [*Dut. lact*, the subject of a certain jurisdiction]: an anc. Anglo-Saxon law-court: in English law, courts held in a manor, township, or hundred, for local purposes.

LEET, n. *lēt* [*AS. hlet*, a lot]: in *Scot.*, a selected list of candidates for any office.

LEETE, *lēt*, WILLIAM: emigrant from England to Conn. 1637: b. not long after 1600; d. 1683. He was among the early settlers of New Haven, and one of the founders of Guilford; gov. of the colony 1661-65, held other offices 1665-76; gov. from 1676 till his death. The regicides Goff, Whalley, and Dixwell were received and sheltered by him.

LEEWARDEN—LEEWAY.

LEEWARDEN, or LEUWARDEN, *lō'wâr-dèn* or *lā'û-vâr-dèn*: town of the Netherlands, cap. of the province of Friesland, in a rich and extensive plain, on the Harlingen and Gröningen canal, 16 m. e.n.e. of Harlingen. It contains a handsome town-hall, an ancient palace of the princes of Orange, and many churches. Numerous canals intersect the town. Leeuwarden has a society for the investigation of Frisian history, antiquities, and language, and another for the study of nat. history. Linen fabrics and paper are manufactured, and a trade in horses is carried on. Pop. (1889) 29,717; (1900) 33,009.

LEEUWENHOEK (or LEUWENHOEK), *lō'wên-hôk*, ANTHONY VAN: one of the earliest microscopic observers: 1632—1723; b. Delft, Holland. The *compound microscope*, as it existed in his time, was very imperfect, and subject to many errors, which induced Leeuwenhoek to employ only *simple microscopes*, that is to say, very small lenses of short focal lengths, fixed between two plates of metal pierced with a very narrow opening. He bequeathed to the Royal Soc. of London (where they are carefully preserved) a collection of these microscopes. It was in the *Philosophical Transactions* of this society, to which he contributed 112 papers, that most of his observations were originally published.

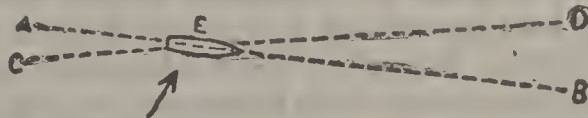
Among the most important of his investigations may be mentioned a Memoir to the Royal Soc. 1690, in which he discovered, and clearly demonstrated, the continuity of the arteries and veins through intervening capillaries, and thus afforded ocular demonstration of the truth of Harvey's views regarding the circulation; he also examined the structure of the crystalline lens and of the brain. He is perhaps most generally known as the discoverer of the *Rotifers*, and as being the first to recognize the property which these animals possess of alternately dying and being resuscitated, according as they are dried or provided with the water necessary for the maintenance of their vitality.

His writings were collected and published in Dutch at Leyden and Delft (7 4to vols. 1686-1732; Latin translation, *Opera Omnia, seu Arcana Naturæ*, Leyden 1792; English translation, 2 4to vols. 1798-1800).

LEEWARD. See LEE.

LEE'WARD ISLANDS. See ANTILLES.

LEE'WAY [see LEE]: side movement of a ship to the leeward of her course. When a ship is steering in a



direction AB (see the fig.), and a strong wind is blowing as indicated by the arrow, the ship's actual course is the resultant of two forces, one represented by her headway (or locomotive power), the other by the force urging her in the direction of the wind. This resultant must be

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somewhat in the line CD; and with the same power of wind, the angle BED will be great or small as the headway is diminished or increased. This angle represents the leeway; and the amount of ground lost to leeward in a given distance sailed is shown by the side of the triangle subtending this angle. In all computations of the course pursued, allowance has to be made for leeway. Some vessels in tolerable weather make scarcely any perceptible leeway, while bad sailors fall off as much as seven points of the compass.

LEFEBVRE, *lêh-fâvr'*, FRANÇOIS JOSEPH, Duke of Danzig and Marshal of France: 1755, Oct. 25—1820, Sep. 14; b. Ruffach, Alsace. He entered the army at the age of 18, and was a sergeant in the French Guards when the Revolution broke out. He rose in rank with wonderful rapidity. He took part with Bonaparte in the *coup d'état* of 1799. In 1804, he was made a marshal of the Empire. He also conducted the siege of Danzig, and after its capture was created Duke of Danzig. He distinguished himself in the early part of the Peninsular War, and suppressed the insurrection in the Tyrol. During the Russian campaign, he had the command of the imperial guard, and 1814, of the left wing of the army which resisted the advance of the allies in France. Submitting to the Bourbons after Napoleon's abdication, he was made a peer.

LEFEBVRE, JULES: French painter: b. Tournan, Seine-et-Marne, 1836, Mar. 10. He was when a boy apprenticed to the trade of his father who was a baker, but his mother took pains to have him sent to Paris to study art, and he became the pupil of Léon Coignet. His *Death of Priam*, exhibited in the Salon (1851) won for him the Grand Prix de Rome, since which he has gained many medals and honors. His *Femme Couchée* in the Salon of 1868, a nude of singular freshness and power, established his reputation as an artist of the first rank, and the votes of the judges were divided equally between this picture and a painting of Corot's for the medal of honor, which was, however, bestowed on Brion. Among his best-known canvases are: *Diana Surprised* (1879), purchased in the United States for \$7,000; *Lady Godiva*, the Countess of Coventry, riding naked through the city—a painting also popularized by many productions; *Psyche* (1883), now on exhibition as a loan in the Pennsylvania Academy of Fine Arts; *Psyche* is represented with a star on her forehead, seated on a rock by the sea, and holding in her hands the fate of the world. *La Vérité* in the Salon of 1870 attracted wide attention, and in recognition of its merits the painter was decorated with the cross of the Legion of Honor. *Truth* is represented as holding aloft to the world a shining mirror. The action is impressive, the lines and proportion of the figure admirable, although the coloring is a little cold. As a painter of ideal heads Lefebvre has

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become widely popular. His *Vittoria Colonna* is one of the most effective of these. But *La Liseuse* (1889); *La Poésie Antique*; *Laure*; and *Violetta*, all exhibit the classic beauty, the repose and exquisite refinement of the ideal school. *Clemence Isaure* is a study which is very human and life-like, the full lips and round chin suggesting physical life and passion, while the bay leaves, with which the heavy locks of hair are wreathed, speak of poetic and intellectual power.

Lefebvre is one of the first of living French painters, and his influence is great in the Julien School where he is one of the instructors. Among the romanticists, classicists, realists and impressionists, he stands in the same class as Hector Leroux, Baudry, Bougereau, and Puvis de Chavannes, as an advanced idealist. Yet in opposition to such artists as Courbet, Manet and Bonnat, he is immensely popular, being in his love of ideal beauty and his refined technique, *French of the French*.

LEFEBVRE, or LE FEVRE, NICOLAS or NICASIUS: chemist, probably a native of France: b. about 1620; d. London, 1669. He was educated at the Protestant Academy at Sedan, acquired a knowledge of chemistry and became his majesty's apothecary and distiller. Here Lefebvre found ample opportunity to pursue his favorite study. In 1660 appeared his *Traité de la Chimie Théorique et Pratique*, which went through several editions, and was translated into German. In 1660, he was invited to London by Charles II. to take the post of royal professor and apothecary in ordinary to the household. He was also elected to the Royal Society, which had just been founded. In 1664, appeared a translation into English of his *Traité*, entitled *A Compleat Body of Chymistry*. His treatise on chemistry is compiled, according to his own account, from Van Helmont, Glauber, and Paracelsus, and is divided into the theory and practice of the art. The whole work is very well done, the author shows thorough familiarity with his subject, and his descriptions of apparatus, of substances, and of preparations are clear and systematic. His work served as a model for those of succeeding chemists, especially for that of Glaser, who replaced him in the Jardin des Plantes, and of Lemery.

LEFFERTS, MARSHALL: American engineer: b. Bedford, Long Island, 1821; d. 1876. After receiving a common school education he took up various occupations, finally settling down in the profession of electrical engineer, which he pursued from 1849 to 1860. During that time he was in the employ of the American Telegraph Company, and consulting engineer to the Atlantic Cable Company. He made many improvements in inventions in the department of electrical transmission while in the service of these companies. During the war he commanded the 7th regiment. In 1867, he became connected

LEFFMANN--LEFT.

with the news department of the Western Union Telegraph Company; two years later, president of the Gold & Stock Telegraph Company, and 1871 he took control of the commercial news department, which has been purchased by the company.

LEFFMANN, HENRY, A.M.: American chemist: b. Philadelphia, 1847, Sep. 9. He was graduated from Jefferson Medical College in 1869, and from the Pennsylvania College of Dental Surgery in 1884. He was elected assistant professor of chemistry at the Philadelphia Central High School and served from 1876 to 1880. He was port physician 1884-7, and 1891-2, and in 1888 was appointed but not confirmed coiner United States Mint, political reasons interfering. Since 1888, he has been professor of chemistry at the Women's Medical College of Pennsylvania and professor of chemistry at the Wagner Free Institute of Science. Among his works are: *Compend of Organic Chemistry; Compend of Chemistry; Analysis of Milk and Water Products; Sanitary Relations of Coal Tar Products* (from the German); *Structural Formulæ for the Use of Students*; (with La Wall) *Text-book of Organic Chemistry* (1905). He has edited Reese's *Medical Jurisprudence and Toxicology* (4th and 5th editions), and Allen's *Commercial Organic Analysis* (Vols. I. and II., 3d edition).

LEFORT, *lêh-for'*, FRANÇOIS: 1656-99; b. Geneva. After serving in the French and Dutch service, he went to Russia, where he obtained a captain's commission in the army. He fought with distinction against the Turks and Tartars, and was active in the intrigues which placed Peter the Great on the throne. The czar never forgot Lefort, who became his chief favorite, and next to Peter, the most important personage in Russia. He was a man of great acuteness and ability. He remodelled the Russian army, and laid the foundation of its navy. In 1694, he was made admiral and generalissimo. When Peter the Great undertook his visit to foreign countries 1697, Lefort was the chief of the embassy, in the train of which the czar travelled *incognito*. See Golikof's *Vie de Lefort*, and the German monographs by Posselt (1866) and Blum (1867).

LEFT, n. *lêft* [Dut. *luft* or *lucht*; L. *lævus*, left: probably *light* hand, in opposition to the stronger heavier *right* hand]: opposed to right. LEFT-HANDED, able to use the left hand with greater strength and dexterity than the right; unlucky; clumsy. LEFT-HANDEDNESS, the state or quality of being left-handed. A LEFT-HANDED MARRIAGE, an irregular marriage; in *Germany*, among princes and the higher nobility, marriage with a woman of inferior station who has neither the status nor the privileges of a lawful wife--also called a *morganatic marriage*. OVER THE LEFT, in *familiar language*, an expression indicating that what has been said is under-

LEFT—LEG.

stood 'in a contrary sense.' *Note.*—In the British house of commons, the Opposition sit on the *left* of the speaker, and the members of Government with their followers on the *right*. RIGHT and LEFT in foreign legislative assemblies, see under RIGHT. See also MOUNTAIN, THE; FRANCE (*Political Parties*).

LEFT, v.: see under LEAVE 2. LEFT OFF, that which is laid aside, as *left off* clothing.

LEG, n. *lëg* [Icel. *leggr*, a stalk or stem: Dan. *læg*; Sw. *lëgg*, the calf of the leg: comp. Gael. *lorg*, a staff, a support]: a slender support; the limb of an animal which supports the body (see LEG, THE): that by which anything is supported, as the leg of a table; in *OE.*, a bow made with the leg drawn back. LEGS (HUMAN) in *her.*, frequently borne as charges, sometimes naked, sometimes booted; and they may be couped, i.e., cut evenly off; or crased, cut with a jagged edge; and that, either at the thigh or below the knee. The knee when represented is always embowed. A remarkable device of three legs in armor, conjoined at the thighs, and flexed in triangle, forms the insignia of the ancient kingdom of Man and contains the appropriate motto, *Quocunque jeceris stabit*. LEGGED, a. *lëgd*, having legs. LEGGINGS, n. plu. *lëg'gingz*, coverings for the legs reaching to the knees. LEGGY, a. *lëg'gî*, having unusually long legs. LEG'LESS, a. *-lës*, without legs. LEGGETS, n. plu. *lëg'gëts*, or LEGLETS, n. plu. *lëg'lëts*, coverings for the legs of young children. TO STAND ON ONE'S OWN LEGS, to depend on one's own exertions. TO TAKE LEG-BAIL, to abscond or run away.

LEG, THE: all that part of the lower extremity which is between the knee and the ankle. It consists of two bones, the tibia and fibula (see SKELETON: FOOT), and of masses of muscles (together with nerves and vessels) held in their position by coverings of fascia, and enveloped in the general integument.

The shaft of the tibia is of a triangular prismatic form, and presents three surfaces and three borders. The internal surface is smooth, convex, and broader above than below; except at its upper third, it lies directly under the skin, and may be readily traced by the hand. The external and the posterior surfaces are covered by numerous muscles. The muscular mass forming the calf (formed by the *gastrocnemius*, *soleus*, and *plantaris* muscles) is peculiar to man, and is directly connected with his erect attitude and his ordinary mode of progression. The anterior border of the tibia, most prominent of the three, is popularly known as *the shin*, and may be traced down to the inner ankle.

The fibula, or small bone of the leg, lies on the outer surface of the tibia, and articulates with its upper and lower extremities, and with the astragalus inferiorly. It affords attachments to many of the muscles of this region.

LEGACY.

This region is nourished by the anterior and posterior tibial arteries into which the popliteal artery separates. Both these arteries occasionally require to be tied by the surgeon in cases of wounds or aneurysm. The blood is returned toward the heart by two sets of veins—the deep, which accompany the arteries, and the superficial, known as the internal or long saphenous, and the external or short saphenous veins. These superficial veins are very liable to become permanently dilated or varicose, if there is any impediment to the flow of the blood, or even from the mere weight of the ascending column of blood, in persons whose occupation requires continuous standing. For the nature and treatment of this trouble, see VARICOSE VEINS.

The nerves of the leg, both sensory and motor, are derived from the great sciatic nerve and from its terminal branches, the internal popliteal and the external popliteal or peroneal nerve.

In cases of fracture or *broken leg*, the two bones are more frequently broken together than singly, and the most common situation is at the lower third. The tibia is more often broken by itself than the fibula, in consequence of its sustaining the whole weight of the body, while the fibula has nothing to support. A quite common fracture, however, is that of the lower tip of the fibula which enters into the formation of the ankle-joint (Potts' fracture). See FOOT.

LEGACY, n. *lĕg'ă-sĭ* [OF. *legat*, a legacy—from mid. L. *legatum*, a legacy: It. *legato*; Sp. *legado*, a legacy—from L. *legāre*, to bequeath]: gift or bequest contained in the will of a deceased person, consisting of chattel, goods, or money. Legacies are general, specific or demonstrative. A *general* legacy bequeathes one or more of a class of things without specifying which particular one. If there is not enough to pay all the general legacies, then a *pro rata* abatement must be made in each; all must share the loss. A *specific* legacy describes the property bequeathed so as to distinguish it from all the other property. Thus a horse, a ring, a hundred dollars, etc., are general; while the white horse Billy, the ring with initials N. N. inside, or a certain hundred dollar bond, etc., are specific. If the property specified fail, e.g., the horse dies or the ring is lost, the legacy is adeemed, i.e., the loss is the legatee's, and he receives no compensation. On the other hand, a specific legacy is not subject to abatement as the general is, but must be paid in full, regardless of other legatees. A *demonstrative legacy* partakes of the nature of both the preceding; it bequeathes a specific value out of a general fund, as, 'a hundred dollars of my bank stock.' It cannot be adeemed, but if the fund specified fail, it must be paid out of the general assets. There are various technical modifications of these principles. Legacies are described also as *absolute*, when they vest unconditionally; *condi-*

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tional, or contingent, when made dependent on some event which may or may not take place; *modal*, when directions are given as to the way in which they shall be applied to the use of the legatee; *residuary*, bequeathing all the personal property remaining after the rest has been disposed of as directed, etc. All legacies are payable only when enough property remains after all the testator's debts have been paid. Legacies can be administered only by a properly constituted executor, appointed either by the will of the testator, or, if this was not done, by the court. This executor becomes the representative of the deceased, all of whose personal property is vested in him, to be disposed of in the payment of the testator's debts, if any, and according to the provisions of his will. The law allows him a year from the testator's death in which to do this. Generally a legacy left to an infant under 21 can be paid only to the legally constituted guardian; there are, however, exceptions to this rule. A bequest made to children, is held, unless otherwise specified, to refer to children at the time of the testator's death, including a child in the mother's womb, but not illegitimate children when there are legitimate ones. In general, as regards the construction of legacies, the rule is that the plain intent of the testator, as gathered from the whole will, shall be carried out. Thus, where a legacy is left to a child on whom the testator, after the date of the will, had made a settlement, this settlement is regarded as an ademption of the legacy. Where the same special legacy, or legacies of equal value, are given twice to the same person by the same will, he is entitled to receive but one. But it has been held that where two legacies of unequal value are given to the same person by one will, he is entitled to receive both. Where a legacy is left to a debtor equal to or more than the debt, the legacy is presumed to be in satisfaction of that debt, unless there be evidence to the contrary: unless it be clearly shown that such was the intention of the testator. Legacy to a debtor does not constitute a release of the debt. See DEVISE; WILL, IN LAW.

LEGAL, a. *lē'gāl* [F. *légal*—from L. *legalis*, legal— from *lex* or *legem*, law: It. *legale*]: pertaining to law; according to law, or in conformity with it; created by law. LEGAL ASSETS, those that are under the jurisdiction of the law, rather than of the equity courts. LEGAL DEBTS, debts enforceable in a law court, as distinguished from those enforceable in a court of equity. LEGAL ESTATE, absolute right of ownership recognized by law, as distinguished from an equitable interest. LEGAL MALICE, malice such as the law implies from the nature of an act, as distinguished from actual malice. LEGALLY, ad. *lē'gāl-ī*. LEGALISM, *lē'gāl-izm*, n. close adherence to law; strict conformity to law. In theology, the doctrine of salvation by works or by conformity to law, as distin-

LE GALLIENNE—LEGAL TENDER.

guished from that by grace; tendency to observe the strict letter rather than the spirit of the law. LEGALITY, n. *lě'gāl'i-tī*, lawfulness. LEGALIZE, v. *lě'gāl-īz*, to render lawful or according to law. LE'GALIZING, imp. LE'GALIZED, pp. *-īzd*. LEGAL TENDER, the coins or medium of payment which can be lawfully offered in a country.—SYN. of 'legal': lawful; legitimate; constitutional; authorized.

LE GALLIENNE, *lě gāl'li-ēn*, RICHARD: English author: b. Liverpool, England, 1866, Jan. 20. He was educated at Liverpool College and after several years spent in business served as literary critic for the *Star* and settled in London. Since 1902 he has lived in New York. Among his numerous published works are: *My Ladies' Sonnets* (1887); *Volumes in Folio* (1888); *George Meredith* (1890); *The Book-Bills of Narcissus* (1891); *English Poems* (1892); *The Religion of a Literary Man* (1893); *Prose Fancies* (1894-6); *Robert Louis Stevenson and Other Poems* (1895); *Retrospective Reviews* (1896); *The Quest of the Golden Girl* (1896); *If I were God* (1897); *The Romance of Zion Chapel*, a novel (1898); *Travels in England* (1900); *Odes from the Divan of Hafiz* (1903); *Painted Shadows* (1904).

LEGAL TENDER: the power conferred by law upon some forms of money to discharge obligations payable in money. Thus a debt payable in *dollars*, the kind of dollars not specified, may be discharged with such dollars as the law declares legal tender. There is much reason in the contention that such laws are unjust, and excusable, if at all, only in cases of great governmental emergency. An exception is the case of token money (subsidiary and minor coin), where the laws limit the amount which can be tendered, largely as a matter of convenience. Gold is legal tender in practically all civilized countries; but it would be equally acceptable without laws; the other forms of money are not as acceptable and hence require the force of law to render them so. Nevertheless, the utility of legal tender laws in obviating disputes is not to be underestimated, and this probably accounts for their continued use in many countries.

The history of these laws indicates that they were originally designed to fix a standard for payments; but they have very frequently degenerated into means of forcing people to receive money not acceptable upon its intrinsic value; an obligee is thus compelled to take less than was contemplated when the obligation was incurred. But this applies only to past or uncompleted contracts; those made subsequent to the enactment of the law can be, and usually are, specifically drawn to avoid such injustice. Thus when depreciated paper is made legal tender, creating a new standard of values, prices rise correspondingly, in the attempt to maintain an equilibrium; but the mass of the people are not fa-



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miliar with these conditions and cannot fully protect themselves.

The joint use of both gold and silver as money metals at ratios fixed by statutes gave legal tender laws a standing in modern times; such joint use was rendered possible only by establishing legal ratios, since the relative commercial value of the metals fluctuated. But the laws were subsequently extended to paper representatives of money, in most instances far less acceptable. Ordinarily only government issues of paper have been so endowed; but sometimes bank-notes also possess the power with greater or less limitations. Thus Bank of England notes are legal tender in England and Wales (excepting in payments by the bank itself); but not in Scotland and Ireland.

In the United States the mint act of 1792 made all gold and silver coins equally legal tender at the ratio of 15 to 1; in 1834 the ratio was changed to 16 to 1, by reducing the content of the gold coins, which, of course, affected existing contracts payable in gold. The action was taken, however, to adjust the legal to the commercial ratio, and little disturbance was caused. In 1837 an unimportant change was made by which the weight of gold coins was increased very slightly.

In 1853 silver coins under one dollar were reduced in weight (made subsidiary), and their legal tender power limited to \$5 in any one payment; after several changes this limit was finally fixed by a law of 1879 at \$10. The silver dollar, although demonetized in 1873, was re-monetized in 1878, and continues with full legal tender power except where otherwise expressly stipulated in the contract. Minor (base metal) coins are since 1873, legal tender only to 25 cents in any one payment. For a long time (up to 1857) many foreign coins were accorded tender power at fixed rates.

The exercise of the questionable power to make paper legal tender was quite frequent in the colonial and revolutionary periods; the constitution contemplated, in the opinion of most authorities, the prevention of the use of the power; it declares specifically that 'no state shall make anything but gold and silver a tender in payment of debts'; nor did the federal government assume to exercise it until 1862 and then avowedly merely as a 'war measure,' in a great emergency. The notes depreciated and prices of commodities rose; as to past transactions the obligees were mulcted; as to future transactions a fluctuating standard of values was created. The constitutionality of the law was questioned and the Supreme Court declared it an infringement upon one organic law (*Hepburn vs. Griswold*, 8 Wallace); but later reversed the decision (*Legal Tender Cases*, 12 Wallace). Hence the notes are still in use, but have been maintained at parity artificially since 1879.

Needless to say both the notes, and the silver dollars

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(which are intrinsically worth only from 50 to 60 cents in gold), are in general accepted only within the jurisdiction of the United States, and only because they are endowed with the legal tender power. Bank notes, gold certificates and silver certificates not so endowed, but are *receivable* in payment of taxes due the United States. So long, however, as the country's credit is good and its gold supply large, all these forms will continue to be used as now, at a parity with gold; and the paper issues being more convenient than coin, are generally preferred.

LEGALLOIS, or LE GALLOIS, *lè-gäl'wä*, JULIEN JEAN CÉSAR: 1770-1814; French physiologist: b. near Dol, in Brittany. After taking the degree of M.D. he published a treatise entitled *Is the Blood which Passes through Different Vessels Identical?* He made extensive experiments on the action of the heart and wrote a treatise upon them.

LEGARÉ, *lèh-gré'*, HUGH SWINTON: 1797, Jan. 2—1843, Jan. 20; American statesman: b. Charleston, S. C., of Huguenot extraction. Entered S. C. college at the age of 14; graduated 1814; studied law three years; then went to Edinburgh to complete his education. After two years he returned to Charleston and was elected to the lower house of the general assembly 1820-22. In 1822 he began the practice of law in Charleston; 1824 was chosen as representative to the state legislature, and 1830 became attorney-general, and chief contributor to the *Southern Review*. In 1832 he was appointed *chargé d'affaires* at Brussels, Belgium, where he resumed his studies, and 1836 visited the chief seats of learning in n. Germany, and then returned home. In 1837-39 he was in congress, favoring state rights, but opposing nullification, and 1841 was appointed U. S. attorney-general, which office he held until his death at Boston. See *Life and Works*, 2 vols., Charleston, S. C.

LEGATE.

LEGATE, n. *lĕg'āt* [OF. *legat*, a legate—from L. *legatus*, sent, in mid. L. a legate: It. *legato*; Sp. *legado*, a legate, a legacy]: an ambassador or envoy, particularly of the pope. **LEG'ATESHIP**, n. the office of a legate. **LEGATINE**, a. *lĕg'ā-tĭn*, relating to a legate. **LEGATION**, n. *lĕ-gā'shŭn* [F.—L.]: person or persons sent as ambassadors or envoys; an embassy; also all that officially pertains to a national ambassador or envoy, e.g., his secretaries, attachés, household, and residence. **LEG'ATINE CONSTITU'TIONS**, in *chh. hist.*, ecclesiastical laws enacted in national synods held under Cardinals Otho and Othobon, legates from Pope Gregory IX. and Pope Clement IV., in the reign of Henry III., about 1230 and 1268.

LEG'ATE, PONTIFICAL: ambassador or representative, whether temporary or permanent, sent by the pope to represent him or the Roman Church at the seat of a particular bishopric or at the seat of a national government. In the ancient church were many officials, called in Greek *apocrisarioi*, in Latin *responsales*, at the court of Constantinople; but their commission was commonly temporary, and for some special object. In the later constitution of the church, three classes of legates are distinguished: (1) *Legati a latere*, 'legates dispatched from the side' of the pontiff, who are commonly cardinals; (2) *Legati missi*, called also 'apostolic nuncios,' and including a lower grade called 'internuncios'; (3) *Legati nati*, 'legates born,' whose office is not personal, but is attached by ancient institution or usage to the see or other ecclesiastical dignity which they hold: this institution has gone into abeyance. Indeed, the authority of legates is much modified in the modern church. In the mediæval times, the legate claimed full papal jurisdiction in the country assigned to him, even overruling the local jurisdiction of the bishops of the national church. This led to many disputes, and the Council of Trent removed the ground of contention by abolishing all such claims to local jurisdiction as trenched upon the authority of the bishops. The legate, in the modern church, is little other than the ambassador, mainly for spiritual purposes, of the pope. He is held as belonging to the diplomatic body, and by the usage of Rom. Cath.

LEGATEE—LEGEND.

courts takes precedence of all other ambassadors. The legates at the second-rate courts have the title *internuncio*. Legates are commonly bishops or archbishops, in *partibus infidelium*. The establishment of a nunciature at Munich 1785 led to an animated controversy. In the pope's own states, as they existed before the late revolution, the governors of the legations (see ITALY: PAPAL STATES) were called *legates*.

LEGATEE, n. *lĕg'ă-tĕ'* [see LEGACY]: one to whom a legacy is left.

LEGATO, ad. *lĕ-gă'tō* [It. *legato*, united—from L. *lĕgārĕ*, to bind]: term in music, meaning, 'in a smooth or gliding manner, denoting that the notes are to be played as if bound or tied together, or in such a manner that the one note is rounded off, or flows into the following one. Many musicians think that L. passages should be played slower, which is a mistake. Wherever *Legato* is marked, either as the character of the whole piece, or over a part of the notes, it is the sign that the music requires to be performed in a flowing manner, and without interruption between the striking of the notes.

LEGA'TUM REI ALIE'NÆ, in the Roman Law: legacy of a thing which does not belong to the testator. In England and Ireland, such a legacy is simply null and void; but in Scotland, the Roman law has been adopted, by which, if the testator knew the thing bequeathed was not his own, the executor is bound to purchase something else, as compensation to the legatee.

LEGEND, n. *lĕj'ĕnd* [F. *lĕgende*; It. *leggenda*, a legend—from L. *legendus*, to be gathered or read: mid. L. *legenda*, things to be read, a book containing the acts of the saints—from *lego*, I gather or read]: a story or narrative of a romantic or incredible kind; the words inscribed round the edge of a medal or coin, or on a stone or building. LEG'ENDARY, a. *-dĕr-ĭ*, fabulous; romantic; consisting of legends: N. a book of legends; a relater of legends.—*Legends* in early times, in the Rom. Cath. Church, denoted a book containing the daily Scripture lessons which were wont to be read as a part of divine service. Then the narratives of the lives of saints and martyrs, as well as the collections of such narratives, received this name, because the monks read from them at matins, and after dinner in the refectories. Such legends also were inserted in the breviaries (see BREVIARY), that they might be read on the festivals of the saints and martyrs. Among mediæval collections of legends, that by the Genoese archbishop, Jacobus de Voragine, in the second half of the 13th c., under the title *Legenda Aurea* (the Golden Legends), or *Historia Lombardica*, is most celebrated. But the most comprehensive and valuable work on the subject is that commenced by the Bollandists (q. v.) in the 17th c.—*Acta Sanctorum* (q. v.)—and still in process. The way in which a credulous love of the wonderful, exag-

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generation of fancy, and ecclesiastical enthusiasm, at times even pious fraud, mixed themselves with true history in these old narratives, caused stories of a religious or ecclesiastical nature generally to be designated as legends, in distinction from authentic ecclesiastical history; and thus the word 'legends' also serves to some extent to separate religious from secular traditions, and from those wild tales (Ger. *märchen*) that delighted the peasantry of mediæval Europe. Legends in this sense of the word, as ecclesiastical sagas, are found not only in the Rom. Cath., but also in the Greek Church, and their origin reaches back to the early ages of Christianity—Christ himself, the Virgin, John the Baptist, the apostles, and other prominent personages of the gospel history having become, at a very early period, the subject of them. This tendency to mythic embellishment showed itself especially in regard to Mary and the later saints, martyrs, and holy men and women. From the ecclesiastical literature of the Eastern and Western Churches, especially of the latter, the legends found an entrance into the *national* literature of Christian nations. Among the Germans, this was markedly the case after the second half of the 12th e., though specimens of legendary poems are not altogether lacking at an earlier period: e.g., the *Kaiserchronik* (Imperial Chronicle), where the legendary element forms an important part of the whole; and Werner's versified *Marienleben* (Life of Mary), 1173, etc. The authors of these works were ecclesiastics; but already laymen, too, had appeared in the same field. The poetic versions of the legend of St. Oswald and that of Pilate sprang from this class; and in the following age, when the mediæval poetry of Germany was in its richest bloom, and the fosterers of the poetic art were emperors and princes, rather than ecclesiastics, the legend was employed by laymen on a grand scale, as the subject matter of epic narratives. Thus, Hartmann von Aue (q.v.) worked up into a poem the religious legends about Gregory; Konrad von Füssenbrunnen, those concerning the 'childhood of Jesus;' Rudolf von Ems, those about 'Barlaam and Josaphat' (q.v.); and Reinbot von Durne, those about 'St. George.' Between the 14th and 16th e., legends in prose began to appear, such as Hermann von Fritzlar's *Von der Heiligen Leben* (about 1343), and gradually supplanted the others. Finally, in the 16th e., when Protestantism began powerfully to influence the whole German literature, the legend disappeared from German poetry, or passed over into the moral-didactic and also the comic narrative, in which form it was employed by Hans Sachs with happiest effect. Numerous attempts have been made to resuscitate it in modern times. The first of the recent poets who clearly apprehended the poetic and spiritual elements of the old Christian legend was Herder (q.v.); and since his day, many German poets—for example, the 'Romantic School'—have endeavored to give these a new embodiment.

LEGENBRE—LEGGK.

LEGENBRE, *lĕh-zhŏngdr'*, ADRIEN MARIE: 1752-1833, Jan. 10; b. Paris: eminent French mathematician. He obtained, 1774, a professorship of mathematics in the Military School at Paris, 1783 was admitted a member of the Academy, 1787 was employed by the French govt., with Cassini and Mechain, in measuring a degree of latitude, and was chosen to perform the calculations after the work of observation had been finished. In 1808, he was appointed by the imperial govt. pres. for life of the university, and after the second Restoration, an honorary member of the commission for public education, and chief of the committee of weights and measures. But because in an election to a place in the Acad. he did not vote for the ministerial candidate, he was deprived, 1824, of his pension of 3,000 francs. Legendre is author of *Théorie des Nombres* and *Eléments de Géométrie*, and particularly distinguished himself by his investigation of the difficult subject of the attraction of the elliptic spheroid, and of a method for determining the paths of comets. He wrote also: *Nouvelle Méthode pour déterminer l'Orbite des Comètes* (1805); *Exercices du Calcul intégral, sur divers Ordres de Transcendentes et sur les Quadratures* (1811-19); *Traité des Fonctions elliptiques et des Intégrales euleriennes* (1827-32); etc. He showed an impressive magnanimity in publicly welcoming the brilliant discovery in elliptic integrals by two young mathematicians, though it overshadowed his laborious investigation of 40 years.

LEGER, n. *lĕj'ér*: another spelling of LEDGER, which see.

LEGER, *lā'zhā*, PAUL LOUIS: French scholar and author: b. Toulouse 1843, Jan. 13. In 1885 he was appointed professor of the Slav languages at the Collège de France, and has done much to awaken an interest in the history and philology of the Slav peoples by such works as: *Slav Studies* (1875); *History of Austria-Hungary* (1878), translated into English; *Slav Tales* (1882); *The Save, Danube, and Balkan* (1884); *Bulgaria* (1885); *Russians and Slavs* (1890); *Russian Literature* (1892).

LEGERDEMAIN, n. *lĕj'ér-dĕ-mān'* [F. *léger*, light; *de main*, of hand--from L. *manum*, the hand]: a deceptive performance which depends on dexterity of hand; slight of hand.

LEGER-LINES, n. plu. *lĕj'ér-līnz'* [F. *léger*, light, and Eng. *lines*]: in *music*, light short lines placed above or below the staff for additional notes. LEGERITY, n. *lĕ-jĕr'ī-tĭ* [F. *légèreté*, agility]: in *OE.*, nimbleness; agility; lightness.

LEGGK, *lĕg*, JAMES, D.D., LL.D.: author: b. Huntly, Scotland, 1815, Dec. 20; d. 1897. He graduated at King's College, Old Aberdeen, 1835; studied in Highbury Theol. Seminary (Congl.), London; was appointed

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missionary to China by the London Missionary Soc. 1839; took charge of the Anglo-Chinese College at Malacca 1840; was on missionary duty at Hong Kong 1843-73; and in 1876 became prof. of the Chinese language and literature at Oxford University. Dr. Legge was one of the authorities in his department of study. His publications include *Notions of the Chinese concerning God and Spirits* (Hong Kong 1852); *Confucian Analects, Doctrine of the Mean, and Great Learning* (1861); *Works of Mencius* (1861); *The Shu King, or Book of Historical Documents* (1865); *The Shi King, or Book of Poetry* (1871); *The Ch'un Ch'in, with the Tso Chwan* (1872); *Life and Teachings of Confucius* (1866; 4th ed. 1875); *The Life and Works of Mencius* (1875); *The Book of Ancient Chinese Poetry in English Verse* (1876); *The Religions of China: Confucianism and Tâoism described and compared with Christianity* (1880); and (in Max Müller's *Sacred Books of the East*), *The Shu King Religious Portions of the Shi King and the Hsaio King* (1879); *The Yi King* (1882); *The Li Ki: Book of Ceremonial Usages*, 2 vols. (1886); and *The Travels of the Buddhist Pilgrim Fa-hsien in India* (1886). He received the degree D.D. from the Univ. of New York City 1842, and LL.D. from Aberdeen and Edinburgh Universities 1884.

LEGGETT, lĕg'ĕt, MORTIMER DORMER: soldier: b. Ithaca, N. Y., 1821, Apr. 19; d. Cleveland, Ohio, 1896, Jan. 7. He graduated in medicine 1844, in law 1845; was prof. of pleadings and practice in the Ohio Law College 1855-58; organized the union free school system in Ohio, and became supt. of schools in Zanesville 1858; raised and became col. of the 78th Ohio inf. 1862, Jan.; was promoted brig.-gen. 1862, Nov., brevetted maj.-gen. 1864, July, and promoted maj.-gen. vols. 1865, Aug.; resigned his commission 1865, Sep. 28; and was appointed U. S. commissioner of patents 1871. He held important commands in the army, and was several times wounded.

LEGGETT, WILLIAM: American journalist: b. New York 1802; d. New Rochelle, N. Y., 1839, May 29. He was educated at the college in Georgetown, D. C., and in 1822 entered the navy as midshipman, but resigned in 1826. He had in the previous year published a volume of poems, *Leisure Hours at Sea, by a Midshipman of the U. S. Navy*, and in 1828 became editor of the *Critic*, a weekly literary journal, soon united with the *New York Mirror*, to which he contributed *Tales by a Country Schoolmaster* and *Sketches at Sea*. In 1829 he became one of the editors of the *New York Evening Post*, to which journal he was attached until 1836. He then commenced a weekly journal called the *Plaindealer*, which attained a large circulation, but was soon discontinued through the failure of its publisher. In May, 1839, he was appointed by President Van Buren diplo-

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matic agent to Guatemala, but died suddenly while preparing for his departure. His *Political Writings*, with memoir by Theodore Sedgwick, appeared in 1840. Leggett was remarkable among the journalists of his day as an unflinching advocate of freedom of opinion for his political opponents as well as for the men of his own party.

LEGGETT'S, or BALD, HILL, BATTLE OF: an engagement of the civil war, near Atlanta, Ga. The battle of Peachtree Creek 1864, July 20, was a Confederate defeat. On the 21st Gen. Sherman advanced strong skirmish-lines to within about two m. of the works surrounding Atlanta. In the morning Leggett's division was ordered to carry a high, bare hill, situated about half a mile south of the Decatur railroad. Supported on the right by Giles A. Smith's division, Leggett advanced under cover of the hill itself, dashed forward when reaching its base, drove Cleburne's Confederates from it, and began to intrench. The Confederates made several vain efforts to retake it. From its summit Atlanta was in full view. Discovering at daybreak of the 22d that the advanced Confederate works had been abandoned, Sherman ordered a general advance along his line to occupy the city, and the movement began accordingly. During the night, however, the Confederate Gen. Hood had abandoned his advanced lines on the left and ordered Hardee's corps of four divisions to march entirely past Sherman's left and attack his left and rear. Giles A. Smith's division of Blair's Seventeenth corps held Sherman's left and Dodge's Sixteenth corps was some distance in rear of the centre of Blair's corps, and was perpendicular to it. Blair fronted west, Dodge south.

About midnight Hardee moved out of Atlanta by the McDonough road, and about daybreak, when the troops had passed beyond Sherman's left, the order was given to advance, and his corps went forward until Bates and Walther's divisions came to open ground, where they received a most deadly fire from Dodge's two Union divisions, which held them in check. Every effort to advance was repulsed with great loss, and Gen. Walther was killed. On the Federal side Gen. J. B. McPherson (q.v.), commanding the Army of the Tennessee, hastened troops to fill an interval between Dodge and Blair, rode to Dodge, and then toward Blair's line, and had gone but a short distance when he fell mortally wounded, being succeeded in command by Gen. John A. Logan. Meanwhile the left of Hardee's line had enveloped Giles A. Smith's division, attacking it in front, flank, and rear, Smith gradually yielding ground and refusing to connect his left with Dodge's right. The Confederates gradually advancing to the foot of Leggett's Hill. When Hardee's attack on Sherman's left and rear was being delivered, Hood ordered Cheatham's corps to attack in front, and

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the attack fell upon Leggett's Hill and the Fifteenth corps on the right of it, just as Leggett had repulsed an attack in his rear. Leggett, by desperate fighting, held his ground. The Confederates made repeated attacks until nightfall, when Hardee withdrew his right wing, leaving his left connected with the intrenched line in front of Atlanta. On the right of Logan's corps the Army of the Ohio was attacked by Smith's Georgia militia, which was readily repulsed. On Hardee's right Wheeler's cavalry attacked Sprague's brigade in Decatur, and for a time pressed it vigorously, but Reilly's brigade of the Army of the Ohio coming to its assistance, Wheeler was repulsed. The battle of Leggett's or Bald Hill was one of the greatest of Sherman's Atlanta campaign, and involved four corps of his army and two of Hood's. The loss of the Army of the Tennessee was 430 killed, 1,559 wounded, and 1,733 missing, with 10 guns; the entire Union loss during the day was about 4,000. The Confederate loss is not known; it has been variously estimated at from 6,000 to 10,000; it was probably between 5,000 and 6,000.

LEGGIADRO, adv. *lěj-jâ'drō* [It.]: in *mus.*, a direction that the passage to which the word is appended is to be played briskly or gayly.

LEGHORN, a. n. *lěg'hawrn* [originally made at *Leghorn*]: a kind of plait for bonnets and hats, prepared from the straw of a variety of bearded wheat; also a breed of fowls. See POULTRY.

LEGHORN, *lěg'hawrn* or *lěg-hawrn'* (*Livorno*): one of the chief Mediterranean seaports, city of Tuscany, capital of the province of Leghorn, 50 m. w.s.w. of Florence, 14 m. s.s.w. of Pisa; lat. 43° 32' 7" n., long. 10° 17' 7" e. Pop. (1901) 98,321.

Till 1868, Leghorn was a free port, and it has long been one of the leading emporiums of trade in Italy. Its import trade used to be estimated at \$10,000,000 yearly; the chief imports being from England and France. Even since the abolition of its privileges as a free port, the trade of Leghorn has not been lessened, but only changed. It is now less a port of deposit than of transit to and from the interior of the kingdom. The town is partly intersected with canals, by which merchandise is conveyed from the harbor to the numerous warehouses of the city. The port consists of an inner and outer harbor, the latter being sheltered by a mole, which projects into the sea more than half a mile, close to the great lighthouse. To secure increased shipping accommodation, a new harbor has been constructed for the reception of vessels of considerable tonnage. The roadstead, which is capacious, lies w.n.w. of the harbor, and is protected by towers and a castle. On an island south of the harbor stands a lazaretto. The town is connected by railways with Rome, Pisa, Carrara, and

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the other ports of Italy. The population comprises natives of many climes (Greeks, Armenians, Turks, Moors, etc.), whose foreign appearance and striking garb give a picturesque appearance to the place. This concourse of strangers is further enlarged in the summer by a great influx of native and foreign visitors, who resort to Leghorn for its baths and mineral springs, the latter of which have high medical repute. The town itself is chiefly modern and destitute of the grand historical associations and classical monuments which invest most Italian cities with their highest interest; its fine Mediterranean site, animated aspect, and great commercial life, are its principal attractions. The streets are regular and well paved, but narrow, and being flanked by high houses, they are mostly dark and gloomy. The churches are numerous. Many private dwellings are tasteful and luxurious, and charming villas abound in the environs. The public institutions are well organized, and include several hospitals, an observatory, and a poorhouse. Some of the educational institutions are the Royal Commercial Marine Institute, the Royal Marine Academy, a library with over 60,000 volumes, a number of academies and seminaries. The circuit of the town has been extended by demolition of old fortifications, and extension of the barriers or city walls. The manufactures of Leghorn are various and important; it possesses great factories of oil, tobacco, soap, salt, and the well-known liqueur *Rosolio*; its distilleries and dyeing works are celebrated. Its chief exports are raw and manufactured silks, straw-hats and straw-plaiting, oil, fruits, borax, cheese, anchovies, marble, sulphur, and coral. Its imports comprise colonial produce, raw and manufactured cotton, and wool, cutlery, hardware, metallic goods, earthenware, and salted fish.

Toward the end of the 13th c., Leghorn was an unprotected village, which assumed some importance only on the destruction of the port of Pisa, and especially on its being assigned to Florence 1421. Alessandro de' Medici constructed its citadel and fortified the town. Cosmo I. declared it a free port, and from that time dates its prosperity. In the 17th c., under Ferdinand I., it had great commercial importance; and during the French imperial occupation of Italy, Leghorn was proclaimed the chief town of the dept. of the Mediterranean. In the Italian revolutions succeeding 1830, Leghorn took a foremost part.

LEGIBLE, a. *lěj'ī-bl* [OF. *legible*—from L. *legib'īlis*, that can be read—from *lego*, I read: Sp. *legible*: It. *leg-gibile*]: that may be read; clear and distinct; apparent. LEG'IBLY, ad. *-blī*. LEG'IBLNESS, n. *-bl-nes*, or LEG'IBL'ITY, n. *-bīl'ī-tī*, the quality or state of being legible.

LEGION, n. *lě'jūn* [F. *légion*—from L. *legiōnem*, a body of troops levied—from *lego*, I gather or select: It.

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legione]: a great number, as in the Scripture phrase, *my name is Legion*; among the Romans a large organized body of troops, integral part of an army. LE'GIONARY, a. -*er-ī*, relating to or consisting of a legion; containing a great number: N. one of a legion. LEGION OF HONOR, a French order of merit.

LE'GION, in the Roman military system: body of troops corresponding in force and organization to the modern army-corps. It differed in constitution at different periods of Roman history. In the time of the Republic, a legion comprised 4,500 men, thus divided: 1,200 *hastati*, or inexperienced troops; 1,200 *principes*, or well-trained soldiers; 1,200 *velites*, or skirmishers; 600 *triarii*, or *pilani*, veterans forming a reserve; and 300 *equites*, knights who acted as cavalry, and belonged to families of rank. During this period the legions were formed only for the season; standing armies being of later growth.

The *hastati*, *principes*, and *triarii* formed three separate lines, each divided into 10 *maniples* or companies, of 120 men each in the case of the two front lines, and of 60 men in the *triarii*. A maniple was commanded by a centurion or capt., who had a second-centurion, or lieut., and two sub-officers, or sergeants, under him; as non-commissioned officers, there was a *decanus*, or corporal, to every squad or tent of ten men. The senior centurion of each line commanded that line, and had therefore functions corresponding to a modern lieutenant-colonel. The *primipilus*, or senior centurion of the *triarii*, was the most important regimental officer, and commanded the legion in the absence of the tribunes. The 300 cavalry formed a regiment of ten *turmæ*, or troops of 30 horsemen, each under three *decurions*, of whom the senior had the command. The *velites* were light troops, not forming part of the line of battle; had apparently no officers of their own; and were attached to the 30 *maniples* in equal proportions. The staff of the legion consisted of six tribunes who managed the paying, quartering, provisioning, etc., of the troops, and who commanded the legion in turns for a period each of two months. This changing command, though inconvenient, lasted till the times of the civil wars, when a *legatus*, or lieutenant-general, was appointed as permanent commandant of the legion.

The offensive weapons of the *hastati* and *principes* were two barbed iron-headed javelins, one of which was hurled at the enemy on the first onslaught, while the other was retained as a defense against cavalry. The *triarii* had long pikes. In addition to these arms, every soldier bore a short, strong, cut-and-thrust, two-edged sword. The legionaries' defensive armor consisted of plumed helmet, breastplate, iron-bound boot for the right leg, and a semi-cylindrical shield 4 ft. long by 2½ broad. The *velites* had no defensive armor, were

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lightly armed, and in action usually operated for flank-
ing. Each maniple bore an ensign aloft, and each legion
had its distinguishing eagle.

LE'GION OF HONOR: order of merit instituted under
the French Republic 1802 by Napoleon, the first consul,
as recompense for military and civil services. It was
ostensibly founded for the protection of republican prin-
ciples and the laws of equality, and for the abolition of
differences of rank in society, every social grade being
equally eligible; but its real aim doubtless was, by pop-
ularizing the idea of personal distinction, to pave the
way for the establishment of the empire and of the more
exclusive titles of nobility that were to accompany it.
The proposal for its institution was at first violently op-
posed by the legislative body and the tribunate, on demo-
cratic grounds, and carried eventually by a narrow ma-
jority.

The order originally comprised three classes—Grand
Officers, Commanders, and Legionaries. The class of
Grand Officers was, on the coronation of Napoleon I.,
divided into Knights of the Grand Eagle (the highest
class), and Grand Officers. On the restoration of the
Bourbons, the Legion was retained, but remodelled so as
to lose much of its original character. The eagle was
called a cross, and the effigy of Henry IV. replaced that
of Napoleon. The Knights of the Grand Eagle became
Grand Crosses, the Legionaries were transformed into
Knights, and the numerous educational institutions,
founded by Napoleon for the children and relatives of
the members of the order, were much reduced in scale.
In 1837, a new military class called Officers was ad-
mitted. Under the presidentship of Louis Napoleon, part
of the property of Louis Philippe, which had been re-
stored to the state, was set apart as an endowment for
the Legion, and new regulations were made regarding
the pensions of the different classes. The original form
of decoration was reintroduced, which under the second
empire was somewhat modified. As worn then, it con-
sisted of a cross of ten points of white enamel edged
with gold; the points connected with a wreath of laurel
proper, and in the centre, within an azure circle charged
with the words 'Napoléon III., Empereur des Français,'
was a head of the emperor. The cross is ensigned by
the imperial crown of France, and worn attached to a
red ribbon. The Grand Officers also wore on the right
breast a silver star charged with the imperial eagle. The
same star was worn on the left breast by the Knights
Grand Cross, and their cross was attached to a broad
red ribbon which passes over the right shoulder. The
order has been remodelled several times. There are now
five ranks or classes: ordinary chevaliers or knights, of-
ficers, commanders, grand-officers, grand-crosses. The
profuse granting of the decoration of the order latterly
brought the institution into discredit, and the number of

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chevaliers is now restricted to 25,000, the officers to 4,000, the commanders to 1,000, the grand-officers to 200, and the grand-crosses to 70. The star now bears a figure emblematic of the republic, with the inscription, *République Française 1870*, on the reverse two flags, with the inscription, *Honneur et Patrie*.

LEGISLATE, v. *lěj'is-lāt* [F. *législatif*, having authority to make laws, legislative—from mid. L. *legislātīvus*—from L. *lex* or *legem*, a law, and *lātus*, carried: It. *legislativo*]: to make or enact a law or laws. LEG'ISLATING, imp. LEG'ISLATED, pp. LEG'ISLATOR, n. *-lā-tēr* [F. *législateur*—from mid. L. *lęislātōrem*, a lawgiver—from *legis*, of law; *lator*, a bearer or proposer]: one who enacts laws; a lawgiver. LEG'ISLA'TRIX, n. *-trīks*, a female who enacts laws. LEG'ISLA'TION, n. *-lā'shŭn* [F.—L.]: the act of making a law or laws. LEG'ISLATIVE, a. *-tīv*, pertaining to enacting; giving or enacting laws; done by enacting. LEG'ISLATURE, n. *-lā-tūr*, the body in a state invested with the power of making or repealing laws; the supreme power in a state. LEGIST, n. *lě'jĭst* [OF. *legiste*: F. *lęgiste*]: one skilled in law.

LEGISLATURE: in the United States, the law-making body of one of the states; in general, the law-making body of any constitutional state. The name always implies that there is not an autocracy promulgating self-validated decrees, but a body of representative citizens, who act for the entire citizenship in framing or consenting to their laws. The subject divides into four chief branches: (1) The origin and history of the body, and the general outcome; (2) the legal sources of its power and the methods of selecting it; (3) the extent and limits of its powers, its methods, and its periods; (4) the qualifications, tenure, and rights of its members. The first and second intertwine.

1. The original legislative bodies, like the Greek ecclesia and the Roman senate, were executive and administrative bodies also; public business was not yet differentiated. Under the empire, as the imperial power grew and the senatorial dwindled, legislation was confined to codes promulgated by the emperors, plus judge-made law. In the mediæval states, the king or prince was generally the fountain of legislation; but the Teutonic assembly, representing popular coöperation, survived in the favorable location of England, as the Witenagemot of the Saxon kingdoms. The Norman and Angevin kings replaced them with a council of leading nobles and clergy; but in the struggles with Henry III., Simon de Montfort called in the representatives of the towns. His system perished with him; but Edward I. revived it, for the sentiments of the chief sources of the royal supplies could not be disregarded. After asserting a check on one administrative department after another, the popular body wrested from the privileged

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orders first a share in and finally a monopoly of legislative action. The inviolability of its members, long claimed, was established against the Stuarts; the right to decide on the qualifications of its members was established against George III. by the Wilkes case. The separation of executive, judicial, and legislative functions, involved in this process,—since a representative body in a great state is unfit for the first two, though in the little Greek city-states they were combined,—had become a fixed principle of English public life by the 18th century, and was transferred to the English colonial governments. That nearly all had two chambers was due to the accident of the English parliament having that constitution; they were not due to the theory of 'checks and balances,' which on the contrary was evolved from the working of the parliamentary system. This system, nevertheless, commends itself by reason and experience, to prevent hasty or factious legislation, especially from great waves of popular feeling; and is used in nearly all legislative bodies. In part, this is because all other parliamentary systems, as the countries have emerged from absolutism or dependence and undertaken constitutional life, have been copied from those of England or the United States. This copying extends to all the general forms, and often mimics unessential details under entirely different circumstances from those which generate the originals. Thus, not only in the Congress but even more needlessly in the state legislatures, the lower house only can originate money bills; though both houses are equally popular bodies, and the English provision was part of a warfare between nobles and commons. The upper or less numerous house is also usually invested with the confirmation of treaties and appointments, and sometimes with some administrative functions; in the Congress the House prefers impeachments and the Senate tries them, and the states have copied this.

2. The old legislatures represented 'estates' or orders of the state, the three great ones being nobles, clergy, and commons. The English parliament still does so, except that the first two are merged in one house and vote as one, instead of separately as formerly. In essence this is the obvious and proper form of representation (by the great classes of interests and sympathies); but in a country where there are no classes, there is but one to represent, the whole people, and universal suffrage with popularly nominated candidates is the only workable method. Even where there are such, this method is general for the lower houses; but efforts are almost everywhere made to restrict the body of electors somewhat, and bar out the most ignorant, dangerous, or corruptible class. Property-holding or tax-paying are common, and educational requirements are much used, but not always for their avowed objects. The upper houses are sometimes chosen directly, as in the United States of

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Mexico and Brazil, but from larger districts than the lower, sometimes at large; sometimes indirectly, as in the United States and France; sometimes appointed, as in Germany, Switzerland, and Canada. In still others, it is neither elective nor appointive, but a mixture of hereditary and *ex officio*, or both, as in Great Britain and Austria-Hungary; sometimes a mixture of hereditary and elective, as in Prussia; sometimes of hereditary and appointive, as in Italy.

3. Legislatures may be divided according to their powers, into limited and omnipotent. The United States is the chief exemplar of the former; Great Britain and France represent the latter. Not only the state legislatures, but Congress, are limited to passing such laws as do not conflict with the constitution, as interpreted by the Supreme Court; the states are still further bound by their state constitutions; and in both, president or governor can compel a reconsideration and a heavier majority. The enactments of most European parliaments are substantive law as soon as passed, with no superior authority; the English sovereign has a theoretical veto which he cannot use, the French president has none. In methods, all legislatures are hedged in by a great body of rules of their own making, found needful by experience; the choice and powers of the speaker, the appointment of committees, the method of introducing and acting on bills, the regulation of debate, the communication between the two branches and between either and the executive, the treatment of petitions, and many other matters, cannot be left to continual warfare. These rules are of great number and complexity, and throw the control of business entirely into the hands of experts (see CONGRESS): it has been said that a member of Congress needs an entire session to learn the rules sufficiently to take any effective part, and much of the time of all is spent in debating their application. A very important limitation is that on the freedom of debate by the American 'previous question,' French *clôture*, English 'closure,' in other governments 'urgency of public business'—all are the same, and nearly all popular parliamentary bodies have been compelled to adopt it; the United States Senate being a conspicuous exception, and Great Britain a late and reluctant accession. Without it, the entire system of 'government by discussion' may be made unworkable by a small knot of members playing tricks with the rules; with it free debate may be stifled, but the evil is the less of the two. Procedure must be open, save in 'executive sessions' to make appointments. The matter of a quorum is settled by each for itself, usually as a majority of the elected members; each also decides what shall constitute a majority vote, whether of members elected or members present. The former power of many legislatures to dissolve themselves has been everywhere restrained; in the states by limitation

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of term and of the frequency and length of sessions (usually now to biennial sessions, and often to 60 days, on a rather ludicrous theory); in Great Britain by limiting the length of a Parliament to seven years. The upper house in Congress and most states is made a continuing body, by so arranging the terms that only a part are elected on any one occasion.

4. The qualifications for the lower house are invariably citizenship; usually (though with growing exceptions) male sex; an age generally (though not always) higher than the voting age, usually 25, sometimes more; if a state of the Union, technical residence therein, and, by a custom with the force of law, residence in the district of election. Crime and pauperism are invariable disqualifications, and sometimes bankruptcy. The upper house in addition to these has almost invariably (except in the United States) a higher age limit, from 30 up to 40; often a property qualification; and when appointive, they are almost invariably from the upper business or professional ranks. The tenures are always much longer in the upper house than the lower; nowhere less than six years, nine in some, for life in many European states—save that in Germany and Switzerland they can be terminated at the will of the local governments that make the appointments. In the lower house it is from a minimum of one to a maximum of three, except in Great Britain, where it is for seven unless the Parliament is sooner dissolved. In all legislatures, the members are exempt from civil process while in actual session, even during journeys to and from home at recesses.

LEGIT'IMACY, PETITION TO DECLARE: procedure before a court, by which persons whose legitimacy is doubted can have the question legally decided.

LEGITIMATE, a. *lě-jít'ī-māt* [mid. L. *legitīmatūs*, declared to be lawful: L. *legitīmus*, pertaining to law—from *lex* or *legem*, law: It. *legitimo*; F. *légitime*, legitimate]: lawful; born in wedlock; genuine; real; not false; fairly deducible: V. to render lawful. LEGIT'IMATING, imp. LEGIT'IMATED, pp. LEGIT'IMATELY, ad. *-h*, in a legitimate manner; lawfully; genuinely. LEGIT'IMATENESS, n. *-nēs*, the state of being legitimate. LEGIT'IMACY, n. *-mā-sī*, accordance with law or established usage; lawfulness of birth, as opposed to *bastardy*; regular sequence or deduction. LEGIT'IMA'TION, n. *-mā'shūn* [F.—L.]: the act of rendering legitimate or lawful (see below). LEGIT'IMIZE, v. *-mīz*, to render legitimate or lawful. LEGIT'IMI'ZING, imp. *-mī'zīng*. LEGIT'IMIZED, pp. *-mīzd*. LEGIT'IMIST, n. *-mīst*, in *F. hist.*, a term now applied to those who support the pretensions of the elder Bourbons to the throne of France.

LEGITIMA'TION, in Law: the rendering legitimate a person born illegitimate; done by the father subsequently marrying the mother of the child, hence often called

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legitimation, *per subsequens matrimonium*. This effect, however, can be produced only provided at the time of the birth the parents might have been married, or there was no obstacle to their then marrying, if so inclined, as, for example, if they were both unmarried, and there was no impediment. Sometimes it has happened that the father, A, or mother, B, after the child's birth, marries a third person, and has children, and after the dissolution of the marriage, A and B then marry. In this perplexing case, the courts have held that the intervening marriage with a third party does not prevent the bastard child, born before that event, from being legitimated by the subsequent marriage of A and B. But it has not been settled what are the mutual rights of the children of the two marriages in such circumstances, though it appears that the legitimate-born children cannot be displaced by the legitimated bastard. The doctrine of legitimation, *per subsequens matrimonium* is not recognized in England or Ireland, having been solemnly repudiated by the famous statute of Merton, and the maxim prevails there, 'once a bastard, always a bastard.' Also in Scotland, but not in England or Ireland, legitimation is recognized where the parents were not really married, though they both *bonâ-fide* believed themselves to be married: this is called a putative marriage. The Scotch law on these subjects follows the canon law, and the French law is the same. In the United States the law varies: in several states legitimation is possible by a subsequent marriage, but not in all. See BASTARD.

LÉGITIME, *lā-zhē-tēm*, FRANÇOIS DENYS: Haitian general: b. 1842. During the administration of President Salomon, he was accused of aspiring to the presidency, and accordingly went to Kingston, Jamaica, remaining three years, then returned to Haiti at the invitation of his followers, and in 1888, Oct. 7, was elected president of the provisional government. Gen. Thélémaque denounced the election as a job, and attempted to make himself president, but he was killed in the battle which ensued. Légitime was elected president of Haiti 1888, Dec. 17, but resigned in 1889, owing to the opposition of Gen. Hippolyte, and again retired to Jamaica. In 1896 President Sam granted a general amnesty, and he returned to Haiti.

LEGOUVÉ, *lè-gô-vā*, GABRIEL ERNEST WILFRID: French dramatist and miscellaneous writer: b. Paris 1807, Feb. 15; d. 1903, Mar. 14. In 1827 he won a prize of the Academy with a poem on the art of printing, *Découverte de l'Imprimerie*. While instructor in the Collège de France 1847, he lectured on the history of woman's development; and later published: *Moral History of Women* (7th ed. 1882), and *Woman in France in the 19th Century* (1864). These works were received with great favor, and were followed by *Science of the Fam-*

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ily (1867), and *Messieurs the Young Folk* (1868). Meanwhile Legouvé was winning high distinction as a playwright with *Louise de Lignerolles*; *Adrienne Lecouvreur* with Seribe (1849); *Medea*; *By Right of Conquest*; *Miss Suzanne* (1867); *Anne de Kerwiler* (1879); *Consideration*; etc. In 1882 he published: *Recollections of Sixty Years*, and in 1890 *Winter Flower, Winter Fruits: Story of my Household*. In 1885 he became a member of the French Academy.

LEGRAND DU SAULLE, HENRI, M.D.: French alienist: b. Dijon, 1830, April 16; d. 1886, May 5. He studied medicine at Dijon, Rouen, and Charenton, and received his degree at Paris in 1856. He was associate editor of the *Gazette des Hôpitaux*, 1854-62; in 1866 became an associate of Laségne at the prefecture of police; in 1867 became one of the alienists to Bicêtre; in 1879 was appointed physician to Salpêtrière, and in 1883 chief physician of the special infirmary for the insane in the prefecture of police. For many years he was editor of the *Annales médico-psychologiques*. His principal works were: *La folie devant les tribunaux* (1869); *Le délire des persécutions* (1871); *Etude médico-légale sur les épileptiques* (1877); and *Traité de médecine légale* (1886).

LEGROS, *lě-grō'*, ALPHONSE: Anglo-French artist: b. Dijon, France, 1837, May 8. In 1857 he exhibited for the first time in the Salon, but finding small encouragement in France he removed to London in 1863, became a naturalized Englishman, and was appointed in 1876 professor at the Slade School in University College. His work, alike in painting, etching, and modeling, is strongly mannered, and as a colorist his range is somewhat limited. His more important pictures are the *Anglers*, the *Pilgrimage*, the *Spanish Cloister*, the *Benediction of the Sea*, the *Baptism*, and the *Coppersmith*. His etchings will prove in all probability his most enduring work, among the most noteworthy being his *Death and the Woodman*, and *Le Repas des Pauvres*, both marked by a fine breadth in conception and handling. His portraits are also of value.

LEGUME, n. *lě-gūm'*, or LEGUMEN, n. *lě-gū'měn* [F. *légume*—from L. *legūmen*, that which is gathered, pulse—from *lego*, I gather: It. *legume*]: a seed-vessel of two valves, having its seeds fixed to one side only, and opening by both sutures, as in the pea; a pod. It occurs in most of the species of the great nat. ord. *Leguminosæ* (q.v.), of which the bean and pea are familiar examples. The legume generally opens when ripe, and then both by the dorsal and ventral suture; whereas the *follicle*, which nearly resembles it, opens by a suture along its face, and is one-valved. A few legumes do not open, but the sutures are present. Some are divided by transverse partitions (*diaphragms*); and the kind called a *lomentum* is contracted in the spaces betwixt the seeds,

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and separates into pieces instead of opening. LEGUMES, n. plu. -*gūmz'*, the fruit of the pea kind; pulse. LEGUMINE, n. *lě-gū'mĭn*, albuminous substance, resembling white of eggs, found in large proportions in beans, lentils, peas, and other leguminous seeds; vegetable caseine. The seeds of most leguminous plants (peas, beans, lentils, etc.), and of the sweet and bitter almond, contain a proteine or albuminous body, which in all essential properties corresponds with the caseine of milk. For example, it is precipitated from its solutions by rennet, acetic acid, alcohol, etc., and is not coagulated by boiling; while, as in the case of milk, the application of heat occasions the formation of a pellicle on the surface. The affinity of the two kinds of caseine is further shown by the fact, that cheese is made by the Chinese from peas and beans. In order to obtain legume, peas, beans, or lentils are well soaked in hot water, and after being reduced to pulp, are mixed with considerable water. The starch, membranes, etc., soon sink to the bottom, and the legumine must be precipitated by acetic acid from the decanted or filtered fluid. Dry peas contain about one-fourth of their weight of legumine. LEGUMINOUS, a. *lě-gū'mĭ-nŭs*, pertaining to the pea or bean tribe.

LEGUMINOSÆ (*Fabaceæ* of Lindley): great natural order of exogenous plants, containing herbaceous plants, shrubs, and trees, many of the greatest magnitude. The leaves are alternate, usually compound, and have two stipules at the base of the leaf-stalk, which often soon fall off. The inflorescence is various. The calyx is inferior, 5-parted, toothed or cleft, the segments often unequal. The petals are five, or, by abortion, fewer, inserted into the base of the calyx, usually unequal, often *Papilionaceous* (q.v.). The stamens are few or many, distinct or variously united. The ovary is 1-celled, generally of a single carpel; the style simple, proceeding from the upper margin, the stigma simple. The fruit is either a Legume (q.v.) or a Drupe (q.v.). The seeds are solitary or numerous, occasionally with an aril, often curved: the cotyledons very large.—There are three sub-orders: 1. *Papilionaceæ*, with papilionaceous flowers; 2. *Cæsalpineæ*, with irregular flowers and spreading petals; 3. *Mimoseæ*, with small regular flowers.—This nat. ord. contains almost 7,000 known species of which about 5,000 belong to the sub-ord. *Papilionaceæ*. They are spread over all parts of the world, from the equator to the poles, but their number is greatest in tropical and sub-tropical regions. They are applied to a great variety of purposes, and some are of great importance in domestic economy, the arts, medicines, etc. To this order belong the Bean, Pea, Kidney-bean, and all kinds of *pulse*; Clover, Liquorice, Broom, Laburnum, Lupine, Senna, and many other medicinal plants; Tamarind, Logwood, Indigo, and numerous others which afford dyes, etc.; the *Acacias*, *Mimosas*, etc. Many

LEHIGH RIVER—LEHMAN.

species are interesting for beauty of form, foliage, or flowers.

LEHIGH RIVER, *lē'hī*: rises in the s. extremity of Wayne co., Pennsylvania; flows s.w. to Whitehaven with Luzerne and Lackawanna cos. on its right and Monroe and Carbon cos. on its left, s.e. from Mauch Chunk to Allentown, thence n.e. to its junction with the Delaware river at Easton; length about 120 m. It flows through a picturesque mountain region, and a gap in the Kittatinny Mountain 10 m. below Mauch Chunk is an outlet for a noted anthracite coal district. It is navigable 84 m. from its mouth.

LEHIGH UNIVERSITY: an institution in South Bethlehem, Northampton co., Pennsylvania: founded 1865 through the liberality of Asa Packer, who gave 115 acres of land, on the s. side of the Lehigh river and the n. slope of the South Mountain, and endowed it with \$500,000. After his death it received further endowments of \$1,500,000, and \$500,000 for its library which contains about 121,000 vols. All the educational facilities and apparatus are on the most liberal scale. The principal buildings, which are very handsome, are Packer Hall, the chemical laboratory, metallurgical laboratory, physical laboratory, Sayre astronomical observatory, university library, gymnasium, and chapel. Since 1871 tuition is free. In establishing such a school the founder had in mind to give the young men of the Lehigh Valley an opportunity to obtain an education in the technical, literary, and scientific directions necessary to fit them for the trades and professions represented in the development of the resources peculiar to the rich mining region in which it is situated, therefore, special attention is given to civil, mechanical, and mining engineering, chemistry, metallurgy, etc. In the engineering courses summer schools are conducted each year. To students in mining engineering the privilege is extended of regularly and often visiting the mines. The income is derived from the endowment fund and tuitions, and some assistance has been received from the state. In 1907, there were 63 professors and instructors, and 655 students connected with the school, and the number of graduates was more than 1,700.

LEHIGHTON: borough in Carbon co., Pennsylvania; on the Lehigh river, and on the Central of New Jersey and the Lehigh Valley railroads; about 75 m. n.e. of Harrisburg, the capital of the state, and 70 m., in direct line, n.w. of Philadelphia. It is a trade centre for a mining section of the co. Its chief manufactures are car-springs, flour, leather, stoves, furniture, brick, and mining tools. The borough owns the electric-light plant, but leases it to a private corporation who operates it. Pop. (1900) 4,629.

LEHMAN, *lā'man*, RUDOLF CHAMBERS: English jour-

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nalist, lawyer and authority upon rowing: b. near Sheffield, England, 1856, Jan. 3. He was educated at Cambridge and became a barrister of the Inner Temple in 1880. He has been a member of the staff of *Punch* from 1890 and was editor of the London *Daily News* in 1901. He coached the Harvard crew in 1896 and 1897 and was given a dinner by the Harvard Club of New York 1897, Apr. 10. He has published among other works: *In Cambridge Courts* (1891); *Mr. Punch's Prize Novels* (1893); *Isthmian Library: Rowing* (1897); *Anni Fugaces*, verse (1901); *Adventures of Picklock Holes* (1901); *Crumbs of Pity* (1903); *The Sun-Child* (1904); etc.

LEHMANN, CHARLES ERNEST RODOLPHE HENRI: French painter: b. Kial, in Holstein, 1814, Apr. 14; d. Paris 1882, Mar. 30. His father taught him the rudiments of the art of painting and he then went to Paris where he studied under Ingres. He then began to exhibit, the greater portion of his first paintings being on religious and scriptural subjects. In 1840, 1848, and 1855 he received first-class medals for his paintings; in 1846 the cross of the Legion of Honor was bestowed upon him; in 1861 he became a professor of the Ecole des Beaux-Arts, and in 1875 a member of the superior council, and in 1864 became a member of the Institute. Among his works are: *Tobias and the Angel* (1835); *Jephtha's Daughter* (1836); *Don Diego* (1836); *Saint Catharine Borne to the Tomb by Angels* (1840); *Hamlet*; *Ophelia* (1846); *Leonidas* (1848); *The Oceanides* (1850); *Adoration of Magi* (1855); *Education of Tobias* (1859); *Rest*, etc. He also decorated the throne room in the Luxembourg Palace, the ceiling of the Great Hall in the Palais de Justice, and painted portraits of Haussmann, Liszt, Karr, and others.

LEHMANN, lă'mân, LILLI: German operatic singer: b. Würzburg 1848. Her mother, who was harp-player and prima donna under Spohr at Cassel, gave her the first musical instruction, and under her training Fräulein Lehmann developed a remarkable soprano voice. She made her début in Berlin (1870) and subsequently produced so good an impression that she was appointed imperial chamber singer in 1876. She became famous from the parts she took in the Nibelungen trilogy at Baireuth, and sang in Wagner's operas in London (1884), and as principal soprano in the same operas at the Metropolitan Opera House, New York, her principal roles being Brünnhilde and Isolde.

LEHMANN, LIZA: English singer and composer: b. London. She is a daughter of Rudolf Lehmann (q.v.). She studied vocal music at London and Rome, and composition under Freudenberg and Hamish McKunn. On Nov. 23, 1885, she made her début in London; her success was assured, and she was received well throughout Great Britain and Germany. In 1894, she retired from

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public singing on her marriage with Mr. Herbert Bedford, a well-known composer. She devoted herself henceforth to composition and has produced works of freshness and originality, many of them tinged with a refined feeling which recalls the modern German romantic or emotional school. Her most successful works are the *Persian Garden*; *The Daisy Chain* (1901); *More Daisies*; *Once Upon a Time*; *Sergeant Brue*; etc.

LEHMANN, RUDOLF: Anglo-German painter and writer: b. near Hamburg, 1819, Aug. 19. He was educated at the Johanneum, Hamburg, and proceeding to Paris studied painting under his brother Henry Lehmann; he was afterward the pupil of Cornelius and Kaulbach (q.v.) at Munich. He went to Rome in 1839 and remained there 16 years. His largest picture is *The Blessing of the Pontine Marshes by Sixtus V.*, which was bought by the French government after being exhibited in France 1846. In 1866, he settled in London, and became a successful portrait painter. He has published: *An Artist's Reminiscences* (1894); *Men and Women of the Century* (1898).

LEIBNITZ, *līb'nīts* or *līp'nīts* (more accurately LEIBNIZ), GOTTFRIED WILHELM VON: one of the most extraordinary examples of universal scholarship on record: 1646, June 21 (o.s.)—1716, Nov. 14; b. Leipzig, where his father was prof. of law. He studied at the 'Nicholas School' of his native city, under Thomasius; but he derived much more of the vast store of miscellaneous learning which his after-life exhibits from his private studies in a library to which he had access. Thus he entered the university with peculiar advantages, in his 15th year, selecting the law as his profession, but giving attention also to philosophy and literature. He spent some time at the Univ. of Jena, and on his return, presented himself for the degree in law, for which he composed two essays of very remarkable merit. In consequence of his youth, however, he was refused the degree at Leipzig, and ultimately (in his 20th year), 1666, graduated at Altdorf, where he was offered, but declined, a professorship; accepting in preference the post of sec. and tutor in the family of the Baron von Boineburg, to whom he rendered, 1667-72, a variety of literary and politico-literary services, and through whose recommendation he was appointed member of the judicial council in the service of the Abp.-elector of Mainz. In 1672, he accompanied Boineburg's sons to Paris, and there submitted to Louis XIV. an essay entitled *Consilium Ægyptiacum*, containing a plan for the invasion of Egypt, which is by some supposed to have had distant result in the Egyptian expedition of Bonaparte 1798. In this tour, which extended to London, he formed the acquaintance of the most eminent philosophers of France and England, and among them of Newton. On the death



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of the Elector of Mainz, Leibnitz, declining an appointment at Paris which would have necessitated his becoming a Rom. Cath., entered the service of the Duke of Brunswick, and followed that prince, 1676, as privy-councilor and librarian, to Hanover, where he permanently fixed his residence. His literary services to this court were very miscellaneous. After a tour of historical exploration, he prepared a series of works illustrating the history of the House of Brunswick, 7 vols. of which were published by himself, and two have been edited in our own time by Dr. Perz, *Annales Imperii Occidentis Brunswicensis* (1843-45). He undertook likewise the scientific direction and organization of the royal mines, into which he introduced many improvements; and at the desire of the prince, he took active part in the negotiations for church union and the theological discussions connected therewith, which formed the subject of a protracted correspondence with the celebrated Bossuet (q.v.) and with M. Pelisson, and led to the preparation, on his own part, of a very curious exposition of doctrinal belief (published from his MS. within this century, under the title *Systema Theologicum*), which, though written in the assumed character of a Rom. Catholic, was intended to form a basis of negotiation. His private studies, however, were chiefly philosophical and philological. His correspondence of these subjects was most extensive, and he contributed largely to almost every literary and scientific journal of his day. He was the chief organizer of the Acad. of Berlin, of which he was the first pres., and originated both at Dresden and Vienna a project for the establishment of similar bodies. It was to him, likewise, that Peter the Great, who invited him to a meeting at Torgau, and bestowed on him a pension of 1,000 rubles, with the title of privy-councilor, owed the plan of the since celebrated Acad. of St. Petersburg. On the accession of the elector George to the crown of Great Britain, as George I., Leibnitz was disappointed in his expectation of accompanying the prince to his new court; nor did he long survive that event. His death occurred somewhat unexpectedly at Hanover. His biographers justly complain that his memory was treated with little honor by his contemporaries; but a tardy atonement for their neglect has been recently offered by the erection of a monument in one of the squares of the city of Hanover. The scholarship of Leibnitz, as regards the vastness of its range, is scarcely paralleled. He was eminent in languages, history, divinity, philosophy, political studies, experimental science, mechanical science, and even belles-lettres. But it is chiefly through his philosophical reputation that he lives in history. It would be difficult to convey, in a popular sketch, a correct notion of his philosophical system, especially as he has nowhere himself methodized it. He was deeply influenced by the Cartesian philosophy, but

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he differed from Descartes both in his method and in some of his principles, tending to a dynamical, as distinguished from Descartes's mechanical, theory of the universe. The most important peculiarities of Leibnitz's system may be reduced to four: his doctrine as to the Origin of Ideas, his theory of MONADS (q.v.), the 'Pre-established Harmony,' and the theory of OPTIMISM (q.v.). The specific content of our ideas comes from experience, but the forms or principles involved in them are innate. Axioms are thus innate, although the application of the axiom requires sense experience. The 'Pre-established Harmony' requires a few words of explanation. The object of this singular conception was to explain the mysterious problem of the joint action of mind and body. Descartes had resolved this problem by his theory of assistance, which attributed all action to the direct assistance of God. Leibnitz, rejecting this hypothesis, supposed the mind and the body to be two distinct and independent machines, each having its own independent, though simultaneous action; but both so regulated by a harmony pre-established by God, that their mutual actions shall correspond with each other, and shall occur in exact and infallible unison. This harmony Leibnitz illustrated by the example of two time-pieces, one of which should be made to strike just when the other pointed to the hour. In the same way, just at the moment when the mind freely determines itself to a peculiar act, the body, by a harmony pre-arranged by God, will produce the particular action which is required to give efficacy to the volition of the mind. This view has not taken rank as a useful conception in philosophy. —Leibnitz's philosophical system in general ruled German thought for a century. It was brilliant, but crude in some parts and not wrought into thorough self-consistency; yet it foreshadowed some of the leading generalizations of modern physical science. One of the most painful incidents in the literary and scientific history of Leibnitz was his controversy with Newton as to priority in discovery of the method of the calculus (see CALCULUS; FLUXIONS). Leibnitz was the inventor of a calculating-machine, the working-model of which is preserved at Göttingen. His works were collected first by Dutens, 6 vols. 4to., Geneva; his philosophical works by Raspe, Amsterdam 1767; and his letters at Lausanne and Geneva, 2 vols. 4to, 1745. Other collective editions are those of Pertz (1843-62); Foucher de Careil (begun 1859), and Klopp (begun 1864). The best ed. of Leibnitz's philosophical works is Erdmann's (1840); and the best life of Leibnitz is by Guhrauer, *Leibnitz, Eine Biographie*, 2 vols. 8vo. (Breslau 1842).

LEICESTER, *lēs'tēr*: town of England, municipal and parliamentary borough, capital of the county of Leicester; on the right bank of the Soar, about 100 m. n.n.w. of London. It contains numerous interesting

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churches, one of which, St. Nicholas, is built partly of bricks from an ancient Roman building near. There are several educational and benevolent institutions. The Cook Memorial Hall and a public park were opened 1882. Manufactures of boots and shoes, and of woolen and hosiery goods, lace-making, wool-combing and dyeing, are extensively carried on. Leicester is the centre of a famous agricultural and wool-raising district. There are about 12 fairs annually. Pop. (1901) 211,574.

Leicester, known to the Romans as *Ratae*, derives its present name either from Leire, former name of the Soar, or from its having been a *Civitas Legionum*, a station or camp (*castra*) of the legions, which the Saxons would translate into Legeo-ceaster, corresponding to the British or Welsh Caer-leon. Under the Lancastrian princes, its castle, now almost entirely destroyed, was frequently a royal residence. The ruins of the abbey of St. Mary Pré, or de Pratis, where Cardinal Wolsey died, still remain.

LEICESTER, ROBERT DUDLEY, Earl of: abt. 1531—1588, Sep. 4; son of John Dudley, Duke of Northumberland. His father was beheaded for his part in the cause of Lady Jane Grey, and Leicester himself was imprisoned on the same account. Though he had been sentenced to death, he was liberated 1554; and 1558, on the accession of Elizabeth, the dawn of his fortune came. He was made master of the horse, knight of the garter, a privy-councilor, high steward of the Univ. of Cambridge, Baron Dudley, and Earl of Leicester. For these high honors, he seems to have been indebted solely to a remarkably handsome person and a courtly manner, for the course of his life reveals not one admirable quality either of head or heart, except, perhaps, his princely tastes as set forth in Walter Scott's *Kenilworth*. When young, he married Amy, daughter of Sir John Robsart. The general voice of the times has charged him with being accessory to her murder; and it is certain that she died suddenly, and very opportunely for his ambitious views, he being at that time a suitor for the hand of Elizabeth. Suspicious as the case may appear, the fact should not be overlooked that proof of Dudley's guilt has never been produced. Elizabeth gave out that she wished him to marry Mary of Scotland; but in this the English queen is suspected of having acted with her usual insincerity. She encouraged Leicester openly as a suitor long after his arrogance had disgusted the nobles, and his profligacy had brought him into disrepute with the nation. His marriage to Lady Essex excited the anger of his royal mistress, but she soon forgave him. In 1585, he went into the Low Countries at the head of a military force; but on this, as on two subsequent occasions, he showed himself utterly unfitted for command. He died suddenly, and it was commonly said that he was poisoned by his wife, she having given him a potion

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which he had intended for her—a suspicion for which no reason is known other than the popular distrust which hung around him and all that concerned him.

LEICES'TER, SIMON DE MONTFORT, Earl of. See MONTFORT, SIMON DE.

LEICESTERSHIRE, *lēs'tēr-shēr*: inland county of England, s. of Derby and Nottingham; 511,719 acres. The surface of the county is covered by low hills. The district in the s.w., still called 'Charnwood Forest,' retains its name though now almost destitute of wood. The hills of the 'Forest,' though inconsiderable in height, are rugged, distinct, and individual in outline. From the highest, Bardon Hill, 902 ft., an extensive view is obtained. The county belongs to the basin of the Trent, which borders it: tributaries of the Trent in Leicestershire are the Soar, Wreak, Anker, Devou, Mease, and Avon. The climate of Leicestershire is mild, and the soil, which varies in fertility, is chiefly loamy. The richest tracts are kept in pasture, for which this county is famous. Grazing, and sheep and cattle breeding, are carried on with great skill and success. An improved long-horn is the favorite breed of cattle. The 'Stilton' variety of cheese is for the most part made in this county. Coal-mines are worked, and granite, slate, and freestone quarried. The staple manufacture is hosiery, for which mostly home-bred sheep supply the wool. Pop. (1901) 225,896.

LEIDY, *lī'dī*, JOSEPH: American naturalist: b. Philadelphia, 1823, Sep. 9; d. there, 1891, Apr. 30. He was graduated M.D. at the University of Pennsylvania in 1844, and in 1853 was elected to the chair of anatomy in that institution, a post which he long filled, as well as that of professor of natural history in Swarthmore College, Pa., to which he was appointed in 1871. He was the author of many valuable memoirs, chiefly published in the *Proceedings of the Academy of Natural Sciences*, the *Transactions of the American Philosophical Society*, and the *Smithsonian Contributions to Knowledge*. Among them may be cited: *Ancient Fauna of Nebraska* (1853); *Cretaceous Reptiles of the United States* (1865); *Fresh Water Rhizopods of North America* (1879).

LEIGHTON, *lā'ton*, FREDERICK, Lord: English painter: b. Scarborough, 1830, Dec. 3; d. London, 1896, Jan. 25. He received some lessons in art at Paris as early as 1839, and then followed further instruction at Rome. At 14 he entered the Royal Academy of Berlin and subsequent art studies were made by him at Frankfort, Brussels and Paris (1850). From Rome he sent to the Royal Academy exhibition of 1855 his picture of *Cimabue's Madonna Carried Through Florence*—a work which called forth general admiration, and was purchased by the queen. He resided mostly in Paris for the next four years, studying and painting, and to this period belong,

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among other works, *The Triumph of Music* (based on the story of Orpheus and Eurydice; *The Fisherman and the Siren*, and *Romeo and Juliet*. Having finally settled in London, he was elected in 1864 an associate of the Royal Academy, and in 1869 a full academician. In 1878, he succeeded Sir Francis Grant as president of the Royal Academy, was knighted, and was also named an officer of the Legion of Honor. In 1886, he was created a baronet, and 1896, Jan. 1, was raised to the peerage. From among his numerous works may be singled for special mention: *Paolo and Francesca* (1861); *Jezebel and Ahab* (1863); *Orpheus and Eurydice* (1864); *Hercules Wrestling with Death* (1871); *Elijah in the Wilderness* (1879); *Hero Watching for Leander* (1887); *Captive Andromache* (1888); *Greek Girls Playing at Ball* (1889); *The Bath of Psyche* (1890); *Lachrymæ*, now in the Metropolitan Museum, New York; as also the two large frescoes at the South Kensington Museum, representing respectively the *Arts of War* and the *Arts of Peace*. He achieved a high place as a sculptor by his *Athlete Strangling a Python* (1876), and his *Sluggard* (1886). The special merit of his work lies in the perfection of his draftsmanship and design; his coloring, though possessing the unfailing charm of harmonious arrangement, is only thoroughly satisfactory from the decorative point of view. A fine poetic quality conjoined with elegance in drawing and great refinement in execution, mark his whole work. His *Addresses to the Students of the Royal Academy* appeared in 1896. Consult: *Lives*, by Mrs. Lang (1885); Rhys (1895).

LEIGHTON, MARIE CONNOR: English novelist: b. Clifton, near Bristol. She was married to Robert Leighton (q.v.), with whom she has written several novels mentioned under his name, and is the author of *The Harvest of Sin*; *A Napoleon of the Press* (1900); *Vengeance is Mine* (1902); *Was She Worth It?* (1902); *The Story of a Great Sin* (1903); *The Amazing Verdict* (1904); etc.

LEIGHTON, ROBERT, Archbishop of Glasgow: 1611—84; son of Dr. Alexander Leighton, who had suffered under Laud for questioning the divine right of Prelacy. He entered the Univ. of Edinburgh 1627, took his degree M.A. 1631, and afterward went to France, where he resided with some relatives at Douay, and formed the acquaintance of several Rom. Cath. students, whose Christian virtues confirmed the natural charity of his spirit. Leighton, indeed, could never have been a bigot. Gentle, tender, and pious from his earliest years, he shrank from all violence and intolerance; but his intercourse with men whose opinions were so different from his own, convinced his reason of the folly and sinfulness of 'thinking too rigidly of doctrine.' Returning to Scotland, he was appointed, 1641, to the parish of Newbattle,

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near Edinburgh; but he was not militant enough to please his fierce co-presbyters. In 1652, he resigned his charge, and in the following year was elected principal of the Univ. of Edinburgh, a dignity which he retained 10 years. After the restoration of Charles II., Leighton, who had long separated himself from the Presbyterian party, was, after much reluctance, induced to accept a bishopric. He chose Dunblane, because it was small and poor. Unfortunately for his peace, the men with whom he was now allied were even more intolerant and unscrupulous than the Presbyterians. The despotic measures of Sharpe and Lauderdale sickened him. Twice he proceeded to London (1665, 69) to implore the king to adopt a milder course. Nothing was really done, though much was promised, and Leighton had to endure the misery of seeing an ecclesiastical system which he believed to be intrinsically the best, perverted to the worst of purposes, and himself the accomplice of the worst of men. In 1670, on the resignation of Dr. Alexander Burnet, he was made Abp. of Glasgow; an office which he accepted only on the condition that he should be assisted in his attempts to carry out a liberal measure for 'the comprehension of the Presbyterians.' His efforts, however, all were in vain; the high-handed tyranny of his colleagues was renewed, and Leighton felt that he must resign, which he did in 1673. After a short residence in Edinburgh, he went to live with his sister at Broadhurst, Sussex, where he spent the rest of his days devoted chiefly to works of religion. Leighton's best works (he published nothing during his lifetime) are in an ed. published at London (4 vols. 1825). All his writings are pervaded by a spirit at once lofty and evangelical. The truths of Christianity are set forth in the spirit of Plato. It was this that recommended them so much to Coleridge, whose *Aids to Reflection* are only commentaries on the teaching of the saintly archbishop.

LEIGHTON, ROBERT: English journalist and novelist: b. Ayr, Scotland, 1859, June 5. He was the son of Robert Leighton, a Scottish poet; was educated at Liverpool, was editor of the *Bristol Observer* 1886-7, and has for many years been connected with the various periodicals published by Harmsworth. He married Marie Connor in 1889 and with her wrote *Convict 99*; *Michael Dred, Detective*; *In the Shadow of Guilt*, and other fictions. He has written by himself *The Pilots of Pomona* (1892); *The Thirsty Sword* (1893); *The Wreck of the Golden Fleece* (1894); *Olaf the Glorious* (1895); *The Golden Galleon* (1897); *The Splendid Stranger* (1898); *Poverty Nook* (1901); *Cap'n Nat's Treasure* (1902); *The Kidnapping of Peter Cray* (1903); *In the Land of Ju-Ju* (1903); *The Heir from the Colonies* (1904); *The Green Painted Ship* (1905); *To Match Another Foe* (1905); etc.

LEINSTER—LEIPZIG.

LEINSTER, *lĭn'stĕr* or *lĕn'stĕr*: one of the four provinces of Ireland, in the s.e. portion of the island; bounded e. by St. George's Channel and the Irish Sea; 4,876,933 acres; pop. (1901) 1,152,829. At the English invasion (1170), this province formed two kingdoms, those of Leinster and Meath. Previously to the reign of Henry VIII., the province had been divided into the counties of Dublin, Meath, Louth, Kildare, Carlow, Kilkenny, and Wexford. The following counties were erected subsequently: Wicklow, formed from a portion of the county of Dublin; West Meath and Longford, from a part of Meath; and King's and Queen's Counties, formed out of a part of Kildare.

LEIOTRICHI, n. *lĭ-ōt'ri-kĭ* [Gr. *leios*, smooth; *thrix*, *trichos*, hair]: smooth-haired people, in distinction from those with crisp or woolly hair; one of the two classes into which Huxley has divided man. **LEIOT'RICHOUS**, a. *-kŭs*, having smooth hair; belonging to or characteristic of the Leiotrichi or smooth-haired people.

LEIPOA, *lĭ-pō'a*: genus of gallinaceous birds, of family *Megapodidæ*, of which the only known species is *L. ocellata*, native of Australia, inhabiting sandy and bushy plains. It is called Leipoa, or NATIVE PHEASANT, by the colonists. Like the Australian jungle-fowl, the Leipoa constructs mounds of sand, or earth, and leaves, in which to lay its eggs. More than a dozen are often found in a nest. They are about three times as large as those of a common fowl; and are much esteemed as food. When pursued, it seeks to escape rather by running and hiding in the bush, than by the use of its wings. Few birds seem more likely to prove useful in domestication than the Leipoa.

LEIP'ZIG, COLLOQUY OF: private and friendly discussion on disputed points of doctrine between Reformed and Lutheran theologians 1631, Mar. 3-23, occasioned by the meeting of the Prot. princes in Leipzig. The Reformed invited the Saxon Lutherans to a conference, sanctioned by the elector of Saxony, with a view to some possible agreement. The Augsburg Confession was taken as basis of examination (see AUGSBURG CONFESSION). Agreement was easily reached on articles 1, 2, 5-9, 11-28; but 3 and 10 developed differences that could not be harmonized.

LEIPZIG, *lĭp'tsĭch*, or **LEIPSIC**, *lĭp'sĭk* (formerly *Libzk* or *Lipzk*, said to mean the home of the linden or lime trees, from the Slavic *Lip* or *Lipa*, a lime-tree): city of the kingdom of Saxony, about 65 m. w.n.w. of Dresden, 6 m. from the Prussian border, in a large and fertile plain. Pop. (1900) 455,120. The Elster, the Pleisse, and the Parthe flow through or past the city, and unite about 3 m. below it. The inner or ancient city was formerly surrounded by walls, which have now disappeared, but it is still separated from the far more exten-

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sive suburbs (*Friedrichs-stadt*, *Johannes-stadt*, etc.) by promenades planted with beautiful avenues of lime and chestnut trees. The old town (or inner city) keeps its quaint mediæval aspect. Many of its streets are narrow and crooked; those of the more modern part are wide and well built. Among the squares of the city are the Marktplatz, with a Siegesdenkmal; the Augustusplatz, one of the largest in Germany, with a splendid fountain; the Königsplatz, the Johannisplatz, with a Reformation monument (Luther and Melanchthon); and the Rossplatz; and among the other monuments worthy of mention are those of Gellert and Fechner in the Rosenthal, an extensive park in the northwest, between the Elster and the Pleisse; of Hahnemann, Leibnitz, Grassi, Mendelssohn, and Bismarck; together with the more recent memorial of the Völkerschlacht. Besides the parks and open spaces just mentioned, Leipzig includes, among many others, the Johannapark, the Grassipark; the König Albert Park, the scene of the 1897 exhibition; the Johannisthal, with an observatory; the botanical garden; the zoological garden, recently much extended; the palm garden, opened in 1899. The most noteworthy churches of the city are the Thomaskirche (13th century), rebuilt 1885-9; the Nikolaikirche (11th century), recently restored; the University or Paulinerkirche (1240), restored 1896-9; the Matthäikirche, restored 1879; the Johanniskirche (14th century), rebuilt and re-consecrated in 1897, and containing the remains of Sebastian Bach and Gellert; the Peterskirche; the Lutherkirche; the Andreaskirche; two modern Roman Catholic churches; an Anglo-American church; a synagogue; and churches of other denominations. Of non-ecclesiastical buildings the most notable are those of the university, which was founded in 1409, and now has 220 professors and lecturers, and over 3,200 students. These buildings are mostly modern, especially the Albertinum, erected in 1890-6 in accordance with the plans of A. Rossbach for completing and renewing the whole group. The university library (the Albertina) contains 450,000 volumes and over 4,000 manuscripts. Other buildings and institutions are: the old Rathaus (16th century); the new Rathaus, in course of construction on the site of the Schloss Pleissenburg, a 13th century building, once the citadel of the town, and famous as the scene of Luther's disputation with Eck in 1519; the old exchange (1678), now the meeting-place of the town council; the new exchange in Renaissance style; the Königshaus (17th century), the residence till 1829 of the Saxon princes; the old Gewandhaus, where the celebrated Gewandhaus concerts were long held; the new concert-hall; the imperial bank building, in German Renaissance style; the municipal library (1899), containing 115,000 volumes and many manuscripts; the municipal museum, in Italian Renaissance style; the chief post-office; the new book

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exchange, the headquarters of the German book trade; the Buchgewerbehause (1897), with a Gutenberg hall; the panorama building; the Grassi Museum (1896), now including the collections of the former museums of industrial art and ethnology; the police office; the building of the Land and Amtsgericht, enlarged in 1895-6; the building of the Imperial Court, completed in 1895; the new conservatory of music; the old and the new theatre; the Krystallpalast, including concert halls, etc.; the market hall; the large Johannis hospital; a deaf and dumb and a blind institution; the hospital of St. Jakob; the Triersches Institut, for women; three gymnasia, namely, the Thomasschule (1221), the Nikolaischule (1511), and the royal Gymnasium, a Real Gymnasium; several Realschulen and many other schools; a Handelshochschule, or High Commercial School (1898), the first in Germany; a school of industrial art; a Royal Academy of Arts; and the new infantry barracks at Möckern. Leipzig has railway communication with all the chief towns of Germany, and its situation makes it of great importance as a trading centre. It has three large annual fairs, which have been held ever since the 12th century. Its industries include iron-founding, cotton-spinning, wool-combing, the weaving of jute and linen, brewing, sugar-refining, distilling, and the manufacture of machinery, electrical plant, agricultural implements, ethereal oils, dyes, essences, soaps, perfumes, wax-cloth, chocolate, tobacco, paper, leather, tapestry, cement, musical and other instruments, etc. Leipzig is also a world market for furs and all similar goods.

Leipzig is the principal seat of the book-selling and publishing trade in Germany, and indeed, in this respect, ranks third among cities of the world, coming immediately after London and Paris. Here the German booksellers have founded a common exchange, and annual settlements of accounts are made at the Easter Fair, when several hundred booksellers meet here by commissioners and settle their accounts. It is claimed that about 5,000 firms are represented by some sort of commissioners at Leipzig. In consequence of this activity, Leipzig has become the principal seat of type-founding in Germany.

The city sprang up round a castle built by King Heinrich I., at the junction of the Pleisse and the Parthe. It is mentioned as a town first in 1015, and in the latter part of the 12th c. had 5,000 to 6,000 inhabitants. It gradually increased in prosperity and importance. The famous *Leipzig Disputation* between Luther, Eck, and Carlstadt, 1519, greatly tended to the promotion of the Reformation. (For another theological debate, see LEIPZIG, COLLOQUY OF.) The *Leipzig Interim*, issued 1548, Dec. 22, was drawn up by Melancthon and six other theologians. Its great concessions to the Rom. Cath. Church in respect to various outward observances, raised

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intense opposition among the Lutherans, and four years later it was revoked. Leipzig suffered grievously in the Thirty Years' War, in which it was five times besieged and taken, and again in the Seven Years' War; and though the commercial changes connected with the French Revolution at first affected it very favorably, yet it suffered not a little amid the terrible struggles of 1812, when it was alternately in possession of the French and of the allies.

The immediate neighborhood of Leipzig has been the scene of two battles of great importance in the history of Germany and of Europe—the battle of Leipzig, or of Breitenfeld (q.v.), 1631, Sep. 7; and the great battle of Leipzig—called the *Battle of Nations*, which continued for three days—1813, Oct. 16-18. The latter was one of the most bloody and decisive of those which affected the deliverance of Europe from French domination. The troops under Napoleon in this battle amounted to about 180,000 men, and those of the allies, commanded by Prince Schwarzenberg, Marshal Blücher, and Bernadotte, Crown-prince of Sweden, to almost 300,000. The loss of the French was reckoned at about 38,000 killed and wounded, and 30,000 prisoners; that of the allies at about 48,000. The victory of the allies was complete, and the French had to evacuate Leipzig. During the war of 1866 Leipzig was occupied by Prussian troops for 18 months. In 1879, the Supreme Court of Justice for the empire was established in the city.

LEISLER, *līs'lēr*, JACOB: born Frankfort, Germany; d. New York, 1691, May 16. He came to America as a soldier of the Dutch W. India Co. 1660; leaving the army, he accumulated money as an Indian trader; was appointed commissioner of the forced loan imposed by Colve; lived at Albany and became involved in the ecclesiastical difficulties there, 1676, losing money and reputation through a lawsuit; on his way to Europe was captured by pirates 1678, and had to pay a heavy ransom. Under Gov. Dougan he was appointed a commissioner of the court of admiralty, New York, 1683. In 1689, May, taking occasion from the English revolution, Leisler headed a mob which seized the fort and public funds 'for the preservation of the Protestant religion;' June 8 was declared 'captain of the fort,' which he repaired and strengthened by a battery of 6 guns outside its walls, where now is 'the Battery.' Nicholson, who had succeeded Dougan as gov., becoming alarmed, sailed to England, and Mayor van Cortlandt retired to Albany. Leisler as commander-in-chief of the province exercised all the power of governor; having declared for the Prince of Orange, he tried to bring into subjection Albany and the n. parts of the province, which refused to recognize his authority. A dispatch from William and Mary to Nicholson he construed as an appointment for himself as royal lieut.-gov.; swore in a council; engaged

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vigorously in the expeditions against the French, and sent a fleet from New York against Quebec, 1690. On Sloughter's appointment as gov., Leisler refused to surrender the fort to him until Sloughter should prove his identity and have sworn in his council. The gov. then had him arrested, with his son-in-law and secretary, Milborne, tried them for treason and murder, and the unjust sentence of death was executed. Leisler's son, 1695, secured the passage of an act of parliament reversing his father's attainder; and 1698, under the Earl of Bellamont's governorship, the assembly voted an indemnity to Leisler's heirs. His and Milborne's bones were then disinterred and honorably buried in the Dutch church then in Garden st., New York.—In 1689 Leisler bought for the Huguenots the present site of New Rochelle, N. Y.

LEISTER, or LISTER, n. *líst'ér* [Gael. *leasdair*, light, lustre]: in *Scot.*, a spear armed with three or more prongs for striking fish. *Note.*—The method employed by poachers by night is first to attract the fish to the surface of the water by lighted torches, and then to drive the leister through them: comp. *laxter*, a salmon-fisher—from *Scot. lax*; Ger. *lachs*, a salmon.

LEISURE, n. *lě'zhûr* [F. *loisir*, leisure time—from OF. *leiser*, leisure, originally signifying 'to be permitted'—from L. *licēre*, to be permitted: OF. *loist*, it is allowed—from L. *licet*, it is permitted]: freedom from occupation, business, or hurry; convenience of time: ADJ. free from employment or hurry; not occupied or engaged. LEISURELY, a. *-lě*, done at leisure; slow: AD. not in haste or hurry; slowly. LEISURED, a. *-zhûrd*, having leisure. AT LEISURE, free from occupation; not busy; at a convenient time.

LEITH, *lěth*: important seaport, municipal and parliamentary burgh of Scotland, on the s. shore of the Firth of Forth, at the mouth of the Water of Leith, two m. n. of Edinburgh, with which it is now connected by a continuous line of houses. Although not without many fine edifices, the town, as a whole, appears irregular and dingy, especially in the older and central parts. The Trinity-house, Custom-house, Town-hall, Royal Exchange, Corn Exchange, and banks are handsome buildings. Leith has one of the largest and most elegant flour-mills in the kingdom. W. of the town, on the shore, is Leith Fort, an artillery station. Leith is connected by branch lines with the various railways centering in Edinburgh. The harbor extends, by means of two piers, more than a mile into the Firth, and has a depth of 20 to 25 ft. at high water. There are four wet-docks, the newest, the Edinburgh dock, begun 1874, was opened 1881. It has a quay frontage of 6,775 ft., is 1,500 ft. long, 650 ft. wide, and cost in all £400,000. Railway communication is continued from

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the various Leith stations throughout the quays and across the harbor. There are six graving-docks, one of them being 73 ft. wide and 450 ft. long, with 24 ft. of water at spring tides. The trade of the port is chiefly in colonial and foreign produce, but is extensive also in coal and iron exports. Grain, timber, esparto grass, and wine are among the leading imports. There is regular communication with London, New York, n. Scotland, Norway, and the continent. The fishing village of New Haven is close by. There is a daily market. Chief manufactures—ship-building, machinery, sail-cloth, ropes, ale, rectified spirits, soap, bottles, flour. Pop. (1901) 76,667.

LEITHA, *lĕ'tā*: Austrian stream rising at Haderswerth in Lower Austria, and flowing n.e. nearly along the frontier of Lower Austria and Hungary, emptying into the Raab, which joins the Danube. Since the reorganization of the empire 1867, it has become usual to speak of Hungary and the lands belonging to the Hungarian crown as *Trans-leithan*, and the rest of the empire as *Cis-leithan*—thus giving the stream a factitious importance.

LEITRIM, *lĕ'trĭm*: county in the n.e. of the province of Connaught, Ireland; 613 sq.m., or 392,363 acres, of which 249,350 are arable. The surface of Leitrim is irregular. It is divided into two parts by a considerable lake called Lough Allen. The s. division is broken by low, narrow ridges, which inclose numerous small lakes, the chief of which is Lough Rinn. The more level portion of this division of the county forms part of the great limestone plain of Ireland, and contains some excellent arable and pasture land. The n. division is much more irregular in surface, being intersected by several ridges of considerable elevation. To the n. of Lough Allen the soil, except at rare intervals, is unfavorable for agriculture, and the climate is damp and ungenial. The principal crops are potatoes, oats, and hay. Leitrim, however, is more a grazing than a tillage district. Large numbers of horned cattle are raised in the s. division.

The river Shannon (q.v.) enters this county near its source in Cavan, and traversing Lough Allen, passes out at the s. extremity of Leitrim. Other rivers are the Bonnet, the Yellow river, and the Daff. The only towns of any note are Carrick-on-Shannon, Manor-Hamilton, and Mohill. The n. division of the county is more rich in minerals than most districts of Ireland. Coal, iron and lead are abundant. The occupation of the people being chiefly agricultural, there are scarcely any manufactures. Pop. about 80,000.

Leitrim anciently formed part of the territory of Breifne O'Rourk. It was reduced to the English submission in the reign of Elizabeth, but revolted 1588, submitting once more 1603, when the O'Rourk accepted a patent of the residue of his estate. The confiscations

LEITMOTIV—LELAND.

which followed the great civil war may be said to have extinguished the native proprietary and the family of O'Rourke.

LEITMOTIV, *līt'mō-tēf*, in *Music*: the leading theme, the characteristic phrase, which occurs over and over again in the same composition, in reference to the same person, phrase of feeling or scenic complication of intense passion or action. The phrase strikes the note of these several crises or conjunctures and recurs whenever they are repeated. While many operatic composers, such as Mozart and Weber, have employed the expedient of the leading theme, Wagner does so more than any other modern musician. In his *Leitfäden*, or analyses of his operas, in which he lays bare some of the secrets of his artistic workmanship, he shows that he has consciously individualized every one of his characters, every change in the scenery or action of the drama, or in the emotions and moods of the *dramatis personæ*, by the introduction of a specific musical theme, which he employs throughout the opera to suggest the same thing. This theme is worked upon and varied with the masterly skill which Wagner possesses in fugue and part writing. Thus in his *Parsifal*, Klingsor, Kundry, Parsifal, Amfortas, and the Flower maidens are all ushered in with a special leading theme for each. There is a special theme for the Eucharist, for the spear (*Speermotiv*), for the Holy Grail (*Gralmotiv*). The children's voices raise a strain 'Faith is still alive' to the notes of the *Glauensthema*, or faith-motive. There is a *Leidensmotiv*, to express the grief of Amfortas; there is the Doormotiv, expressing the promise of help; the Zaubermotiv, suggesting the devilish power of witchcraft, while the mother's sorrow is suggested by the Motiv des Herzleids, the heart-grief's theme. The Bell-theme, with its pealing sound, the Ride-theme, suggesting the clatter of horsehoofs, the Good Friday theme, with its characteristic chords, each in its way, are powerfully suggestive, and when once recognized, their recurrence has a powerful effect.

LEIXNER-GRÜNBERG, *līks'nēr grūn'bērg*, OTTO VON: German poet and critic: b. Saar in Moravia 1847, Apr. 24. Among his poetical works are: a volume of *Poems* (1868); the drama *Resurrection of Germany* (1870); *Twilight* (1886); *Proverbs and Satiric Rhymes*. He has also written short stories: *The Two Marys*; *Memento Vivere*; *Princess Sunshine* (1882). Still other works are: *Marginal Notes by a Hermit*; *Gossamer* (1886); *Gossipy Letters to a Young Matron* (1890); *Lay Sermons* (1894). His *History of German Literature* (1879-82) is a notable work.

LELAND, CHARLES GODFREY: American author: b. Philadelphia 1824, Aug. 15; d. Florence, Italy, 1903, Mar. 20. He showed poetic talent in youthful contri-

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butious to newspapers, and a growing genius, marked by unusual versatility, during his college days at Princeton, where he was graduated in 1846. He studied afterward at Heidelberg, Munich, and Paris, giving special attention to modern languages, philosophy, and æsthetics. In 1848 he took part in the revolutionary uprising in Paris; the same year returned to Philadelphia and studied law; was admitted to the bar in 1851, but gave up the legal profession and devoted himself to literary pursuits, becoming prominent in various fields of journalism and authorship. For a time he was editor of the *New York Illustrated News*; in 1861 established the *Continental Magazine* in Boston, and two years later returned to Philadelphia, where for several years he edited the *Press*. During the civil war he published *The Book of Copperheads*, a political satire. From 1869 to 1880 he resided chiefly in London. In England and on the Continent he studied gypsies and gypsy lore, in which he became one of the leading authorities of his time. His career as poet, ethnologist, and traveler, with its mingling of literary avocations, was invested with an element of romance, and his more serious work was lightened by the interchange of humor. At the same time his achievements show the practical talents of a man of business. When in 1880 he once more returned to Philadelphia he was instrumental in establishing industrial teaching in the public schools, in furtherance of which he wrote a number of manuals and gave his supervision to the work. From 1886 he lived in Europe, mainly in Florence. He wrote and translated a large number of works, remarkable for variety as well as for literary value, the best known and most popular of which are *Hans Breitmann's Ballads* (1867-70, 1895), written in 'Pennsylvania Dutch,' his translations from Heine, including *Pictures of Travel* (1856), and *Heine's Book of Songs* (1862), *English Gypsies and Their Language* (1873), *English Gypsy Songs* (in collaboration, 1875), *The Gypsies* (1882), and *Gypsy Sorcery and Fortune-Telling* (1892). Among his other writings are: *The Poetry and Mystery of Dreams* (1855); *Meister Karl's Sketch-Book* (1855); *Sunshine in Thought* (1862); *Legends of Birds* (1864); *The Music-Lesson of Confucius* (1870); *The Egyptian Sketch-Book* (1873); *Fu-Sang: or the Discovery of America by Chinese Buddhist Priests in the Fifth Century* (1875); *Johnnykin and the Goblins* (1876); *Pidgin-English Singsong* (1876); *Abraham Lincoln* (1879); *The Minor Arts* (1880); *Algonquin Legends of New England* (1884); *Etruscan-Roman Remains in Popular Tradition* (1892); *Autobiographical Memoirs* (1893); *Songs of the Sea and Lays of the Land* (1895); *Mending and Repairing* (1896); *One Hundred Profitable Acts* (1897); *The Unpublished Legends of Virgil* (1899); and (his last work) *Kuloskap the Master, and Other Algonkin Poems* (1903), a volume of

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Indian folklore in verse, written in collaboration with John Dinely Prince.

LELAND, *lĕl'and*, or LEYLAND, JOHN: English antiquary: b. London about 1506; d. there 1552, Apr. 18. He was educated at Cambridge, Oxford, and Paris. Returning home he took holy orders, and Henry VIII. made him his chaplain and librarian. In 1530 he became rector of Pepeling, near Calais; in 1542 he received the rectory of Haseley, Oxfordshire, and he was a prebend of Salisbury Cathedral. In 1533 he received the title of royal antiquary, and was empowered, by a commission under the great seal, to search for objects of antiquity in the archives and libraries of all cathedrals, abbeys, priories, etc., in consequence of which he spent six years in traveling and collecting materials for the illustration of the history and archæology of England and Wales, but died without having completed his undertaking. The great bulk of his collections was placed in the Bodleian Library. The first part to be published was the *Commentarii de Scriptoribus Britannicis*, issued in 1709 by Anthony Hall. In 1710 Hearne published the *Itinerary* in 9 vols., and five years later the *Collectanea* was issued by him in 6 vols. Leland wrote Latin poetry with considerable elegance, and a collection of his miscellaneous Latin verse and epigrams was published in 1589.

LELAND, JOHN, D.D.: English apologist for Christianity: 1691-1766; b. Wigan, Lancashire. He became a Presby. minister in Dublin 1716, and appeared as an author 1733, in a reply to Tindal's deistical work, *Christianity as Old as the Creation*. In 1737, appeared another apology, *The Divine Authority of the Old and New Testament asserted against the Unjust Aspersions and False Reasonings of a Book entitled 'The Moral Philosopher.'* For the learning and the abilities evinced in these works, the Univ. of Aberdeen conferred on Leland the degree D.D.. His best work is *A View of the Principal Deistical Writers that have appeared in England*. Though Leland was a controversialist, he was always fair and charitable.

LELAND STANFORD JUNIOR UNIVERSITY: co-educational institution of learning, at Palo Alto, Cal.; founded and endowed by Leland Stanford and Jane Lathrop Stanford in commemoration of their only son. The university was opened 1891. The architecture of the university buildings is patterned after the old Spanish missions of California and Mexico. The buildings are of buff sandstone with red tile roofs. They form two quadrangles, one within another, with detached buildings grouped about them. The inner quadrangle consists of 12 one-story buildings, connected by an open arcade, facing a paved court of three and one-quarter acres in extent. Connected with this quadrangle at various points by corridors, and completely surrounding it, is the outer

LELAND STANFORD JUNIOR UNIVERSITY.

quadrangle of 12 buildings, for the most part two stories in height above the basement. This outer quadrangle is again surrounded by a continuous open arcade. In the inner quadrangle are the departments of law, of the different languages, and mathematics, and the administrative offices. In the outer quadrangle are the scientific, engineering and geological departments, those of history, economics and English, and the library and assembly hall. In the rear of the quadrangles are the central lighting, heating, and power plant and the laboratories and shops of the engineering departments. The dormitories, one for young men and another for young women, with their gymnasia and athletic grounds about them, are located to the east and west. In front on either side of the main drive are the buildings for the department of chemistry and the art museum and the new gymnasium, the latter in course of erection. The final building to complete the general scheme of buildings, which is to be the permanent home of the university library, will soon be begun.

Most striking among the architectural features of the University buildings are the Memorial Arch and the Memorial Church. The former is 100 ft. in height, 90 ft. in width and 34 ft. deep, with an archway of 44 ft. spanning the main entrance. A sculptured frieze 12 ft. in height, designed by St. Gaudens, and representing the progress of civilization, surrounds the arch. The Memorial Church opens from the inner court and is opposite the main entrance. It is of Moorish-Romanesque architecture, its spire rising to a height of 188 ft. The church, erected by Mrs. Stanford in memory of her husband, is adorned within and without with costly mosaics, representing as do the beautiful stained windows, Biblical scenes and characters. It has a splendid organ of 46 stops and 3,000 pipes and a chime of sweet-toned bells. The earthquake of April, 1906, wrought great havoc among the buildings, the library being completely wrecked and other buildings being damaged to a considerable extent.

The University Council consists of the president, professors, and associate professors of the University faculty. To it is entrusted the determination of requirements for admission, graduation, and other matters relating to the educational policies of the institution. It acts as an advisory body on questions submitted to it by the president or trustees.

The general control of the University's affairs was by special provision in its charter reserved to the founders or either of them during their lifetime, they to act in the capacity of a board of trustees, the trustees themselves having only a nominal connection. This provision remained in force until July, 1903, when under a special act of legislature passed for the purpose, Mrs. Stanford finally turned over to the board of trustees

LELAND UNIVERSITY—LELY.

full authority and control over the University. The board of trustees numbers 15, members being elected for a term of 10 years. In educational matters the president of the University has the initiative, his acts being subject to the confirmation of the trustees. The board through a treasurer and business manager, one of their own number, administers directly the financial affairs of the institution.

The endowment of the University comprises 90,000 acres of land, including the Palo Alto estate; the Stanford home in the city of San Francisco, and interest-bearing securities, the whole amounting to about \$30,000,000, two-thirds of which is productive of income.

The University grants the undergraduate degree of A.B. in all courses; the degrees of A.M. and PH.D. for one and three years' work respectively beyond the undergraduate requirements; the LL.B. degree in law, and that of Engineer for graduate work. The University grants no honorary degrees.

The work of the University is grouped under the following departmental heads:

Greek, Latin, Germanic Languages, Romanic Languages, English Language and Literature, Philosophy, Psychology, Education, History, Economics and Social Science, Law, Drawing, Mathematics, Physics, Chemistry, Botany, Physiology and Hygiene, Zoology, Geology and Mining, Civil Engineering, Mechanical Engineering, Electrical Engineering.

The University library contains 100,000 volumes. The attendance for the year 1906-7 was 1,583. The faculty numbers 136. Tuition is free to California students. Those from other states pay a registration fee of \$10 per semester.

LELAND UNIVERSITY: a Baptist institution for the education of the colored people; founded in 1869, in New Orleans, La., by Holbrook Chamberlain, of Brooklyn, N. Y. It has large grounds, commodious and well equipped buildings, and a fair endowment. It is a school and a system of schools, with a faculty of over 60 members, and co-ordinated courses of study. It is made up of a number of academies, each built and maintained by one of the 15 Baptist Associations in the state. The courses consist of the usual work of the elementary and secondary schools, including a preparatory department where pupils are fitted for college. In addition are a college, a theological department, training classes for pastors and teachers, and departments of manual training, domestic science, and agriculture. The number of students is about 2,000.

LELY, lē'li, Sir PETER (PETER VAN DER FAES): 1617-80; b. Soest, Westphalia; son of one Van der Faes, capt. of a regt. of infantry, who was generally called Le Capitaine du Lys, or Lely, from having been born at the Hague, in a house the front of which was decorated with

LEMAÎTRE—LE MAY.

a fleur-de-lis. Lely studied painting at Haarlem two years. He began as a painter of landscapes and subjects from history; but his talent was for portrait-painting, and soon after the death of Van Dyck, he settled in London. He was employed successively by Charles I., Cromwell, and Charles II., who nominated him court-painter, and conferred on him knighthood. He had great facility of execution, and his style, though deficient in all higher qualities of art, was well suited for his position as the favorite portrait-painter of such a court as that of his chief patron. There is a large collection of his portraits at Hampton Court, known as the Beauties of the Court of Charles II. He died in London.

LEMAÎTRE, *lé-mâtr*, JULES: French critic: b. Venecy, Loiret, 1853, Apr. 27. He was a teacher in various schools, and a professor at Grenoble in 1883-4. He then resigned his post and entered on a successful literary career at Paris. Though he wrote two books of verse and three of short stories, he won his position in French letters by his criticism, his essays having associated him with Brunetière as a representative figure. *Impressions du Théâtre* (1888 et seq.), and *Contemporains* (1886 et seq.) collect the best of his articles. His dramas, such as *Deputé Leveau* (1891), *Les Rois* (1893), and *Le Pardon* (1895), have also been much approved.

LEMAN, n. *lě'măn* [AS. *leof*, beloved, dear; *mann*, one of the human kind: comp. Gael. *lean*, to follow]: in *OE.*, a sweetheart; a gallant; a mistress.

LE'MAN, LAKE. See GENEVA, LAKE OF.

LE MANS'. See MANS, LE.

LEMARS, *le-mârz'*: Iowa, city, co.-seat of Plymouth co.; on the Chicago, St. P., M. & O., and the Illinois C. railroads; about 155 m. n.w. of Des Moines, the capital of the state, and 24 m. n. by e. of Sioux City. It is situated in an agricultural region in which cattle, wheat and corn are raised extensively. The chief manufactures are foundry and machine-shop products, flour, brick, blank books, and dairy products. It has a public library. Lemars is the seat of the Western Union College, under the auspices of the United Evangelicals. Pop. (1900) 4,146.

LE MAY, LEON PAMPHILE: Canadian author: b. Lotbiniere, Que., 1837; educated at Quebec Seminaire; studied law and was called to the bar in 1865. His chief works are: *Essais Poétiques* (1865); *Poemes Couronnes* (1870); *Les Vengeances* (1875); *De Peterin de Ste. Anne* (1877); *Picounac-Mandit* (1878); *Une Perle* (1879); *Fables Canadiennes* (1881); *Petits Poemes* (1883); *Le Chien d'Or* (translation) (1884); *L'Affaire Sougraine* (1884); *Tow Kowron* (1888); *Rouge et Bleu* (Comedies 1891).

LEMBERG—LEMERY.

LEMBERG, *lēm'bērċh* (formerly *Löwenburg*; Polish 'Lwów'): capital of the Austrian kingdom of Galicia and Lodomeria, on a small stream called the Peltew, in a narrow basin among hills. Lemberg is the seat of a Rom. Cath., a Greek United, and an Armenian abp., and has 30 churches and a dozen monasteries. It is the seat of the crownland government and of the courts and officers connected with it. Several of the churches are fine buildings; also the town-hall, the theatre, the hospital, and the technical academy. The university, founded 1784, re-established 1817, has about 2,000 students; its library contains 86,000 vols., 470 mss., and a collection of 10,000 coins. Here also is the seat of the institute founded by Ossolinski, with a library of 100,000 vols., and 3,000 mss., chiefly of Polish literature. The trade of Lemberg is extensive, and there are manufactures of paper, machines, matches, candles, naphtha, liqueurs, and beer. There is a citadel here. Lemberg, founded 1255, was long an important Polish city. It fell to Austria at the final partition of Poland. Pop. (1900) 159,877.

LÉMERY, *lām-rē*, **NICOLAS**: French chemist: b. Rouen 1645, Nov. 17; d. Paris 1715, June 19. At an early age he displayed a taste for chemistry, went to Paris in 1666, and attached himself to Glaser. He soon left Glaser and took up his abode at Montpellier, where he had the free use of a laboratory, and began to give lectures which excited great interest and were attended by many of the influential inhabitants of the place. In 1672 he returned to Paris and gave courses of lectures on various parts of chemistry, the success of which seems to have been very great. His *Cours de Chimie* appeared in 1675. This book went through numerous editions—31, it has been calculated—and was translated into the chief European languages. The book is plainly modeled upon the prior treatises of Lefebvre and Glaser, the opening chapters being identical in manner and treatment, but shows proof of the author having profited by the work of his predecessors. In 1681 the religious troubles began to harass him; he was required to demit his office by a given time, and had ultimately, in 1683, to take shelter in England, where he was well received by Charles II., to whom he dedicated an edition of his book. He returned later to France, graduated as doctor of medicine at Caën, went to Paris, where he soon had a very large practice; but in 1685 the revocation of the Edict of Nantes forbade him, as a Protestant, the exercise of this profession. Against this he struggled for a little, but in 1686 joined the Roman Catholic Church. In 1699 he became an associate of the Academy of Sciences. Besides the *Course of Chemistry*, Lémery wrote and published other works and papers, among which may be mentioned: *Pharmacopée universelle* (1697); *Traité universelle des Drogues simples* (1698).

LEMLY—LEMMING.

Traité l'Antimoine (1707). It deserves to be remembered that he was one of the first to attempt the elucidation of natural terrestrial phenomena by referring them to chemical action, and to exhibit these on an experimental scale, as when he made what is still known as Lémery's volcano, by placing a mixture of sulphur and iron in a hollow, heaping up the earth over the mixture, moistening, and leaving it to itself. By-and-by combination between the iron and sulphur begins, heat is evolved, the earth heaves and swells, steam escapes, and the resemblance of the miniature eruption to the larger original is very striking. He left two sons, both of whom were afterward distinguished as chemists.

LEMLY, HENRY ROWAN: American soldier: b. North Carolina 1851, Jan. 12. He was graduated from West Point in 1872, and was appointed 2d lieutenant of the 3d cavalry. In March, 1898, he was promoted captain, and during the Spanish-American war commanded Battery C of the 7th United States Artillery in the Porto Rico campaign. He was retired at his own request 1899, Apr. 20. He has published *What was El Dorado?*; *Among the Arapahoes*; *West Point Romance*; *Padre Anselmo*; *A Queen's Thoughts*; etc.

LEMLY, SAMUEL CONRAD: American naval officer: b. Salem, N. C., 1853, Mar. 14. He was graduated at the United States Naval Academy in 1873; was promoted lieutenant in January, 1886; and in 1892 was appointed judge advocate-general of the navy. He was reappointed in 1896 and 1900, and in 1901 was the legal representative of the navy in the Schley Court of Inquiry. He was retired in 1904.

LEMMA, n. *lēm'mă* [Gr. *lemma*, anything received—from *lam'bănō*, I take or assume]: in *math.*, a preparatory proposition; an assumption; set forth to render more perspicuous the demonstration of a theorem or construction of a problem; in *logic*, a premise taken for granted.

LEMMING, n. *lēm'ing* [a Dan. and Norw. word], (*Lemmus* or *Myodes*): genus of rodent quadrupeds, of family *Muridæ*, and sub-family *Arvicolidæ*, nearly allied to voles, but differing from them in the extreme shortness of the ears and tail, and in having larger and stronger claws, more adapted for digging. They are also more heavily formed. The most noted species is the Scandinavian lemming (*L.* or *M. norvegicus*), about five inches long, with variegated black and tawny fur, inhabitants of the n. Scandinavian mountains, where it ordinarily feeds on reindeer-moss and other lichens, grass, catkins of birch, etc. But, breeding twice or more in the course of a year, and producing four or five at a birth, it multiplies so much, that, periodically, vast troops leave their native regions, migrating either toward the Atlantic Ocean, or the Gulf of Bothnia. They

LEMMON—LEMNOS.

proceed persistently in a straight line, swimming rivers, crossing mountains, and devouring every green thing in their course. They move chiefly in the night or early morning. Bears, wolves, foxes, lynxes, hawks, and owls follow and prey upon them, and most of the survivors finally drown themselves in the sea, into which they plunge, striving to swim onward in the same direction. In times of prevalent superstition, lemmings were often exorcised by the priests, and the peasantry of Norway supposed them to fall from the clouds.

LEM'MON, JOHN GILL: American botanist: b. Lima, Mich., 1832, Jan. 2. He studied at the University of Michigan, but left to enter the federal army in 1862, June, and was a prisoner at Andersonville, Ga., from August, 1864, till the end of the civil war. He has lived in California from 1866, where he was for four years botanist of the State Board of Forestry. He has published *Recollections of Rebel Prisons* (1874); *Ferns of the Pacific Slope* (1884); *Handbook of North American Cone Bearers* (1895); *Botanizing in Apache Land* (1901); *How to Tell the Trees* (1902); *Native Trees of West America* (1905); etc.

LEMNIAN EARTH, *lēm'nī-ān ērth*: mineral found in the island of Lemnos; massive, chalk-like, soft, yellowish gray, or whitish, and falling to powder in water. It consists of about 66 per cent. silica, with 14 of alumina, and a little oxide of iron, soda, and water. From very early antiquity, it had great and undeserved reputation in medicine, and being sold in little pieces, each stamped with a particular stamp, it acquired the name of *Terra Sigillata* (Sealed Earth). The stamp in ancient times, Galen says, was the head of Diana, tutelary goddess of Lemnos; but is now only the Turkish name of the mineral. The ancients had more than one legend respecting the discovery of its virtues. LEMNIAN REDDLE, *rēd'l*, ochre of a deep-red color and firm consistence, used as a pigment—found in conjunction with Lemnian earth.

LEMNISCATA, n. *lēm'nīs-kā'tā*, or LEMNIS'CATE, n. *-kāt* [L. *lemniscātus*, adorned with a pendent ribbon]: in *geom.*, a curve of the fourth order having the form of the figure 8. Its equation is $(x^2 + y^2)^2 = a^2(x^2 - y^2)$, or in polar coördinates $r^2 = a^2 \cos 2\theta$.

LEMNOS, *lēm'nos* (called also *Stalimne*): island belonging to Turkey, in the n. part of the Archipelago, about 40 m. w. of the entrance to the Dardanelles. It is irregular in shape, and nearly divided into two islands, by two deep bays—Port Paradise on the n. and Port St. Antony on the s.; 173 sq.m. The women are famed for beauty. It is hilly, rather bare of wood, and bears unmistakable traces of volcanic action at an early period, which fact probably originated the ancient myth of Vulcan lighting on this island when Jupiter hurled him from heaven. Moschylos, a volcano, no longer active,

LE MOINE—LEMON.

was believed to be the workshop and favorite residence of this deity. The principal product of Lemnos is the *Lemnian Earth* (q.v.), used in ancient times as a cure for wounds and serpent-bites, and still highly valued by both Turks and Greeks. The chief town, *Kastron* (on the site of the ancient *Myrina*), has pop. 5,000; it furnishes excellent sailors. Pop. of island about 29,000.

LE MOINE, *lě moïn'*, Sir JAMES MACPHERSON: Canadian historian: b. Quebec 1825, Jan. 24. He was educated at the Petit Seminaire and called to the bar in 1850; for many years was inspector of inland revenue for the District of Quebec. He was knighted in 1897. Among his works are: *Legendary Lore of the Lower St. Lawrence* (1862); *Maple Leaves* (6 vols. 1863-94); *L'Ornithologie de Canada* (1861); *The Fisheries of Canada* (1863); *Montcalm and the Massacre at Fort George* (1864); *Quebec: Past and Present* (1870); *The Sword of Brig.-General Montgomery* (1870); *The Tourist's Note-Book* (1870); *L'Album des Tourists* (1872); *The Scot in New France* (1876); *The Chronicles of the St. Lawrence* (1879); *Historical Notes on Quebec* (1879); *Picturesque Quebec* (1882); *Our Wild Flowers* (1885); *Canadian Heroines* (1887); *The Canadian Flowers* (1887); *Historical Notes on the Environs of Quebec* (1889); *The Birds of Quebec* (1891); *The Land We Live In* (1891); *Monographies et Esquisses; Legends of the St. Lawrence* (1898); *Annals of the Port of Quebec* (1901).

LEMON, n. *lěm'ōn* [F. and Sp. *limon*—from It. *limone*; Ar. *laymun*, a lemon]: acid fruit of a tree, *Citrus limōnum*, ord. *Aurantiacēæ*. The tree has by many botanists been regarded as a variety of the Citron (q.v.), and, like it, is a native of n. India. Its leaves are ovate or oblong, usually serrulate, pale green, with a winged stalk; the flowers are streaked and reddish on the outside; the fruit is oblong, wrinkled or furrowed, pale yellow, with generally concave oil-cysts in the rind. In the common variety, very extensively cultivated in many tropical and sub-tropical countries, the pulp of the fruit is very acid, abounding in citric acid. There is, however, a variety called the Sweet Lemon, occasionally cultivated in s. Europe, whose juice is sweet. It is *Citrus Lumia* of some botanists, and has both concave and convex oil-cysts in the rind. The acid juice of the common lemon is used in the preparation of *Lemonade*, and is administered in various forms in febrile and scorbutic complaints. It is much used by calico-printers to discharge colors, to produce greater clearness in the white part of patterns, dyed with dyes containing iron. As a preventive of sea-scurvy, it is an important article of sea-stores. Citric acid and lemon-juice are likewise made from it in great quantities. The rind of the fruit (*Lemon-peel*), separated from the pulp, and kept in a dried state, is a grateful stomachic, and is used for

LEMON—LEMON-JUICE.

flavoring. The produce of the lemon groves of Italy, the Tyrol, Spain, Portugal, s. France, and other countries bordering on the Mediterranean Sea, is largely exported to more northern regions. Sicily alone exports annually many thousands of chests, each containing 440 lemons. In recent years, lemon-culture has gained great proportions in California, with important effects on the trade from Mediterranean ports to the United States. The lemon-tree is very fruitful; it is more delicate than the orange.—The lemon is supposed to have been introduced into Europe during the Crusades. It is almost naturalized in s. Europe. It is so completely naturalized in some parts of s. Brazil, that the flesh of the cattle which pasture in the woods acquires a strong smell of lemons, from their eating fallen fruit.

LEMON, *lēm'on*, MARK: 1809, Nov. 30—1870, May 23; b. London: author. Early in life he became a successful writer for the stage; in 1841 joined a party of authors in establishing the comic weekly *Punch*; was its assistant editor two years, and its editor 1843 till his death; was for many years literary editor of the *Illustrated London News*; and assisted Charles Dickens in managing *Household Words*. He was author of more than 60 dramatic pieces, among which are *The Ladies' Club*, *The School for Tigers*, and *What Will the World Say?* and of about 100 songs, many of large though transient popularity. In 1862 he delivered a successful course of lectures on *About London*, subsequently published under the title *The Streets of London*; and the winter before his death a second series combined with dramatic readings.

LEMONADE' [Fr. *limonade*]: beverage, formed best by adding two lemons sliced, and two ounces of white sugar, to a quart of boiling water, and digesting till cold. It is useful as a refrigerant in febrile and inflammatory complaints, and hemorrhage, in which cases it should be iced.

LEMON-GRASS (*Andropogon scænanthus*): beautiful perennial grass, three or four ft. high, with panicle mostly leaning to one side. It is a native of India, Arabia, etc., and is extremely abundant in many places. It has a strong lemon-like fragrance, oppressive where the grass abounds. It is too coarse to be eaten by cattle except when young, and is therefore often burned down. Europeans in India make an agreeable stomachic and tonic tea of the fresh leaves. By distillation, an essential oil is obtained (*Lemon-grass Oil*), used externally as a stimulant in rheumatic affections; it is yellow, with a strong lemon-like smell. This oil is used in perfumery, and is often called *Oil of Verbena* by perfumers. Lemon-grass has been introduced into the W. Indies, Australia, etc. See also GRASS OIL.

LEMON-JUICE, in Medicine: somewhat opaque, very

LEMONS—LE MOYNE.

sour liquid, obtained from lemons by expression and straining. Its acidity is due to the presence of citric and a little malic acid. Its principal uses in medicine are the following: 1. As an anti-scorbutic. Its importance for this use can be fully appreciated only by those familiar with naval history. Its active principle, citric acid, is now frequently substituted for it. 2. In rheumatism.—Dr. G. O. Rees, who first employed it in this disease, 'considers the citric acid to undergo changes in the stomach, and to supply oxygen to such elements as tend to produce uric acid, and thereby to induce the formation of urea and carbonic acid instead.' 3. In the formation of effervescing draughts.—A scruple of bicarbonate of potash in solution, mixed with about three drachms and a half of lemon-juice, producing citrate of potash, forms an excellent effervescent draught; it acts as a mild diaphoretic and diuretic, tends to allay febrile disturbance, and serves to check nausea and vomiting. If the object is specially to determine to the skin, a draught composed of a scruple of sesquicarbonate of ammonia in solution, with six drachms of lemon-juice, so as to form a citrate of ammonia, is preferable. Effervescing draughts are often employed as agreeable vehicles for the exhibition of other remedies.

LEMONS, OIL OF, or ESSENCE OF: extracted from the minute cells visible on the rind of the lemon, by submitting raspings of the fruit to pressure in hair sacs. It may be obtained also by distilling the peel with water; but its flavor, obtained in this way, is less agreeable, though the oil itself is purer, owing to the absence of mucilaginous matter. The distilled oil is sold under the name *scouring-drops*, for removing grease-spots from silks and other fabrics. Pure oil of lemons is composed mainly of a hydrocarbon, *citren* or *citronyl*, $C_{10}H_{16}$, which is consequently isometric with oil of turpentine, with which it is often adulterated. It is used principally for communicating agreeable odor to other medicines, though it is sometimes taken in the dose of two or three drops on sugar as a carminative. From its agreeable scent, it is often added to evaporating lotions and to ointments.

LEMONS, SALT OF: name commonly but improperly applied by druggists to binoxalate of potash mixed with a little of the quadroxalate; employed in removing ink spots. This mixture occurs in the *Oxalis acetocella*, and hence has been designated *Salt of Sorrel*. It is liable to be poisonous in the stomach.

LE MOYNE (or LE MOINE), *lêh mwân'*, ANTOINE, Sieur de Châteauguay: 1683, July 7—1747, Mar. 21; b. Montreal: soldier. He became an officer in the French army; settled a colony in La. 1704; served against the English 1705-6; was appointed commander of French troops in La. 1717 and royal lieut. 1718; aided in captur-

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ing Pensacola from the Spaniards; surrendered it 1718 and was held prisoner till 1720; commanded at Mobile 1720-26; became gov. of Martinique 1727, Cayenne, and Cape Breton 1745; and successfully defended Louisburg against Pepperel's New England troops.—His father, CHARLES LE MOYNE, Sieur de Longueuil, 1626-1683, b. Dieppe, went to Canada 1641, settled among the Huron Indians at Villemarie, obtained extensive land-grants, distinguished himself in wars against the Iroquois 1648-51 and 55, was enobled for his services with the Tracy and Courcelles expeditions 1668, and became lieut. commander at Montreal.—Antoine's brother, CHARLES LE MOYNE, first Baron de Longueuil, 1656, Dec. 10—1729, June 8, b. Villemarie, Canada, served with the French army in Flanders, returned to Canada and was made mayor of Montreal 1683, colonized his estates, commanded a div. of militia in the Iroquois campaign, 1687, was wounded in the repulse of Sir William Phipps' assault on Quebec 1690, became gov. of Montreal and baron 1700, commandant-gen. of the colony 1711, gov. of Three Rivers 1720, and again gov. of Montreal 1724.

LE MOYNE, JACQUES, SIEUR DE SAINTE HÉLÈNE: French soldier in America: b. Villemarie, Canada, 1659, Apr. 16; d. Quebec 1690, Oct. He was a son of Charles Le Moyne (1626-85) (q.v.). In 1686, Mar., he accompanied the expedition led by the Chevalier de Troyes against the English on Hudson Bay, and in the capture of Forts Rupert, Monsipi, and Quitchitchonen, and the seizure of the English governor-general, took a prominent part. He was second in command of the expedition that captured, plundered and burned Fort Corlear (now Schenectady) 1690, Feb. 9. In October, Phipps laid siege to Quebec, and Le Moyne was selected to direct the defense. He was mortally wounded while leading about 200 troops in the repulse of 1,300 British at the passage of the St. Charles.

LE MOYNE, JEAN BAPTISTE, SIEUR DE BIENVILLE: French administrator in America: b. Villemarie, Canada, 1680, Feb. 23; d. Paris 1768. He was a son of Charles Le Moyne (1626-85) (q.v.). In 1691, upon the death of his brother, Charles, Baron de Longueuil (q.v.), he succeeded to the title; but he was known as De Bienville. In 1697 he served in the expedition of the Chevalier de Troyes against the English settlers in Hudson Bay. He afterward went with his brother, D'Iberville (see IBERVILLE) to France, and 1698, Oct. 24, sailed from Brest in the expedition led by D'Iberville to take possession of the mouth of the Mississippi. Bienville was appointed lieutenant of the king, explored the surrounding region, and in 1700 became commander of a fort on the river 44 m. above its mouth. He succeeded Sauvolle in the direction of the colony, and assumed command of the camp of Biloxi in 1701, Aug. 22. In December he transferred the settlement to Mobile, which

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prospered through the arrival of recruits from France with supplies (1703-4) and of 50 Canadians (1706). In 1708, Feb., he was ordered to France as a prisoner, but he was later reinstated. The attempt to cultivate the soil by Indian labor having been unsuccessful, he suggested to the king in 1708 the importation of negroes from the Antilles, to be exchanged for Indians at the rate of three Indians for two negroes. In 1713 Cadillac arrived as governor, and Bienville was commissioned lieutenant-governor. Bienville led an expedition to the territory of the Natchez Indians in 1716, built a fort, and concluded a treaty. In 1718 he became governor of Louisiana, in the same year founded New Orleans, which was made the seat of government in 1723, in 1724 went to France to answer charges preferred against him, but in 1733 returned as governor with lieutenant-colonel's rank. After unsuccessful campaigns against the Chickasaws in 1736, 1739, and 1740, he sailed for France in 1743.

LE MOYNÉ (or LE MOINE'), JOSEPH, Sieur de Sérigny: naval officer: 1668, July 22—1734; b. Villemarie, Canada: 6th son of the 1st Charles Le Moyne. He was educated for the French navy; commanded the squadron that coöperated with the land force under his brother, Iberville, in the Hudson Bay campaign; took a colony to La.; surveyed the coast 1718; participated in the capture of Pensacola 1719, May 14; repulsed the Spaniards at Dauphin Island, Mobile Bay, after a month's siege 1719, Aug. 19; returned to France 1720; and was promoted capt. of the line 1720, and rear-admiral and gov. of Rochefort 1723.

LE MOYNE, PAUL, SIEUR DE MARICOURT: French soldier in America: b. Villemarie, Canada, 1663, Dec. 15; d. there 1704, Mar. 21. He was a son of Charles Le Moyne (1626-85) (q.v.). He participated in Troyes' expedition against the English at Hudson Bay, was wounded in the attack on Fort Monsipi 1686, June 20, and remained with his brother D'Iberville (see IBERVILLE) in command of the captured district until 1690. In 1690 he distinguished himself in the defense of Quebec against Phipps, later took part in Frontenac's expedition against the Iroquois, and in 1701 concluded peace with them.

LE MOYNE, PAUL JOSEPH, CHEVALIER DE LONGUEUIL: French soldier in America: b. Canada 1701, Sept. 17; d. France 1778, May 12. He was the son of Charles Le Moyne (1656-1729) (q.v.). He entered the French army in 1718. He commanded at Fort Frontenac, and was also governor successively of Detroit, Three Rivers, and Quebec. He fought with distinction in various campaigns, and in 1747 marched 180 m. in the depth of a severe northern winter to reinforce de Vaudreuil at the siege of Fort George.

LE MOYNE—LEMURES.

LE MOYNE, PIERRE. See IBERVILLE, PIERRE LE MOYNE SIEUR D'.

LEMPA, *lēm'pâ*, RIVER: in San Salvador, Central America; outlet of Lake Guijar; largest river on the Central American Pacific coast. Rising in Guatemala it flows e.s.e. through a volcanic range, forming in part the boundary between San Salvador and Honduras, and emptying into the Pacific at San Maria; 210 m. in length. It has a wide and fertile valley, parts of which are liable to sudden floods by the rising of the river sometimes 35 ft. It is navigable, though a bar obstructs the mouth.

LEMPRIERE, *lēm-prēr'*, JOHN, D.D.: abt. 1760-1824, Feb. 1; b. Island of Jersey. He was educated at Westminster School and Pembroke College, Oxford. Lempriere's *Classical Dictionary* (Bibliotheca Classica, 1788) was for many years the standard work of reference in England and the United States on all matters of ancient mythology, biography, and geography. To elderly scholars the name brings memories, but the book itself was superseded a generation since. He also published: *Sermons* (1791); *Translation of Herodotus*, first volume only (1792); and *Dictionary of Universal Biography* (1808).

LEMUR, n. *lēm'ér* [L. *lēmūrēs*, ghosts of the departed, from its rapid noiseless movements]: genus of mammalia which gives its name to the family *Lemuridæ*, a family allied to monkeys, and like them, quadrumanous, having on each of the four extremities a well developed thumb opposed to the fingers, but in other respects approaching the ordinary quadrupedal type. The general form is slender and elongated, the muzzle pointed, the eyes large, the ears very small, the hind limbs longer and larger than the fore limbs. The molar teeth are furnished with pointed tubercles fitting into each other, as in *Insectivora*, and the whole dentition of many of the family is adapted to animal rather than vegetable food. All the *Lemuridæ* are natives of warm parts of the old world, and live chiefly in forests, most of them climbing trees with the agility of monkeys. They are graceful and beautiful creatures, and generally gentle and easily tamed; but they have neither the prying and mischievous dispositions, nor the intelligence of monkeys. All the species of the genus lemur, as now restricted, are natives of Madagascar. They are gregarious and their food consists partly of fruits. The names *Maki* and *Macauco* are given to some of them, and sometimes extended to all. The largest species is about the size of a large cat. —To the Lemur family belong also the Loris, Indris, Galagos, and Tarsiers.

LEMURES, n. plu. *lēm'u-rēz* [see LEMUR]: evil spirits; hobgoblins. Lemures was the general designation given by the Romans to all spirits of departed per-

LEMURIA—LENAPÉ.

sons, of whom the good were honored as Lares (see LAR), and the bad (Larvæ) were feared, as ghosts or spectres still are by the superstitious, being said to wander about during the night, seeking opportunity of inflicting injury on the living. The festival called *Lemuria*, May 9, 11, 13, was accompanied with ceremonies of washing hands, throwing black beans over the head, etc., and the pronounciation nine times of these words: 'Begone, you spectres of the house!' which deprived the lemures of their power to harm. Ovid describes the lemuria in the 5th book of his *Fasti*.

LEMURIA, *lĕ-mŭ'rĭ-a* [from L. *lemur*, spectre; scientific name for a genus of mammals common in Madagascar]: the lost continent, which figures itself in the imagination of some men of science as having existed in a remote geologic age, and as lying now beneath the Indian Ocean. While there is some geological evidence which seems to indicate some former large extent of land now submerged, the chief evidence for it is its offer of an easy solution to some perplexing ethnological problems; e.g., the Negroid races in Africa as now found are not readily accounted for—on any theory, evolutionary or otherwise, of the descent of the whole human race from one pair of progenitors—without the hypothesis of a large extent of land between the e. coast of Africa and the s. coast of Asia. If the supposed land were not continental, it may have been a chain of large islands. Such a theory as that of Lemuria cannot be either denied or affirmed with positiveness by our present knowledge. It remains an interesting hypothesis.

LENA, *lĕ'nâ*, Rus. *lā-nâ'*: important river of E. Siberia. It rises amid the mountains on the n.w. shore of Lake Baikal, in the govt. of Irkutsk; flows first n.e. to the town of Jakutsk, then n. to the Arctic Ocean, into which it passes through several mouths. Its length is 3,000 m.; its chief affluents are the Vilui on the left, and the Vitim, the Olekma, and the Aldan on the right. Navigation is open from May till November. During spring, the waters of the river regularly overflow their banks. Near the town of Jakutsk, the breadth of the river is 6½ m. Lena is the principal artery of the trade of E. Siberia. Russian and Chinese goods, as well as Siberian furs, furnished by the natives, are exported from this river. The chief harbors on the river are Olekminsk, Jakutsk, and Kachugsk.

LEN'APES. See DELAWARE INDIANS.

LENAPÉ, *lĕn'a-pā*, STONE: in *archæology*, a name given by H. C. Mercer to an inscribed gorget, upon which was incised a spirited combat between men and a mastodon; lightning intervening and aiding the men in the destruction of the beast. The stone told pictorially the legend recorded by Jefferson in his *Notes on Virginia*. Since its discovery the stone has been condemned

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by most archæologists, and not always on the same grounds, and it is probable that it will not be accepted generally as genuine until abundant corroborative evidence has been obtained. If genuine, the stone establishes two most interesting facts concerning the Indians of the Atlantic seaboard; that the mastodon or mammoth was living when these people were at the climax of their cultural development, or, if not a feature of practically our present fauna, then that the advanced Indian lived at a much more remote period than is generally supposed. The evidence now had concerning the mastodon is that it was living about 2,500 years ago, and this antedates the Indian as so advanced an occupant of this region. That man has been an occupant of our seaboard region since the Glacial Epoch is demonstrable, and his contemporaneity with so recently extinct an animal as the mastodon is certain. The principal objection that can be brought against its genuineness is that it is so far in advance of all other known specimens of Indian pictographic art.

LENBACH, FRANZ VON: German painter: b. Schrobenuhausen, Upper Bavaria, 1836, Dec. 13; d. Munich 1904, May 19. He began life as a bricklayer, but at the suggestion of Hofner, the animal painter, turned to the study of art, and became a pupil of Geyer in Augsburg. He subsequently attended the Munich Academy for a short time, and then for two years studied the technique of painting under Gräffe. From 1855 to 1857 he lived as one of the artistic coterie of Schrobenuhausen, and painted portraits, landscapes, and animals. He then attached himself to Piloty, and as the pupil of that artist accompanied him to Rome. Here he applied himself to the study of the old masters and painted his picture *The Roman Forum*, whose vivid coloring and grandeur of design made his reputation. After his return to Germany he painted several portraits, which were distinguished by a power of coloring rivaling that of the Venetian school, and a vivid characterization and chiaroscuro which recalled Rembrandt. He was for a few years teacher in the Weimar school of art, but eventually returned to Munich, and attracted the attention of Baron von Schack, who engaged him to visit Italy and Spain for the purpose of making copies of the principal paintings of Giorgione, Velasquez, Titian, Rubens, and others. The copies executed by the painter have all the individual tone and color of each original, and he developed immensely his own power and style by their production. This appears most plainly from an examination of his portraits which, original and fresh as they are, show plainly that the master had trained himself in the school of Titian, Rembrandt and Velasquez. Though his drawing is sometimes weak and incorrect, his paintings nevertheless are characterized by powerful modeling, life-like expression, and as a por-

L'ENCLOS—LENGTH.

trait painter he sees to the soul of his sitter with genial and sympathetic intuition. After his 70th year he produced an extraordinary number of pictures. He painted the Emperor William in the last year of that monarch's life; he also executed several portraits of Bismarck, and Von Moltke, whose features have become familiar to the world largely from the numerous reproductions of these inimitable pictures, now looked upon as classic examples of German art. Bismarck especially appears in these canvases in every attitude and costume, civil and military, which he assumed. Many of these portraits are in the picture galleries of Berlin. But he painted in his time every living man of eminence in Europe from Gladstone to Leo XIII. He also executed many pastel portraits as well as single ideal figures (*Sakuntala*, *Herodias*, etc.). He was a Royal Bavarian professor. A collection of heliogravure reproductions of his paintings was published at Munich in 1891.

L'ENCLOS', NINON DE. See NINON DE L'ENCLOS.

LEND, v. *lënd* [AS. *lænan*, to lend, to grant: Dut. *leenen*; Icel. *lána*, to lend: Goth. *leihvan*; Ger. *lehen*, to lend money at interest; *lehn*, to loan or lend]: to grant to another for a temporary use; to grant or furnish in general. LEND'ING, imp.: N. in *OE.*, act of one who lends; the thing lent. LENT, pt. and pp. *lënt*, did *lënd*. LEND'ER, n. *-ér*, one who lends; one who makes it his business to put out money at interest.

LENDINGS, n. plu. *lënd'ingz* [Ger. *lenden*; AS. *lëndenu*, loins]: in *OE.*, probably a garment or cloth about the loins. LENDERS, n. plu. *lënd'érsz*, same sense in Chaucer.

L'ENFANT, *lǒng-fǒng'*, PIERRE CHARLES: 1755-1825, June 14; b. France: engineer. He accompanied Lafayette to America 1777 and entered the continental army; became capt. of engineers 1778, Feb. 18; was wounded and left for dead at the siege of Savannah; promoted maj. 1783, May 2; engineer of Fort Mifflin 1794; drew the plans for the city of Washington, and was architect of several of its public buildings; and declined appointment as prof. of engineering at the U. S. Military Acad. 1812.

LENGTH, n. *lǐngth* [AS. *lengdth*, length—from *leng*, more, longer: Dut. *lengte*, length: Icel. *lengd*: see LONG]: the measure of anything from end to end; the longest line through a body; extent either of space or time; duration; extent; distance. LENGTH'WISE, ad. *-wīz*, in the direction of the length. AT LENGTH, at last; in conclusion. LENGTHEN, v. *lǐngth'n*, to make longer; to draw out; to extend; to grow longer. LENGTH'ENING, imp. *-n'ing*: ADJ. increasing in length; becoming longer: N. a continuation. LENGTHENED, pp. *lǐngth'nd*. Note.—The form *lengthy* is a needless creation, since it means no more or less than *long*.

LENIENT—LENORMANT.

LENIENT, a. *lě'nĭ-ěnt* [L. *leniens* or *lenĭen'tem*, rendering soft or gentle, moderating—from *lenis*, soft, mild; It. *leniente*, softening]: softening; mitigating; not severe; mild, as a sentence. **LE'NIENTLY**, ad. -*ĭ*. **LE'NIENCY**, n. -*ěn-sĭ*, state of being lenient; clemency. **LENITY**, n. *lě'nĭ-tĭ* [L. *lenĭtātem*, softness, mildness]: mildness of temper or treatment; clemency; gentleness. **LEN'ITIVE**, a. -*ĭ-tĭv*, having the power of softening or mitigating: N. a medicine or application which eases pain; a palliative.—**SYN.** of 'lenity'; kindness; mercy; softness; tenderness; humanity.

LENNEP, *lě'n'ěp*, **DAVID JACOB VAN**: 1774, July 15—1853, Feb. 10; b. Amsterdam; of the same family as Jan Daniel van Lennep. He was a philologist and poet, and became prof. of rhetoric at Leyden. His principal writings are *Carmina Juvenilia* (Amst. 1791), *Exercitationes Juris* (Leyd. 1796), valuable annotated editions of some of the classic authors, and a metrical Dutch translation of the *Works and Days* of Hesiod (Amst. 1823).

LEN'NEP, **JACOB VAN**: called by his countrymen, the 'Walter Scott of Holland': 1802, Mar. 25—1868, Aug. 25; b. Amsterdam; son of David Jacob van Lennep. Educated for the law, he passed as a barrister, and soon achieved great reputation. Yet more than 30 years he cultivated literature with untiring assiduity, and, considering the drudgery of his professional work, with astonishing success. Lennep appeared as an author shortly before 1830, in *Vaderlandsche Legenden* (National Legends). Since then, his most popular works have been the comedies, *Het Dorp aan die Grenzen* (The Frontier Village, 1830), *Het Dorp over die Grenzen* (The Village over the Frontier, 1830), and the novels, *Onze Voorouders* (Our Forefathers), *De Roos van Dekama* (The Rose of Dekama, 1837—English by Woodley 1847), and *De Pleegzoon* (The Adopted Son—English by Hoskins, New York 1847). Lennep, who had a remarkable knowledge of English language and literature, translated into Dutch some of Shakespeare's finest plays, and of Byron, Southey, and Tennyson's poems. A complete ed. of his dramatic works, tragedies, comedies, and operas, appeared at Amsterdam 1852-55. He was engaged several years on an edition of the great Dutch poet Vondel.

LEN'NEP, **JAN DANIEL VAN**: 1724-71; b. Leeuwarden, province of Friesland: Dutch philologist. He studied at Franeker and Leyden. In 1752, he was appointed prof. of ancient languages at Groningen, and 15 years afterward at Franeker.

LENO, n. *lě'nō* [It. *leno*, supple, pliant—from L. *lĕnis*, soft]: a kind of cotton gauze figured and bordered, used for short and long window-curtains.

LENORMANT, *lěh-nor-mōng'*, **FRANÇOIS**: French archæologist: 1837, Jan. 17—1883, Dec. 9: b. Paris. He studied under his father, and at an early age engaged in

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numismatic and archæological researches. He took the numismatic prize of the Acad. of Inscriptions 1857, and made tours in the interest of his science in Germany, Italy, Greece, Turkey, and Egypt. His letters to the Paris newspapers giving an account of the massacres of the Christians in Syria, 1860, which occurred while he was there, were republished in *Une Persécution du Christianisme en 1860; les derniers Evénements de Syria*. The same year he made excavations at Eleusis; 1874 was appointed prof. of archæology in the *Bibliothèque Nationale*; during the siege of Paris he served as volunteer on the national guard, and was wounded at Buzenval. In 1878 he attended the congress of orientalist at Florence. Besides being editor of the *Moniteur des Architectes*, 1869-72, and founding, with M. de Witte, the *Gazette Archéologique*, he has contributed largely to French and other antiquarian journals; and is author of numerous archæological and other works, among the most important being *Histoire des Peuples Orientaux et de l'Inde; Lettres Assyriologiques et Epigraphiques* (2 vols.); *Manuel d'Histoire Ancienne de l'Orient; Etudes Accadiennes; Les Premières Civilisations; La Magie chez les Assyriens*, etc. *Histoire Ancienne de l'Orient* (9th ed. Paris 1881, 3 vols.), Lenormant's greatest work, has been translated into English and published (London and Phila. 2 vols. 1869-70) as *Manual of the Ancient History of the East*. Most adapted for popular English and American use is *Beginnings of History* (N. Y. 1882, vol. i.), translated from *Les Origines de l'Histoire d'Après la Bible* (2d ed. vol. i., Paris 1880; vol. ii., 1882-84, has since appeared). His greatest critical work, and one whose value to paleography can scarcely be over-stated, is *La Propagation de l'Alphabet Phénicien dans l'Ancien Monde* (vol. i., 2d ed. Paris 1875).—Lenormant writes without bias, using entire intellectual liberty, still occupying an unmistakable attitude of Christian faith.

LENOX, *lĕn'oks*: town in Berkshire co., Mass., among the beautiful Berkshire hills; on the Housatonic river and the New York, N. H. & H. railroad, 33 m. s.e. of Albany, 110 m. w. of Boston, 125 m. n. by e. of New York. It has several churches and public schools, incorporated academy, public library, banks, and manufactures of plate-glass, iron, lumber, lime, bricks, and flour. It abounds in iron ore, limestone, and an excellent quality of marble, which has been used largely in constructing several of the public buildings in Washington. Lenox was settled 1750, incorporated 1767, and given the family name of the Duke of Richmond. The town includes the villages of Lenoxdale and New Lenox. Within the town limits are Laurel and Mahkeenac lakes, and spurs of the mountains called the Ledge, Perry Peak, Bald Head, and Mattoon Hill. Its scenery is attractive with a quiet beauty, and the town has long been popular as a

LENOX LIBRARY—LENS.

place of summer homes for families from the great cities. Pop. (1900) 2,492; (1910) 3,060.

LEN'OX LIBRARY: in New York, founded 1870 by James Lenox (1800, Aug. 19—1880, Feb. 17, son of Robert Lenox, a wealthy Scotch merchant); it was opened 1877. The founder graduated at Columbia College, was admitted to the bar, and became his father's partner. On the death of the father (1839) the son inherited an estate of 30 acres between 4th and 5th avenues, and several millions of dollars. He then withdrew from business, and passed the remainder of his life in collecting rare books and manuscripts, paintings, statuary, and works of art. In 1870 he deeded his collections, valued at \$1,000,000, to trustees for the benefit of the public, and erected for their preservation a building on 5th avenue, between 70th and 71st sts., which also was deeded to trustees. The building cost \$450,000, and the ground was worth as much more, making the total value of the gift nearly \$2,000,000. A surviving sister bequeathed the library 22 adjoining building lots and \$100,000 for books. There are four large reading rooms and spacious separate galleries for paintings and sculptures. In 1893 there were about 86,000 bound volumes in the library; in 1895 the Lenox library was incorporated with the Astor and Tilden foundations to form the N. Y. public library (q.v.), since which time no separate reports have appeared. The library is now especially rich in Americana and after the consolidation books on that subject have been transferred to it from the Astor library. On the completion of the new library building on 42nd street and 5th avenue the books from the Lenox library will be transferred to it.

LENS, n. *lěnz*, **LENSES**, n. plu. *lěnz'ěz* [L. *lens*, a lentil: It. *lente*, a lentil, a lens—so called from the resemblance of its shape to the seed]: in optical instruments, a piece of glass of a convex, concave, or other shape, for changing the direction of rays of light, and

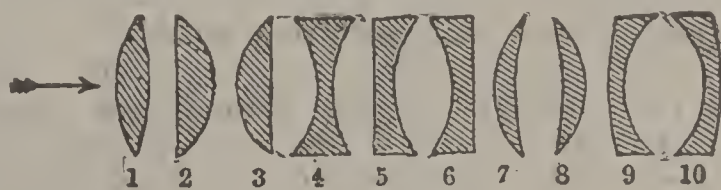


Fig. 1.—Lenses.

1, double-convex: if the surfaces are of equal curvature, equi-convex; 2, plano-convex; 3, convexo-plane; 4, double-concave, or concavo-concave; 5, plano-concave; 6, concavo-plane; 7, convex-meniscus; 8, concave-meniscus; 9, convexo-concave; 10, concavo-convex. The arrow shows the direction in which the light is supposed to fall

thus apparently magnifying or diminishing objects. **CRYSTALLINE LENS**, see **CRYSTAL**.—A *lens* is a circular section of any transparent substance, having its surfaces either both spherical, or one of them plane and the other spherical. As represented in fig. 1, a ray of

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light in passing through a lens is bent toward its thickest part; hence lenses are either convex (thickest in middle) or concave (thickest at edges). The former make the rays more Convergent (see CONVERGING) than before, the latter make them more Divergent. The point to which the rays converge, or from which they diverge, is called the focus—principal focus when the rays are parallel. The focus for a convex lens is real, i.e., the rays actually pass through it, and form an inverted image smaller or larger than the object according as the object is at a distance greater or less than twice the principal focal length; but the image is erect and magnified if the object be within the principal focal length. For a concave lens the focus is virtual—the rays seem to come from it and form an erect image smaller than the object.

The following is the mode of finding the principal focus when parallel rays fall on a double convex lens (fig. 2): O is the centre of the curved surface PAP' , and O' of the surface PBP' ; q is the point toward which the rays tend while passing through the lens, and F the point to which they converge after emergence. Let $OA = r$, $O'B = s$, $Aq = f'$, and BF (the focal length) $= f$: then neglecting the thickness of the lens, which may be done when the curvature of the lens is small, $Aq = Bq$, and $AF = BF$. By the demonstration given under the ar-

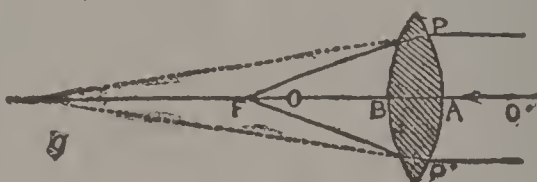


Fig. 2.

ticle DIOPTRIC, we find $f' = \frac{\mu}{\mu-1} r$, for the refraction

at the first surface; and, for the second surface, we find, in the ordinary treatises on Optics, that when a pencil

of converging rays emerges from a lens, $\frac{\mu}{f'} = \frac{\mu-1}{s} - \frac{1}{f}$.

Adding this formula to the former, we obtain $0 =$

$(\mu-1) \left(\frac{1}{r} + \frac{1}{s} \right) - \frac{1}{f}$, or $\frac{1}{f} = (\mu-1) \left\{ \frac{1}{r} + \frac{1}{s} \right\}$; and if

the lens be equi-convex ($r = s$), and of glass ($\mu = \frac{3}{2}$), we

have $\frac{1}{f} = \frac{1}{r}$, or $f = r$. This result is equally correct for a

double concave lens; but if the thickness of the lens be taken into account, there is a small quantity which is

additive to the value of $\frac{1}{f}$ in the convex, but subtractive

in the concave lens. The determination of the principal

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focus in the other forms of lenses will be found in the ordinary text-books. The lenses in fig. 1, though they may be of the same focal length, have peculiar properties which render them suitable for particular optical instruments; thus, the convexo-plane lens has only one-fourth of the aberration of a plano-convex, or two-thirds of an equi-convex or equi-concave of the same focal length; but, in general, the equi-convex is the most desirable form. Aberration* has been to opticians what refraction is to the astronomer, an unwelcome intruder, which spoils his finest theories, and limits the accuracy of his results. This aberration has, indeed, been destroyed by combining lenses of equal and opposite aberrations, as, for instance, uniting, by means of Canada balsam, a double convex with a double concave. A still better method would be the formation of lenses having one side spherical, and the other of an ellipsoidal or a hyperboloidal form; but this has not yet been successfully accomplished. Convex lenses of glass, rock-salt, ice, etc., may be used as 'burning-glasses,' since radiant heat is refracted according to the same laws as light—the hot focus being nearly coincident with the luminous one. Platinum, gold, etc., have been fused in three or four seconds by this means.

The following are the principal kinds of lenses:

Achromatic lens.—In its simplest form is a combination of a converging crown glass lens and a diverging flint glass lens so proportioned that the chromatic aberration is corrected for two colors. These lenses are generally combined by a thin transparent cement which makes them together appear as one lens. They are also made up of three, four or five lenses.

Aplanatic lens.—A lens or a lens system which is free from spherical aberration.

Achromatic lens.—An achromatic lens in which the chromatic aberration is corrected for three colors and the spherical aberration is also very perfectly corrected.

Bi-focal lens.—A double focus spectacle lens first introduced by Benjamin Franklin, and now commonly made by adding to or inserting a segment in the lower half of the lens.

Bull's-eye lens.—A plano convex lens of relatively short focus used for illuminating purposes.

Cataract lens.—A short focus convex lens to aid vision after the removal of the crystalline of the eye for cataract.

Coddington lens.—Originally the central portion of a glass sphere, but is now generally made a single lens of considerable thickness with convex surfaces, with a circular groove to cut out the marginal rays.

* The directions which have been given for finding the foci of lenses, apply only to rays which pass through and near the centre of the lens; the rays which pass near the edges converge to a different focus, and the distance between these two foci is called the longitudinal aberration.

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Collective lens.—In a microscope or telescope eyepiece the large lens nearest the objective.

Compound lens (A trade term).—A lens in which combinations of plano, spherical, cylindrical or toric surfaces are made, sometimes to the extent of obtaining a prismatic effect.

Condensing lens.—A convex lens or a system of lenses for concentrating light to a point or on a surface.

Coquille lens (Trade term).—A piece of colored glass of uniform thickness and having concentric spherical surfaces.

Crossed lens.—Either a double convex or double concave lens with the radii of curvature in the proportion of 1 to 6, and giving the minimum amount of spherical aberration.

Crystalline lens.—The double convex lens in the eye situated behind the iris and aiding to form the image on the retina.

Demonstration lenses.—A series of lenses of pronounced curvatures to illustrate the various types of lenses.

Doublet lens.—A combination of two single lenses.

Eye-lens.—The lens nearest the eye in eyepieces (oculars) used for microscopes and telescopes.

Eyeglass lens.—A spectacle lens used to aid vision. As a single lens it is held in position by muscular contraction. The eyeglass with lenses for both eyes is generally accepted to mean the form which is held in position by clamping the nose (French, pince-nez).

Finder lens.—A lens or a combination of lenses attached to a camera to locate an object in the field of view.

Fluid lens.—A lens produced by filling the space formed by two surfaces of transparent media with a suitable media.

Fresnel lens.—A lens formed of a central plano convex or toric convex lens bounded by ring-shaped prisms and lenticular prisms, used to project the rays from a lamp, as in a lighthouse or signal light.

Immersion lens.—A microscope objective of high power, the front lens of which is connected by fluid to the cover glass of an object, thus giving increased angular aperture.

Magnifying lens (Magnifier).—A lens or a combination of lenses used to increase the apparent size of an object, usually mounted in convenient form for the pocket.

Pebble lens (Trade term).—A spectacle lens made of rock crystal, which is harder than glass.

Photographic lens (also photographic objective).—A lens or a combination of lenses designed for photographic purposes. It is made in a great variety of types, the simplest being the single achromatic convex meniscus lens. The form in most common use is composed of two

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separated achromatic menisci, with their concave surfaces toward one another (symmetrical, rectilinear, aplanat). The portrait lens is another type having great light-gathering power, and is composed of two separated achromatic lenses, one cemented and the other uncemented (Petzval type). The most modern photographic lens is the anastigmat, invented by P. Rudolph, which is free from astigmatism, a fault present in all earlier types. The new varieties of optical glass made in Jena were first successfully employed in these lenses, by means of which greater perfection in other directions was also attained.

Spectacle lens.—A lens used to correct vision and when two are combined by a bridge which rests on the nose and provided with bows which clasp the temples, is now generally termed spectacle.

LENT, n. *lěnt* [AS. *lencten*, the spring, Lent: Dut. *lente*; Ger. *lenz*, spring]: the fast of 40 days before Easter; beginning at Ash-Wednesday and extending through the Saturday which ushers in the Easter Day. LENTEN, a. *lěnt'ěn*, pertaining to Lent; sparing.—*Lent* is observed in the Roman, and in the Greek, and other Oriental churches. It is certainly of very ancient institution, though the New Testament contains no reference to it. The earliest allusions to a fast preparatory to Easter are by Irenæus and Tertullian, who speak of such a fast as then established, though with no intimation of its beginning much before Good Friday. Irenæus, writing to Victor, Bp. of Rome, says: 'Some think they ought to fast for one day, others for two days, and others even for several, while others reckon 40 hours both of day and night to their day' (Eusebius, *Hist. Ecclesia*, v. 24). Gregory the Great (pope 590-604) speaks of the fast as of 36 days' duration, i.e., six weeks, not counting in the six Sundays. It is not known by whom, or when, the four preceding days were added, beginning with Ash-Wednesday. The 40 days' period, now held as commemorative of our Lord's 40 days' fast, or of the similar perfunctory fasts of Moses and of Elias, commences with Ash-Wednesday, between which day and Easter-Sunday (omitting the Sundays on which the fast is not observed), 40 clear days intervene. The rigor of the ancient observance, which excluded all flesh, and even the so-called 'white meats,' is now much relaxed; but the principle of permitting but one meal, with a slight refection or collation, is retained, though the practice of even this is not strict. In Spain, during the Crusades and the wars with the Moors, a practice arose of permitting, in certain cases, the substitution of a contribution to the holy war for the observance of the Lenten abstinence; and though the object has long since ceased, the composition is still permitted, under the same title of the *Cruzada*. In the Greek Church, the ante-paschal fast is of 48 days; but it is only one of four similar fasting periods observed in

LENTANDO—LENTIL.

that church. (See FAST.) In the Anglican Church, and in the Prot. Episc. Church in the United States, Lent is retained as a church season of the calendar, with special services, and proper collects and prayers; but the observance of the fast in the strict sense is left to the discretion of each individual. In most of the European Prot. churches the Lenten season is observed, especially in the Lutheran Church; also by the Lutherans in the United States; but with other non-prelatical churches in this country a formal observance of Lent is very rare, and has till recently been almost unknown.

LENTANDO, *lěn-tân'dō*, in *Music*: same as *rallentando* or *ritardando*, indicating a gradual decrease in the speed of the movement. See LENTO.

LENTIBULARIACEÆ, *lěn-tīb-ū-lār-ī-ā'sē-ē*: natural order of exogenous plants, allied to *Primulaceæ*, but distinguished by irregular corolla, and diandrous flowers. It has also intimate relations with *Scrophulariaceæ*. It contains nearly 200 known species, all herbaceous, and all living in water or marshes. They abound chiefly in the tropics. Bladderwort (q.v.) and Butterwort (q.v.) are among the few extra-tropical species.

LENTICEL, n. *lěn'tī-sĕl*, LEN'TICEL'LA, n. plu. *-sĕllā*, or LEN'TICELS, n. plu. *-sĕlz* [L. *lentīc'ŭla*, a little lentil, a lentil shape—from *lens*, a lentil]: small lens-shaped spots on the bark of many plants, from which roots issue under circumstances favorable to their development. LENTICULAR, a. *lěn-tīk'ŭ-lēr*, resembling a lens; in the form of a double convex lens. LENTIC'ULARLY, ad. *-lī*. LEN'TIFORM, a. *-tī-fawrm* [L. *forma*, shape]: of the form of a double convex lens.

LENTIGO, n. *lěn-tī'gō* [L. *lentigo*, a lentil-shaped spot—from *lens*, a lentil]: a freckly eruption on the skin. LENTIG'INOUS, a. *-tīj'ī-nūs*, or LENTIG'INOSE, a. *-ī-nōs*, freckly; scurfy; in *bot.*, carved with numerous dots, as if dusted.

LENTIL, n. *lěn'tīl* [F. *lentille*—from L. *lentīc'ŭla*, a little lentil—from *lens*, a lentil], (*Ervum lens*): annual plant of the bean kind; an annual of the same genus with Tares (q.v.), ord. *Leguminosæ*; native of countries near the Mediterranean, and cultivated from the earliest times, yielding an esteemed kind of pulse. The English translation of the Bible is probably correct in calling the *red pottage* with which Jacob purchased Esau's birth-right, *pottage of lentils*; the red color being very characteristic of this, which is still a very common article of food in the East. The lentil is extensively cultivated in s. Europe, Egypt, and the East, and to some extent in other parts of the world. It has a weak and branching stem, 6—18 inches high, and pinnate leaves with 6—8 pairs of leaflets, the upper leaves only running into tendrils. The flowers are small, white, lilac, or pale blue, the corolla much concealed by the calyx, which is divided

LENTISK—LENTULUS.

almost to its base into five narrow teeth. The pods are very short and blunt, thin, two-seeded, and smooth; the seeds have the form of a double-convex lens. There are numerous varieties, having white, brown, and black seeds, which also differ considerably in size, the greatest diameter of the largest being about equal to that of moderate-sized pease. Lentils are very nutritive food, containing an uncommonly large amount of nitrogenous substances, and more easily digested than pease. The husk of the seed, however, is indigestible; and for proper cooking, lentils require at least two and a half hours. They have recently become common in the shops of Britain and other western countries, in a form resembling *split pease*, and in that of meal (*L. farina*), which is the basis, if not the whole substance, of *Revalenta Arabica* and *Ervalenta*, so much advertised as food for dyspeptic patients, at prices greatly exceeding those for which lentil meal can be obtained under its own name. Lentils mixed with pease in the making of pea-soup, greatly diminish its tendency to produce flatulence. The bad reputation which lentils have had as producing flatulence and indigestion, and even symptoms of poisoning, may be attributed to the substitution of the outwardly similar bitter vetch or tare lentil, whose seeds are undoubtedly deleterious. Lentils are excellent food also for horses; and the herbage, used as green food for cows, increases the production of milk. The lentil grows best in a light and rather dry soil. In a very rich soil it produces comparatively few pods. Some of the varieties thrive even on very poor soils. The whole life of the plant is shorter than that of any other of the *Leguminosæ* ordinarily cultivated in more western lands. A moist climate seems to prevent its successful cultivation—the ripe or ripening seeds being very apt to be injured by moisture. There is no evident reason, however, why this plant should not be cultivated for green food for cattle.

LENTISK, n. *lěn'tisk* [*L. lentis'cus*—from *lentus*, sticky: *F. lentisque*]: a tree or shrub from which the resinous exudation called mastic is obtained; the *Ris-tācĕa lentis'cus*, ord. *Anacardĭacĕæ*.

LENTO, ad. *lěn'tō* [*L. lentus*, adhesive, slow: *It. lento*], also LENTAMENTE: in *music*, slowly; smoothly: according to the best authorities, the movement denoted by *Lento* is quicker than *Adagio*, or between it and *Andante*. LENTANDO, see above. LEN'TOR, n. *-tōr*, tenacity; thickness of fluids; slowness—applied to the blood. LEN'TOUS, a. *-tūs*, viscous; tenacious.

LENTULUS, EPISTLE OF: pretended letter of Publius Lentulus, 'President of the people of Jerusalem' (there was no such office), to the Roman senate; giving a pleasing description of the personal appearance of the Lord Jesus; found first in a MS. copy of the works of Anselm from the 12th c. It is certainly not earlier than

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the 4th c., probably not earlier than the 11th. There are varying MS. copies of it in European libraries. For several centuries this letter was greatly prized, and is still deemed genuine by some Rom. Catholics. Dr. Edward Robinson, after thorough investigation, gives the following statement: 'In favor of its authenticity we have only the purport of the inscription. There is no external evidence whatever. Against its authenticity we have the great discrepancies and contradictions of the inscription; the fact that no such official person as Lentulus existed at the time and place specified, nor for many years before and after; the utter silence of history in respect to the existence of such a letter; the foreign and later idioms of its style; the contradiction between the contents of the epistle and established historical facts; and the probability of its having been produced at some time not earlier than the 11th century.'—See CHRIST, PICTURES OF.

LENZ'S LAW. The electro-motive forces set up by electro-magnetic induction are always in such a direction as to oppose the movement by which they are produced.

LEO, n. *lě'ō* [L. *leō* or *leōnem*, a lion]: the lion, the fifth sign of the zodiac. **LEONINE**, a. *lě'ō-nīn*, of or like the lion. **LE'ONINELY**, ad. *-lī*. **LE'ONINE**, or **LE'ONI'NA**, n. *-nī'nā*, a rare variety of agate of a pale-yellow color, variegated with white, black, and green, and bearing some resemblance to a lion's skin. **LEONINE CITY**, ROME.

LEO, *lě'ō*, I., **THE GREAT (SAINT)**: Pope of Rome: one of the most eminent of the Latin Fathers: b. of a distinguished Etrurian family at Rome about the end of the 4th c., d. 461 (pope 440-461). Of his early life, little is known. On the death of Sixtus III., Leo was chosen his successor. It is in his pontificate that the regular series of papal letters and decretals may be said to commence. Leo's letters, addressed to all parts of the church, evince prodigious activity and zeal, and are used by Roman controversialists as evidence of the extent of jurisdiction of the Roman see. In a council at Rome 449, he set aside the proceedings of the council of Ephesus, which had pronounced in favor of Eutyches (q.v.), summoned a new council at Chalcedon, in which his legates presided, and in which Leo's celebrated 'Dogmatical Letter' was accepted 'as the voice of Peter,' and adopted as the authentic exposition of the orthodox doctrine on the person of Christ. For the history of Leo's interposition with Attila in defense of the Roman city and people, see **ATTILA**; and his subsequent similar interposition with Genseric, less dramatic in the incidents with which history or legend has invested it, was at least so far successful as to save the lives of the citizens, and the public and private buildings of the city of Rome. Leo died at Rome. His works, the most important of which are his Letters and Sermons, were printed first in 1479; afterward by Quesnel (2 vols. Paris, 1675); but a

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much more complete and trustworthy edition is that of Cacciari (3 vols. fol. Rome 1753-55), and of the Brothers Ballerini (Venice 1757).

LEO II. (SAINT): b. Sicily; d. 683. He succeeded Agatho in 682. He confirmed the decrees of the sixth general council and was instrumental in raising the grade of church music and improving the Gregorian Chant. He was succeeded by Benedict III.

LEO III. (SAINT): Pope of Rome: b. Rome, d. 816, May 25 (pope 795-816). His pontificate, covering the last 18 years of the reign of Charlemagne, was the epoch of the formal establishment of the Empire of the West. He was elected pope on the death of Adrian I. During the greater part of the 8th c., the popes, through the practical withdrawal of the eastern emperors, had exercised a temporal supremacy in Rome, which was fully recognized by the gift of Pepin, and placed under the protectorate of the Frank sovereigns, who received the title of Patrician. The pontificate of Leo, however, was a troubled one, and 799 he was treated with much violence, and compelled to flee to Spoleto, whence he afterward repaired to Paderborn, to hold a conference with Charlemagne. On his return to Rome, he was received with much honor by the Romans, and the chiefs of the conspiracy against him were sentenced to banishment. In the following year (800), Charlemagne, having come to Rome, was solemnly crowned and saluted emperor by the pope; and the temporal sovereignty of the pope over the Roman city and state, under, however, the suzerainty of the emperor, was formally established. In 804, Leo visited Charlemagne at his court at Aix-la-Chapelle. With Charlemagne's successor, Louis le Débonnaire, Leo was embroiled in a dispute about the right of sovereign jurisdiction in Rome, which had not been brought to a conclusion when Leo died.

LEO IV. (SAINT): b. Rome; d. 855, July 7. He succeeded Sergius II. in 847. The Saracens having invaded the Ecclesiastical States, he marched against them and obtained a complete victory; after which he built the Leonine wall encircling the Vatican quarter, restored the town of Porta, colonizing it with Corsicans, and founded the town of Leopolis, now deserted, some 12 miles from Civita Vecchia.

LEO V.: d. 903, Dec. 6. He was a Benedictine monk who, in 903, succeeded Benedict IV., but was imprisoned by his chaplain Christopher, and died soon after.

LEO VI.: d. 929, Feb. 3. He succeeded John X., 929, July 6, and is said to have been put to death by Marozia.

LEO VII.: d. 939. He succeeded John XI., son of Marozia. He successfully negotiated a peace between Hugo, King of Italy, and Alberic, Duke of Rome, the son of the celebrated Marozia, and is reported to have

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been an irreproachable man and zealous ecclesiastic. His successor was Stephen VIII.

LEO VIII.: d. 965. He was intruded in the pontificate on the pretended deposition of John XII., in 963, under the patronage of Otho I., but on Otho's withdrawal John re-entered Rome, and drove away Leo. John's death occurring soon after, Benedict V. was chosen pope. The Emperor Otho subsequently took Rome, and after the banishment of Benedict again intruded Leo, who shortly after died.

LEO IX. (SAINT BRUNO): b. Alsace 1002, June 21; d. Rome 1054, April 19. He was cousin to Emperor Conrad the Salic, and became bishop of Toul at 22. At the Diet of Worms, in 1048, he was elected to succeed Damasus II. as Pope. He applied himself to the reform of discipline in the Church, holding several councils against simony and concubinage. In 1058 he opposed the Normans in Italy, but was taken prisoner by their leader, Robert Guiscard, at the battle of Civitella, and confined at Benevento ten months. Falling ill, he was allowed to return to Rome. Consult Hunkler, *Leo der Neunte und seine Zeit* (1851).

LEO X. (GIOVANNI DE' MEDICI): 1475, Dec. 11—1521, Dec. 1 (pope 1513-21); b. Florence; second son of the celebrated Lorenzo de' Medici, 'the Magnificent.' From his cradle he was intended for the ecclesiastical career. His education was intrusted to the ablest scholars of the age; and through the influence of his father with the pope, Innocent VIII., he was created cardinal 1488 at the unprecedented age of 13 years. In the expulsion of the Medici from Florence after the death of Lorenzo, the young cardinal was included, and he used the opportunity for foreign travel. He was employed as legate by Julius II.; and during the war with the French, he was taken prisoner in the battle of Ravenna, but soon made his escape. On the death of Julius II., Cardinal de' Medici was chosen pope at the early age of 37, under the name Leo X. His first appointment of the two great scholars Bembo and Sadoleto as his secretaries was a pledge of the favor toward learning which was characteristic of his pontificate; but he did not neglect the more material interests of the church and the Roman see. He brought to successful conclusion the fifth council of the Lateran (see COUNCIL), and the schism which was threatened by the rival council of Pisa. He concluded a concordat with Francis I. of France, which continued to regulate the French church till the Revolution. In the political relations of the Roman see, he consolidated, and, in some degree, extended the re-conquests of his warlike predecessor, Julius II., though he also used his position and his influence for the aggrandizement of his family. His desertion of the alliance of Francis I. for that of his younger rival, Charles V., though the subject

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of much criticism, was dictated by a sound consideration of the interests of Italy. But it is most of all as a patron of learning and art that the reputation of Leo has lived with posterity. Himself a scholar, he loved learning for its own sake; and his court was the meeting-point of the scholars of Italy and the world. He founded a Greek college in Rome, and established a Greek press, which he endowed munificently (see LASCARIS). In the encouragement of art he was no less munificent. Painting, sculpture, architecture, were equally favored; and it is to his vast project for the rebuilding of St. Peter's and to the step to which he had recourse for procuring the necessary funds—his permitting the preaching of an indulgence, one of the conditions of obtaining which was the contribution to this work on St. Peter's—that the first rise of the Reformation in Germany is ascribed. Leo himself seems to have regarded the reforming movement as of little importance, describing it as 'a squabble among the friars'; and though he condemned the propositions of Luther, and issued a commission to inquire into his doctrines, his measures, on the whole, were not marked by much severity. His patronage of fine art removed the reproach of indifference to culture which from the beginning had been urged against the church. His personal habits were in keeping with his tastes—splendid and munificent in the highest degree; but in his moral conduct he maintained strict propriety, and his character, though not free from the stain of nepotism, the vice of that age, and more modelled on the ideal of an enlightened prince than on that of a zealous and ascetic churchman, was beyond imputation of unworthiness or irregularity. His death, which occurred rather suddenly, during the public rejoicings in Rome for the taking of Milan, was by some ascribed to poison; but there seems no reason for the suspicion. It was doubtless the result of his long exposure at the open window of a chamber in his villa in the country, to the chill and malarious night air in November. See Roscoe's *Life and Pontificate of Leo X.* (1805); Creighton, *History of the Papacy During the Period of the Reformation*, Vols. III.-V. (1882-94); Niti, *Leone X. e la sua politica* (1892); Conforti, *Leo X. ed. il suo secolo* (1896).

LEO XI. (ALLESSANDRO OTTAVIANO DE' MEDICI): b. Florence 1535; d. 1605, April 21. He was consecrated Bishop of Pistoria 1573, became Archbishop of Florence in 1574 and entered the college of cardinals. In 1605, April 1, he became pope. He survived only 26 days after his election.

LEO XII. (ANNIBALE DELLA GENGA): b. near Spoleto 1535; d. 1829, Feb. 10. He entered the priesthood in 1783, was made titular archbishop of Tyre ten years later, and became a cardinal in 1816. In 1823 he succeeded Pius VII. He was a strong opponent of secret

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societies, such as the Freemasons and the Carbonari. Consult Artand de Montor, *Histoire du Pape Leon XII.* (1843).

LE'O XIII. (JOACHIM VINCENT RAPHAEL LODOVICO PECCI): Pope and head of the Roman Catholic Church (1878-1903): b. of old patrician family at Carpineto, a village in central Italy, 1810, Mar. 2; d. Rome, 1903, July 20. He studied at the Collegio Romano, graduated in law and theology, and, becoming a favorite with Pope Gregory XVI., was named by him a prelate of the household. As delegate successively at Benevento, Spoleto, and Perugia, he showed great energy in the government of these provinces, and was especially vigorous and successful in suppressing brigandage. Though but 33 years of age, he was 1843 made Abp. of Dalmatia, and sent to Brussels as papal nuncio. In 1846 Gregory selected Pecci for the dignity of cardinal, but his friendly views in favor of the young abp. were frustrated by death, and it was not till 1853 that Gregory's successor, Pius IX., saw fit to confer the cardinal's hat. Cardinal Pecci was no favorite of the all-powerful Cardinal Antonelli, and was accordingly not prominent in papal councils; but 1877 he was made Camerlengo (papal Finance Minister), and at the death of Pius IX., was chosen his successor. After his accession he refused to accept the income regularly voted him by the Italian parliament, confined his movements to the Vatican palace and grounds secured to him by the government, and issued numerous encyclicals demanding a restoration of the temporal power and sovereignty. In Italy he latterly exhibited a disposition to recede somewhat from his extremist position; restored the privilege of the priesthood to take part in political meetings and exercise the franchise; and evinced some desire for a reconciliation with the state based on a restricted sovereignty over the portion of Rome on which the Vatican palace and St. Peter's Church stand, with the part of territory extending as far as Civita Vecchia, which would permit the reception of embassies on papal territory. In Germany he has brought the 'culturkampf' to a fairly successful issue, so that the administration of Rom. Catholic Church affairs is far more satisfactory to the government and to the papacy than for many years. In France he made terms with the government after the proscription acts 1879-80, and 1883 (see FERRY, JULES FRANÇOIS CAMILLE), which secured conditional toleration for the clergy. In Ireland he condemned 'boycotting' and the 'plan of campaign,' but otherwise left the management of affairs in the hands of the local church authorities. In the abbey of Grottaferrata, near Rome, which had become completely Latinized, he ordered the readoption of the Oriental rite for public worship, and the restoration of the old basilica to its former style of architecture. The importance of this step as a movement toward reconciliation will be understood when it is



POPE LEO XIII.

LEO—LEOMINSTER.

known that there are numerous communities in Italy and Sicily who worship in Greek according to the Greek rite, and yet are united to Rome. He also issued encyclicals strongly condemning socialism, nihilism, and communism.

1887, Dec. 31, Leo celebrated the golden jubilee of his priesthood, and received \$6,700,000 in Peter's Pence, and gifts worth nearly \$20,000,000 from all parts of the world. On the occasion of his episcopal jubilee, golden anniversary (1893, Feb. 19), vast numbers flocked to Rome from all countries. The Pontifical jubilee of his Holiness (1902, Mar. 3), was inaugurated by a solemn service; and 1903, Mar. 3, he celebrated the silver anniversary of his coronation as the successor of St. Peter. Personally, Leo was a shrewd business man and an astute politician, benevolent, approachable, hard-working, and a model of simplicity.

LEO III., FLAVIUS (surnamed 'the Isaurian,' from his birthplace), Emperor of Constantinople: abt. 680-741, June 18 (reigned 718-741). He was, like most of the eastern emperors, first a soldier in the imperial army, and soon rose to eminence through his military talents. Anastasius II. appointed him to guard the Asiatic portion of the empire from the ravages of the Arabs, but on the deposition of the emperor by Theodosius III., Leo overthrew the usurper, and assumed the crown. He was scarcely seated on the imperial throne, when the Caliph Suleiman laid siege to Constantinople by land and sea: this, the third siege of the capital by the Arabs, lasted two years, but was finally raised through the energy of Leo. The governors of several provinces had meantime rebelled, and it cost Leo several years of petty warfare before peace was restored to the empire. Leo then issued an edict condemning the worship of images in the Cath. churches throughout the empire. The edict produced a most startling effect; rebellions broke out in all quarters, and Ravenna, Rome, and the other Greek possessions in Italy were finally severed from the empire. Leo, enraged at his losses, determined to take revenge on their author, the pope, and accordingly removed Greece, Illyria, and Macedonia from his spiritual jurisdiction, subjecting them to the Patriarch of Constantinople, thus creating a permanent breach between the Latin and Greek churches (734). During the remainder of his reign, little of importance occurred, excepting an indecisive war with the Arabs, and a great earthquake (740, Oct.), which caused dreadful calamities throughout the empire.

LEOMINSTER, *lēm'in-stér*: town in Worcester co., Mass., on the Nashua river and the N. Y., N. H. & H., and the Boston & M. railroads, 4 m. s.e. of Fitchburg, 18 m. n. of Worcester, 54 m. w.n.w. of Boston. It is lighted with gas and electricity; has a system of water-works that cost \$150,000; contains a town hall, numerous churches, high school, graded grammar schools, public

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library, banks and newspaper; and manufactures woolen and linen goods, furniture, leather-board, cements, brick, jewelry, combs, paper, toys, pianos, children's carriages, and tanned leather. The proximity of Leominster to the Wachusett Mountain makes it a summer resort. Pop. (1900) 12,392; (1910) 17,580.

LEON, *lā-ōn'*: city in the state of Guanajuato, Mexico; on the right bank of the Rio Torbio and on the Mexican Central r.r.; 180 m. n.w. of Mexico City; 6,000 ft. above sea-level. It is beautifully laid out and substantially built; contains a large and handsomely ornamented public square; old palace of the governor, several churches and convents, hospital, Latin and primary schools, and commodious business houses. There are large manufactures of cotton and woolen goods, leather and saddlery; and extensive commerce with the thriving cities in the plain of Guanajuato. There are abundant iron-mines and remarkably rich agricultural lands near it. Leon was founded 1576, was made a city 1836, and became a commercial emporium 1855. Since then railroad communications have greatly extended, and its growth and prosperity have been rapid. Pop. 48,000.

LEON, *lā-ōn'*: city of Nicaragua, near the n.w. extremity of the lake Leon, about 10 m. from the Pacific Ocean, finely situated in a most picturesque district. It is laid out on a regular plan, in spacious streets, with intervening squares. The public buildings are considered among the finest in Central America, and include a large and massive cathedral, crowned by a lofty central dome, and flanked by two towers. Other buildings are the old Episcopal palace (built 1678), surrounded by fine gardens; the new Episcopal palace (1873), the churches of La Merced, Recoleccion, and Calvario, remarkable for their size and fine façades, and various other churches; the Tridentine College of St. Ramon, once a flourishing establishment, with professorships of law and medicine, and numerous students, but now possessed only of a nominal existence; the government-house, Cuartel General or head barracks, and the hospital, occupying the old convent of San Juan de Dios. The manufactures of Leon are confined chiefly to articles in dressed leather and cutlery; and the trade, owing to its inland situation, does little more than supply its local wants, but the railway between Leon and Corinto on the coast has somewhat improved it. The markets display fruits and vegetables in great variety and almost boundless profusion. Pop. (1900) 32,000.

LEON': formerly a kingdom, subsequently a province of Spain, now subdivided into the provinces of Salamanca, Zamora, and Leon; in the n.w. of Spain, s. of Asturias, and bordering on Portugal: about 15,000 sq.m. Pop. (1900) 386,083. The country is intersected by the Douro, mountainous, generally fertile, but miserably

LEON—LEONARD.

cultivated. It affords pasturage to vast flocks of merino sheep. The inhabitants are mostly uneducated and lazy, but are very high-spirited, rich in peculiar customs, of pure Spanish descent, sincere, hospitable, and brave. It is said that in the high districts s. of Salamanca, remnants of the pure Gothic tribes exist; and at Astorga, remnants of the old Celtiberi—the *Maragatos*. The means of communication are everywhere very defective. The Kingdom of Leon was erected, 746, by Alfonso the Catholic out of the provinces that he had wrested from the Saracens, and the older kingdom of Asturias; and 1230 it was permanently united to Castile.

LEON' (*Legio septima gemina* of the Romans): capital of the former Spanish province of Leon; between the rivers Bernesga and Torio, in a beautifully wooded plain, 85 m. n.w. of Valladolid. Part of the old Roman wall, 20 ft. thick, is standing. The streets are crooked and dirty, but the churches are numerous and splendid, especially the cathedral, a specimen of the purest Gothic, containing the tombs of many sovereigns of Leon, saints, and martyrs. The trade of Leon is now unimportant. Pop. 17,000.

LEON', PONCE DE. See PONCE DE LEON.

LEONARD, *lěn'erd*, ABIEL: American Protestant Episcopal bishop; b. Fayette, Mo., 1848, June 26; d. Salt Lake 1903, Dec. 23. He was graduated at Dartmouth College in 1870, and at the General Theological Seminary, New York city, in 1873. Entering the ministry of the Protestant Episcopal Church, he served in Missouri and Kansas until 1888, when he was consecrated bishop of Salt Lake.

LEONARD, DANIEL: American jurist: b. Norton, Mass., 1740, May 29; d. London, England, 1829, June 27. He was graduated from Harvard in 1760 and after studying law became a Whig member of the General Court. Disapproving of the extreme measures of the Whigs, his sympathies were with the Loyalists, and his papers, signed *Massachusettensis* and published in a Boston newspaper in 1774-5, were replied to by John Adams over the signature *Novanglus*. Leonard's articles ably defended the position of the English government, and they constituted the strongest statement of that position put forth in the colonies. In 1776 he went with the English army to Halifax, N. S., and was among those named in the banishment act of 1778, while his property was confiscated by the act of 1779. He went to England from Halifax and was subsequently for many years chief justice of the supreme court of Bermuda. In 1819 John Adams published the *Novanglus and Massachusettensis*, with a preface. Consult Tyler, *Literary History of the American Revolution*.

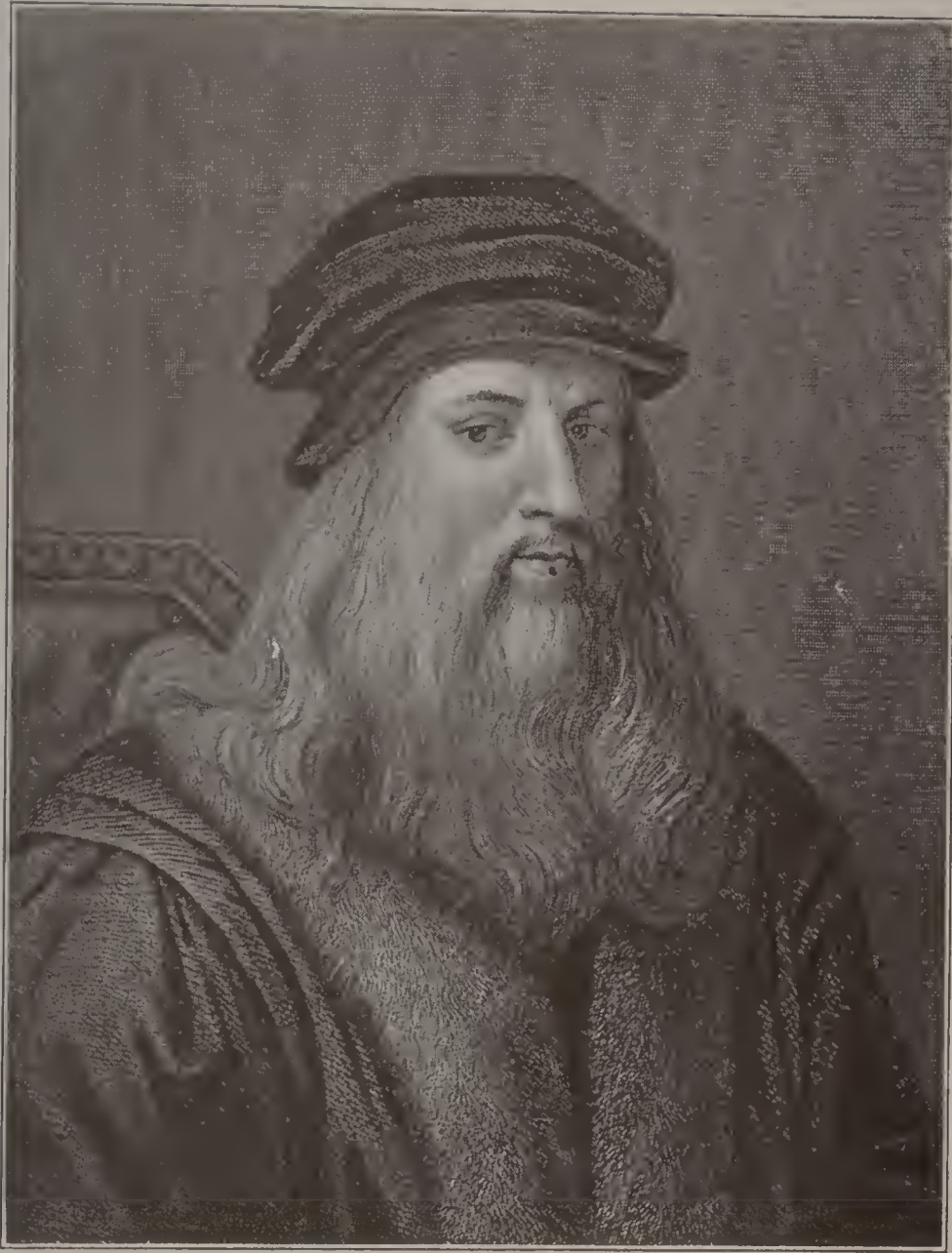
LEONARD, JAMES FRANCIS: American telegrapher: b. Kentucky 1804; d. 1862. He was practically the

LEONARD—LEONARDO DA VINCI.

earliest telegrapher to read messages by sound, and for his time was the swiftest telegraph operator in the world. In the summer of 1848 he began to receive messages by sound, and soon afterward received and wrote out 55 words a minute for Professor Morse, as a test of the invention. He is buried in Frankfort, Ky., where his grave is marked by a monument erected by telegraphers.

LEONARD, WILLIAM ANDREW, D.D.: American Protestant Episcopal bishop: b. Southport, Conn., 1848, July 15. He was educated at Phillips Academy, Andover, Mass., and St. Stephen's College, Annandale, N. Y., and was graduated at the Berkeley Divinity School, Middletown, Conn. In 1873 he was ordained a priest; became assistant at Holy Trinity Church, Brooklyn, N. Y., rector of the Church of the Redeemer there, then rector of Saint John's Church, Washington, D. C., and was chaplain of the 23d regiment of the National Guard of New York and of the Ohio Society in that city. He is now bishop of Ohio, having been consecrated 1889, Oct. 12. His writings include *Via Sacra, or Footprints of Christ; History of the Christian Church; New York Church Club Lectures; A Faithful Life; Witness of the American Church to Christianity* (Bedell Lectures, 1894); etc.

LEONARDO DA VINCI, *lā-o-nār'do dā vīn'chē*: 1452-1519, May 2; b. Vinci, in the Val d'Arno, near Florence: one of the most illustrious names in history; whose works in painting are classed with those of Raphael and Michael Angelo, and who was also sculptor, architect, engineer, inventor, anatomist, botanist, mathematician, astronomer, poet, musician. He was born out of wedlock, of a peasant mother. His father, Pietro da Vinci, notary to the signiory of Florence, acknowledged him from the first, and brought him up in his own house with care, placing him in good time with Andrea Verrocchio, an able sculptor, and a good painter; but in painting, his pupil soon surpassed him. In 1483 Leonardo went to Milan, and the Duke Lodovico il Moro conferred on him an annual pension of 500 dollars. Besides performing various services for the duke, particularly as an engineer, he instituted an Academy of Arts 1482, of which he was named director, and which influenced most beneficially the Lombard school of painting. It was in 1497, when 45 years of age, that he executed his famous picture, *The Last Supper*, painted in oil on the wall in the refectory of the Dominican convent of Santa-Maria-delle-Gracie. He remained in Milan till 1500, when, on its occupation by the French, he returned to Florence, and 1502 was appointed architect and chief engineer to Cesare Borgia, captain-general of the pope's army. In 1503, he was employed by Soderini Gonfaloniere of Florence to paint one end of the council-hall of the Palazzo Vecchio. For this, Leonardo completed only the celebrated cartoon called the *Battle of the Standard*; another cartoon for a



LEONARDO DA VINCI.

LEONIDAS.

painting in the same apartment—the equally celebrated design called the *Cartoon of Pisa*—having been executed at the same time by Michael Angelo. He returned to Milan 1506. In 1513, he visited Rome in the train of Giuliano de' Medici, who went there to assist at the coronation of his brother, Leo X.; and 1515, accompanied Francis I. to Bologna, where he signed the concordat with Leo X. On the pressing invitation of Francis, he accompanied that monarch to France, 1516, with his pupils, Salai and Melzi. During his whole stay in France his health was not good, and he executed no paintings there, being occupied chiefly in engineering. His death occurred at Amboise. The genius of Leonardo was universal. As a painter, he imparted to his works certain qualities of the highest kind, for his drawing evinces very great delicacy and elevation of style, not modelled on the antique, but formed on a profound knowledge of nature; and in his treatment of light and shadow, he infused a degree of power, combined with softness, into his productions that invests them with peculiar charm. The influence of his style has operated powerfully on the schools of Milan and Parma. Leonardo's Treatise on Painting, *Trattato della Pittura*, has been published in several languages: the principal ed. Paris, folio, by Du Fresne, illustrated with drawings by Nicolas Poussin: best ed. as regards the text, Rome 1817. Mr. Hallam says, in *Introduction to the Literature of Europe*: 'Leonardo's greatest literary distinction is derived from those short fragments of his unpublished writings that appeared not many years since, and which, according, at least, to our common estimate of the age in which he lived, are more like revelations of physical truths vouchsafed to a single mind, than the superstructure of its reasoning upon any established basis. The discoveries which made Galileo and Kepler and Maestlin and Maurolicus and Castelli, and other names illustrious, the system of Copernicus, the very theories of recent geologists, are anticipated by Da Vinci, within the compass of a few pages, not, perhaps, in the most precise language, or on the most conclusive reasoning, but so as to strike us with something like the awe of preternatural knowledge. These writings were published by Venturi (Paris 1797), entitled: *Essai sur les Ouvrages Physico-Mathématiques de Léonard da Vinci, avec des Fragmens tirés des Manuscrits apportés de l'Italie*. The MSS. were afterward returned to Milan. See *Leonardo da Vinci and His Works, with Life*, by Mrs. C. Heaton (London 1874).

LEONIDAS, *lē-ōn'ī-das*, I., King of Sparta (reigned B.C. 481-480): d. B.C. 480; son of Anaxandrides. He succeeded his half-brother, Cleomenes I. When the Persian monarch Xerxes approached with an immense army, Leonidas opposed him at the narrow pass of Thermopylæ with a force of 300 Spartans, and more than 5,000 auxiliaries. The Persians attempted in vain to win over

LEONINE VERSES—LEONOWENS.

Leonidas by the promise of making him ruler of the whole of Greece; and when Xerxes sent a herald calling the Greeks to lay down their arms, the Spartan answered: 'Let him come and take them.' When the Persians, through the treachery of one Ephialtes, had been enabled to turn the pass so that their progress could be barred no longer, Leonidas dismissed all his army except the 300 Spartan citizens, 700 Thespians, and some Thebans. Then he and his little band threw themselves on the swarming myriads, and found a heroic death. The Spartans and Thespians all died on the field; the Thebans, who had been suspected of treachery, laid down their arms. The story that Leonidas at Thermopylæ had but 300 men is baseless.

LEONINE VERS'ES, *lē'o-nīn*: hexameter and pentameter verses, common in the middle ages, which rhymed at the middle and end; named after Leoninus, canon of the church of St. Victor, in Paris, about the middle of the 12th c., or, as others say, after Pope Leo II., a lover and improver of music. Traces of this kind of versification appear here and there in the Roman poets, especially in Ovid, in some of whose Epistles, indeed, they occur on an average once in every eight lines. Camden gives some curious specimens from Walter de Mapes, Michael, the Cornish poet, and Dan Elingham, a monk of Linton. The story of the Jew who, having fallen into a refuse-pit on Saturday, would not be helped out, because it was *his* Sabbath, while the Christian, who offered him assistance, refused to do so *next* day, because it was *his*, has been thrown into Leonine verse as follows:

Tende manus *Salomon*, ego te de stercore tollam;
Sabbata nostra *colo*, de stercore surgere *nolo*.
Sabbata nostra *quidem* Salomon celebrabis *ibidem*.

Leonine verse is not uncommon in English poetry, e.g.:

Arethusa *arose* from her couch of *snows*
In the Acroceraunian mountains,
From peak and from *crag*, with many a *jag*,
Shepherding her bright fountains.

LEONISTS, n. *lē'on-īsts*, or LEONISTÆ, n. *lē-on-īs'tē*: in. *chh. hist.* name given to the Waldenses (q.v.), from Leon, the German name of the city of Lyons, where they originated, and from which they called themselves the 'Poor of Lyons.'

LEONOWENS, ANNA HARRIETTE (CRAWFORD): educator: b. Caernarvon, Wales, 1834, Nov. 5: daughter of Thomas Maxwell Crawford, British officer killed in India. She married Thomas Leonowens, also of the British army, and after his death in India resided some time in Singapore. In 1863 she went to Bangkok as governess to the family of the late first king of Siam, who had learned English from American missionaries; and she was instructor to the royal children and private secretary to the king in his foreign correspondence till 1867, when she resigned and removed to New York. She had a spe-

LEONTOPOLIS—LEOPARD.

cial care for the present king, who, on succeeding to the throne 1868, showed the influence of western enlightenment by abolishing slavery in his kingdom. In New York, Mrs. Leonowens established a school to train teachers in the kindergarten system, wrote for the magazines, and published *The English Governess at the Court of Siam* (1870); *The Romance of the Harem* (1872); and *Life and Travels in India* (1884).

LEONTOPOLIS: city in Egypt where Onias IV. built a temple after the model of the temple of Jerusalem, although not wholly similar, and where sacrifices were offered in traditional fashion. As to its erection, two motives are assigned: either because the sanctuary at Jerusalem was desecrated under Antiochus IV., who precipitated the Maccabean struggle; or because the large number of Jews in Egypt necessitated its construction. It is of interest to note that Isaiah (xix:19) was interpreted as predicting the erection of a Jewish temple in Egypt. The temple of Onias lasted, according to Josephus, 343 years—doubtless it was feared that it might become a centre of rebellion. For the general reader, Josephus and Graetz's *History of the Jews* gives sufficient information.

LEOPARD, n. *lěp'ârd* [F. *léopard*—from mid. L. *leopardus*; Gr. *leopardos*, a leopard, a supposed beast engendered between the *lion* and the *panther*—from L. *lěō*, a lion; *pardus*, a panther]: a large beast of prey, having a beautiful spotted skin. LEOPARD-STONE, a variety of compact felspar, spotted with oxide of iron and manganese. LEOPARD'S-BANE, the mountain-tobacco, a plant containing an acrid stimulant, used in medicine; the *Arnica montana*, ord. *Compos'itæ*, sub.-ord. *Corymbif'ëræ*; also the genus *Doron'icūm*, ord. *Compos'itæ*.

LEOP'ARD (*Felis leopardus*): one of the larger *Felidæ* (q.v.), now generally supposed identical with the panther (*F. pardus*), although by some they are regarded as varieties, and others still suppose them distinct species. Great confusion has prevailed in the nomenclature; the *panther* and the *pardalis* of the ancients are not certainly known; the jaguar was erroneously described as the panther by Buffon; the puma is often called panther in America; the leopard is known by the name of tiger in Africa; and as Sir J. E. Tennent tells us, it is by mistake often called cheetah in Ceylon. Supposing the leopard and panther to be one species, it may be described as characterized by a peculiar gracefulness, slenderness, and flexibility of form, with a very long tail, and spotted fur, the spots being arranged in numerous rows along the sides, and each spot composed of five or six small spots arranged in a circle or rosette. The general color is yellowish; the lower parts lighter; the spots darker than the general color of the fur. The leopard is extremely agile, and has in great perfection the power of

LEOPARD—LEOPARDI.

leaping and that of climbing trees. It haunts wooded places, and is seldom found in open regions of long grass, like the tiger. When pursued, it takes refuge, if possible, in a tree, and if hard pressed, springs down on its assailants. It is cunning, and adopts devices similar to those of the fox for carrying on its depredations, and concealing its place of retreat. Deer and antelopes are its habitual prey; but it is equally ready to feed on pigs, poultry, or whatever may be found in the vicinity of a farm or village. The size and strength of the leopard render it as dangerous to man as any of the *Felidæ*; but it generally seems to dread and flee from man, unless assailed. It is very capable of domestication.

LEOPARD, in Heraldry: appropriated to the armorial ensigns of abbots and abbesses, for the reason (assigned by some heralds) that the leopard is the issue of the pard and lioness, and that such hybrids are unproductive. However, the representations of leopards, at least in English heraldry, are so exactly like those of the lion passant gardant, that it has been made a question whether there is any difference; and, further, whether the three animals in the royal escutcheon of England were lions or leopards. In early times we find them blazoned in both ways, and the true solution seems to be, that it was customary to draw a lion in the attitude since called rampant, and a leopard as passant gardant. When coats of armor were multiplied, it became necessary to difference them by varying the position of the animals depicted; and the lion was naturally supposed to be rampant and in profile, the leopard passant gardant. When the conventional animal that might stand for either was passant and in profile, he was designed a *lion-leopardé*; and when rampant gardant, he was a *leopard-lionné*. The lion was at first borne singly, and his natural attitude was considered to be rampant; but when a second and third lion were added, the lions became, for convenience, lions-leopardé or passant, as in the seal of King John; a further change of position to passant gardant made them heraldically leopards; and it was not till the middle of the 15th c. that the lions of England regained their original name.

In English heraldry, the leopard's head or face is occasionally borne: if no part of the neck is shown, the proper blazon is a leopard's face; if a portion of the neck is drawn, it is a leopard's head erased or coupé, according as it is cut off evenly or with a jagged edge.

LEOPARDI, *lā-o-pār'dē*, GIACOMO, Count: modern poet and classical scholar of Italy: 1798, June 29—1837, June 15; b. Recanati, a town in the march of Ancona. Without the aid of instructors, Leopardi, at the age of 17, had attained to a marvellous classical scholarship. Latin and Greek he mastered as his mother-tongue, and composed some of his philological criticisms at the age

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of 19, when he was elected member of the Academy of Science at Viterbo. Shortly afterward he departed from his secluded home for Rome, where he won the friendship of several celebrated men, among others, of Niebuhr, who was deputed to offer him the chair of Greek philosophy in the Univ. of Berlin, which he declined. Ill-health, acting on the temperament characteristic of genius, seems to have cast a gloom over his spirit, which deeply tinged his impressions of men and things. On his return from Rome to his native place, his health grew seriously impaired, from the ardor with which he pursued his varied studies. He finally took up his abode in Florence, where he published his admired *Canzoni* and other works, amid a conflict with failing health, straitened finances, and deep despondency. In this bitter crisis of his life, he formed a warm friendship with the historian Antonio Ranieri; and by the delicate and incessant cares of Ranieri and his sister, the shattered, suffering poet was shielded to the hour of his death. From this period, a sensible softening of spirit became manifest in his writings; it seemed as if the poet had learned to value and cling to life and friends only when summoned to relinquish both. He died in his friend's arms at Naples, at the age of 39. The works of Leopardi are more or less the reflex of his morbid, desponding mind. They are remarkable for originality, vigor, and elegance of style. Their tone is unwaveringly subjective; their philosophy is unmitigated pessimism, therefore valueless through its lack of balance. The thoughts, which need the excuse of invalidism, are conveyed in a style which as a literary medium is well-nigh perfect. His collected works were published 1849, by Le Monnier, at Florence, under the title *Versi e Prose di Giacomo Leopardi*. His Italian love-sonnets are full of fire and grace; and his ingenious imitations of the antique form of composition, written in Greek and Latin, were so perfect as to be mistaken by many for genuine long-lost gems of classical literature.

LE'OPOL. See LEMBERG.

LEOPOLD, *lě'o-pōld*, I., GEORGE CHRISTIAN FREDERICK: King of the Belgians: 1790, Dec. 16—1865, Dec. (reigned 1831-65); son of Francis, Duke of Saxe-Coburg-Saalfeld, and uncle of Queen Victoria of England. He received an excellent literary and scientific education. The marriage of his sister Juliana with the Grand Duke Constantine having closely allied the House of Saxe-Coburg with the imperial family of Russia, he became a general in the Russian army; but the menaces of Napoleon compelled him, 1810, to resign his commission. He afterward again joined the Russian army, and was in the battles of Lützen, Bautzen, Leipzig, and Kulm. Having visited England after the peace of 1815, he won the affections of Princess Charlotte, heiress of the throne, and was naturalized by act of parliament 1816, and received an annual pension of £50,000. The marriage took place 1816

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May 2; but the princess died in childbed 1817, Nov. 5, and her child did not survive. Prince Leopold then lived in complete retirement, sometimes in London, sometimes at his seat of Claremont. He received 1830, Feb., the offer of the crown of Greece, and at first favorably entertained the proposal, but afterward rejected it, because of the dissatisfaction of the Greeks with the arrangements determined on by the Great Powers. In 1831, June, he was elected, by a national congress, king of the Belgians, and July 21 his inauguration took place at Brussels. In 1832 he married Princess Louise, daughter of Louis Philippe, King of the French: she died 1850, Oct., leaving three children, the Crown Prince Leopold, Duke of Brabant, another son, and a daughter. Leopold was a very prudent and firm constitutional monarch. He was succeeded by his son Leopold II.

LE'OPOLD II.: King of the Belgians: b. Brussels, 1835, Apr. 9 (succeeded to the throne 1865): son of Leopold I. and of Queen Louise, daughter of King Louis Philippe of France. He married Marie Henriette, daughter of Archduke Joseph of Austria, 1853, Aug. 22; made a lengthened tour through Europe, Egypt, and Asia Minor with his wife 1855; was prominent in important discussions in the Belgian senate, especially in that relating to the establishment of a maritime service between Antwerp and the Levant; and succeeded his father 1865, Dec. 10. He took a large interest in the Brussels African International Assoc.; induced Henry M. Stanley (q.v.) to undertake an expedition to develop the great basin of the Congo river under the auspices of the assoc.; and contributed \$250,000 per annum from his private means toward the enterprise. Stanley began this work 1879 and completed it 1884 by establishing trading stations along the Congo from its mouth to Stanley Pool (1,400 m.) and founding the Congo Free State, of which Leopold became undisputed sovereign 1885.

LEOPOLD I.: emperor of Germany: b. Vienna, 1640, June 9; d. there 1705, May 5. He was the fourth son of the emperor Ferdinand III. of the house of Hapsburg, and of Maria Anna of Spain, and was educated for the church, when the death of his brothers made him heir to the throne of his father. Previous to the death of the latter in 1657, Leopold had been crowned king of Hungary; still mainly in Turkish hands. The war with the Turks having been renewed in 1660, Montecuculi won the battle of St. Gothard on the Raab 1664, Aug. 1, which was followed, however, by a peace which the Hungarian partisans of the emperor regarded as ignominious. In 1678 occurred the great insurrection under Tökölyi, and in 1683 the Turkish invasion of Austria under Kara Mustapha. Leopold fled from Vienna, but John Sobieski's great victory saved his capital and thrones. Buda was retaken after a memorable siege in 1686, and the

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victories at Zalánkemén (1691) and Zenta (1697) led to the peace of Carlovitz (1699), which also secured the possession of Transylvania. But neither the wholesale executions of Hungarian patriots at Eperies, nor the acquiescence of the diet of Presburg in the proposition to make the male line of the Hapsburgs hereditary in Hungary (1687), could make peace permanent in that long distracted country; and Leopold, who also had to wage three protracted wars against Louis XIV. In the German empire the long reign of Leopold witnessed the growing power of the house of Brandenburg under Frederick William, the great elector, whose son assumed the royal title under the name of Frederick I. in 1701.

LEOPOLD II.: emperor of Germany: b. Vienna 1747, May 5; d. there 1792, March 1. He was the third son of the emperor Francis I., and succeeded him in 1765 on the throne of Tuscany. The death of his brother Joseph II. in 1790 called him to the greater cares of the vast Austrian dominions and soon after of the German empire. He hastened to make terms with Frederick William II. at Reichenbach 1790, July 27, was unanimously elected German emperor, pacified Hungary by taking the royal oath to observe strictly the constitution and by various concessions, proclaimed a full amnesty and restored all their ancient privileges to the Belgians, gave Tuscany to his son Ferdinand, concluded a peace with Turkey at Sistova 1791, Aug. 4, concerted with Frederick William, Frederick Augustus of Saxony, and others, at Rilmütz, preliminary measures for meeting the aggressions of the French revolution, and finally made a formal defensive and offensive alliance with Prussia (1792, February). Of his 16 children his eldest son Francis succeeded him on the throne.

LEPANTO, *lē-păn'tō* or *lā-pân'tō* (anc. *Naupactus*), now called by the Greeks ΕΠΑΚΤΟ, *ē-pāk'tō* or *ā-pāk'tō*: chief town of the eparchy of the same name, province of Ætolia-Acarmania, Greece; on the n. side of the Gulf of Lepanto, 25 m. e. of Missolonghi. The town, ill built, and of miserable appearance, is the seat of an abp., and has an excellent port. In the middle ages, it was given by the Greek emperors of the East to the Venetians, who fortified it so strongly, that 1477, it stood a siege of four months by 30,000 Turks, and was taken only in 1499 by Bajazet II., at the head of 150,000 men. Pop. of Lepanto 2,600. See LEPANTO, BATTLE OF.

LEPAN'TO, BATTLE OF: naval engagement in the Gulf of Lepanto (q.v.) 1571, Oct. 7; between Spain, Malta, Venice, Genoa, and the Papal States as allies, and the whole Turkish naval force. Don John of Austria (see JOHN OF AUSTRIA) commanded the Christian fleet composed of 208 galleys, besides a number of smaller vessels, carrying more than 20,000 Spanish, German, and Italian soldiers. This armada sailed from Messina 1571,

LEPANTO—LEPIDODENDRON.

Sep. 16, and Oct. 7 they reached the Gulf of Lepanto, where they found the Turkish fleet of somewhat superior force. The right of the Christians was under Doria, the Genoese admiral, the left under Barbarigo, the Venetian, and the centre under Don John in person. The centre of the Turks was under Ali Pasha, the commander-in-chief, the right under Sirocco, and the left under Ulutch Ali, dey of Algiers. The fight began at noon and lasted more than four hours. The Turkish forces were utterly defeated, not more than 40 of their ships escaping—about one-third of the whole number being burnt or sunk, and the remainder (except 400) captured. About 35,000 Turks were killed or captured, and 15,000 Christian galley-slaves were liberated. Ali Pasha was killed. The Christians' loss was 1,000 Romans, 2,000 Spaniards, and 4,600 Venetians. Cervantes, afterward author of *Don Quixote*, fought among the Spaniards as a common soldier, and had one hand crippled for life. This defeat was so great a blow to the Turks that thenceforward their power steadily declined. It was one of the decisive historic struggles of the world, and inspired exultant joy throughout Christendom, and corresponding fear in the realms of Islam; but jealousy among the allies prevented its due results from being immediately secured.

LEPAN'TO, GULF OF (also Gulf of Corinth): n. of the Isthmus of Corinth, n.e. of Morea, and s. of mainland of Greece; about 75 m. long from e. to w.; average width about 13 m. At two places the width is considerably more than 13 m., viz., where Salona Bay extends n. 8 m., and the Gulf of Corinth stretches s.e. Formerly it included the Gulf of Patras on the w., and was called the Gulf of Corinth. The Little Dardanelles, as the Straits of Lepanto are often called, connect the Gulfs of Lepanto and Patras, also the former with the Mediterranean. The gulf is surrounded by high mountains, and its coastline is very irregular, giving it the appearance of an inland lake.

LEPER, n. *lěp'ér* [Gr. and L. *lepra*, leprosy—from Gr. *lepros*, rough, scaly: It. *lepra*; F. *lèpre*, leprosy]: one affected with leprosy. LEPROSY, n. *lěp'rō-sì*, a disease of the skin characterized by the formation of whitish opaque scales. LEPROUS, a. *-rūs*, affected with leprosy; covered with white scales. LEP'ROUSNESS, n. *-nēs*, state of being leprous. LEPRA, n. *lěp'rā*, in *med.*, a skin disease, recognized in its simple state by circular patches, covered with small shining scales encircled by a dry red border.

LEPIDODENDRON, n. *lěp'ĩ-dō-děn'drōn* [Gr. *lepis* or *lepīda*, a scale; *dendron*, a tree]: in *geol.*, genus of fossil plants, so called from the scale-like arrangement of the leaf-scars on their stems; abundant in the Coal-measures. Some species were of small size, but the greater number

LEPIDOGANOID—LEPIDOPTER.

were large trees, 40 or 50 ft. long, and more than 4 ft. in diameter. They taper upward, and branch generally in a dichotomous manner. The surface is either covered with narrow, sharp-pointed, scale-like leaves, or marked with lozenge-shaped spaces—the scars of the fallen leaves—arranged in a spiral manner. The leaves which are found separated from, but associated with the trunks, have been placed in a provisional genus under the name *Lepidophyllum*. The fruits are elongated, cylindrical bodies, composed of a conical axis, around which a great quantity of scales are compactly imbricated.

Brogniart and J. D. Hooker consider that *Lepidodendra* are gigantic Lycopods. Their modern representatives would thus be a class of small, generally creeping, moss-like plants, the largest not more than three or four ft. high. In their form and in the structure of their fruit, they certainly approach them more nearly than any other living plants; Lindley, however, sees in the Coniferæ, and especially in the Norfolk Island pines, the closest resemblances to this ancient class of plants.

LEPIDOGANOID, n. *lěp'ĩ-dō-gǎn'oyd* [Gr. *lepis* or *lepĩda*, a scale; *ganos*, splendor; *eidōs*, appearance]: in *geol.*, a sub-order of the ganoid or enamel-scaled fishes.

LEPIDOIDS, n. *lěp'ĩ-doydz* [Gr. *lepis* or *lepĩda*, a scale; *eidōs*, resemblance]: in *geol.*, a family of ganoid fishes characterized by their strong, rhomboidal, bony scales.

LEPIDOLITE, n. *lě-pĩd'ō-līt* [Gr. *lepis* or *lepĩda*, a scale; *lithos*, a stone]: an important member of the mica group of minerals, as it is now one of the chief sources of the lithia salts so valuable in medicine. Its name, derived from the Greek, *lepis*, a scale, alludes to its usual occurrence in fine, scaly-granular masses. It rarely occurs in distinct, monoclinic crystals. It has a pearly lustre and a gray, lilac, or peach-blossom pink color. It occurs in small quantities in many parts of Europe and Asia, but by far the most important locality is in San Diego county, California, where it is now extensively mined. It is also found in Maine and Massachusetts and has been mined near Haddam, Connecticut. It is very frequently associated with pink and green gem tourmalines.

LEPIDOMELANE, n. *lěp'ĩ-dōm'ě-lān* [Gr. *lepis* or *lepĩda*, a scale; *melan*, black]: a rare variety of mica of a raven-black color, found in granitic veins in small six-sided tables, or an aggregation of minute opaque scales.

LEPIDOPHYLLUM, n. *lěp'ĩ-dō-fĩ'lŭm* [Gr. *lepis* or *lepĩda*, a scale; *phullon*, a leaf]: in *geol.*, small lanceolate leaves of the *lepidodendron* (q.v.), occurring abundantly in the shales of the Coal-measures.

LEPIDOPTER, n. *lěp'ĩ-dōp-tér*, LEP'IDOP'TERA, n. plu. *-tér-ǎ* [Gr. *lepis* or *lepĩda*, a scale; *pteron*, a wing]: the

LEPIDOSIREN.

butterfly or moth kind, whose wings are covered with minute feathery-looking scales. LEP'IDOP'TERAL, a. -tér-ál, or LEP'IDOP'TEROUS, a. -tér-ūs, pertaining to the butterfly kind.—*Lepidoptera* is an order of insects, undergoing complete metamorphosis, having in their perfect state the mouth exclusively adapted for sucking, and further characterized by four membranous wings covered with minute, closely set scales. The order contains a vast number of species, abounding chiefly in warm climates; but the species of temperate regions are very numerous. The lepidoptera were divided by Linnaeus into three great sections—*Diurna*, *Crepuscularia*, and *Nocturna*, so named because almost all those of the first section are seen on wing during the day only, those of the second more generally during the twilight, and those of the third are nocturnal; their popular designations respectively being BUTTERFLIES, HAWK-MOTHS, and MOTHS (see these titles). Among the lepidoptera are many of the largest and most beautiful insects, with colors exquisitely varied and brilliant; there are also many—particularly among the moths—of small size and sober hue, but not one of them can be denied the praise of beauty. The difference between the larvæ and the perfect insects in food, structure, and habits, is very wonderful. For the larvæ see CATERPILLAR; for the purpæ, see CHRYSALIS. The perfect insect feeds only on the nectareous juices of plants. The principal organs of the mouth are the *maxillæ*, the mandibles and labrum being reduced to mere rudiments; and the maxillæ appear in the form of two long slender filaments, which combine to form a proboscis or trunk, spirally rolled up when not in use. This trunk is capable of great variety of movement, and is of extremely delicate structure.—The scales of the wings are of very various forms, but with general similarity. (See BUTTERFLY.) The wings, generally large, are not folded when at rest. The three segments of the thorax are much united. The abdomen has neither sting nor ovipositor. None of the lepidoptera form *societies*, though great numbers are often found together. SILK is obtained from the cocoons of various species of moths. See SILK-WORM.

LEPIDOSIREN, n. lěp'ĩ-dō-sĩ'rěn [Gr. *lepis* or *lepida*, a scale; *seiren*, a siren], (*Protopterus*): eel-shaped animal covered with rounded scales, inhabiting lakes in Africa which are liable to be dried up during the dry season—the most highly organized fish. It belongs to the *Dipnoi*, an order of fishes which present affinities to the Amphibia on the one hand, and to the Ganoids on the other: there are two living genera of *Dipnoi*—*Lepidosiren* and *Ceratodus*; the former genus contains two species—*L. annectens* found in the rivers of tropical Africa, and *L. paradoxa*, from S. America; there is but one species of *Ceratodus*, *C. Forsteri*; it inhabits Australia. As might be expected from the distribution of the

LEPIDOSTEUS—LEPIDUS.

living forms, this order of fishes is, geologically speaking, extremely ancient; e.g., in the old red sandstone the genera *Dipterus* and *Ctenodus* are found; and Traquair has shown that *Holodus* and *Palædaphus*, from the same formation, must be classed with the Dipnoi. *Ceratodus* is known to have existed during the Triassic period, but no fossil remains of lepidosiren have been hitherto discovered.

The skeleton is mainly cartilaginous; the notochord is persistent, as in many ganoids; the cranium is entirely cartilaginous, with the exception of the exoccipitals, but is protected by membrane bones. The respiratory apparatus consists of external (absent in *Ceratodus*) and internal gills, and the air-bladder, which in this order of fishes is modified to serve as a lung; it is sacculated within, and draws its blood supply from the two posterior aortic arches, which thus become, as in the higher types of vertebrata, true pulmonary arteries. In *Ceratodus* the single air-bladder is supplied with blood from the celiac artery as in most fishes; the *ductus pneumaticus* connects the air-bladder or lung with the œsophagus. The air-bladder thus having become a lung, both *Lepidosiren* and *Ceratodus* are enabled to sustain a torpid existence during the dry season in the mud, in which they form for themselves a kind of nest, so that specimens of *L. annectens* have sometimes been brought from Africa among the roots of plants. The heart has two auricles and a muscular conus arteriosus with longitudinal valves, resembling therefore the heart of the Amphibia; in *Ceratodus* there is but one auricle, and the valves of the conus arteriosus are like those of Ganoids; the longitudinal are also present, though rudimentary. The intestine has a spiral valve as in Ganoids and Elasmobranchs.

LEPIDOSTEUS, n. *lěp'ĩ-dōs'tě-ūs* [Gr. *lepis* or *lepĩda*, a scale; *os'těōn*, a bone]: the bony-pike, a genus of ganoid fishes, remarkable for their hard bony scales.

LEPIDOSTROBUS, n. *lěp'ĩ-dōs'trō-būs* [Gr. *lepis* or *lepĩda*, a scale; *strobĩlōs*, a fir-cone]; fossil cones or fruit of the lepidodendron, occurring abundantly throughout the Carboniferous formation.

LEPIDOTE, a. *lěp'ĩ-dōt*, or LEPIDOTED, a. *lěp'ĩ-dō-těd* [Gr. *lepĩdōtōs*, covered with scales—from *lepis*, a scale]: in bot., covered with scales or scurf. LEPIDOTUS, n. *lěp'ĩ-dō'tūs*, a fossil ganoid fish found in lias rocks.

LEPIDUS. *lěp'ĩ-dūs*: illustrious Roman family of the ancient Æmilian gens. It makes its first appearance in history about the beginning of the 3d c. B.C.; and was long one of the most distinguished in the patrician order, reckoning among its members many who had held the greatest dignities in the state. It disappears about the close of the 1st c. after Christ.—MARCUS ÆMILIUS LEPIDUS (d. B.C. 13), when war broke out (B.C. 49) between Cæsar and Pompey, declared for Cæsar. During his own

LEPIS—LEPROSY.

absence in Spain, Cæsar made Lepidus Dictator of Rome, and his colleague in the consulate (B.C. 46). Lepidus afterward supported Antony, and became one of the triumvirate with Octavianus and Antony; but his weakness of character, and lack of military talents and of statesmanship, made him of inferior importance to the other two, who assigned him Africa as his province (B.C. 40-39). After the defeat of Sextus Pompeius, he thought to have maintained himself in Sicily against Octavian, but his soldiers deserted him, and went over to his rival, who, however, allowed him to retain his wealth and the dignity of pontifex maximus.

LEPIS, n. *lěp'is* [Gr. *lepis*, a scale]: a name applied to expansions of the epidermis in plants producing a scale or scurf whose surface is then said to be 'lepidote.'

LEPISMA, *lě-pis'ma*: genus of wingless insects, of ord. *Thysanura* (q.v.). The best known species is *L. saccharina*, sometimes called *Sugar Louse*, because often found about old sugar barrels. All the species of lepisma and of the family *Lepismidæ* inhabit moist places, and feed on decaying vegetable substances.

LEPOR'IDÆ, *lěp-ōr'ī-dē*: a family of rodents comprising the rabbits and hares (q.v.). With the *Lagomyidæ* it constitutes the sub-order *Duplicidentata*, distinguished from all other rodents by having two pairs of upper incisors, of which the second is much reduced in size and placed immediately behind the first or larger pair. The hind-legs are much longer than the fore-legs and are well adapted by their structure for the leaping mode of locomotion affected by these animals; the tibia and fibula are completely ankylosed and articulate with the calcaneum by a pulley-like surface, thus combining great strength with great freedom of movement in one plane. The family is now cosmopolitan, but no species is indigenous to Australia. The genus *Lepus* is practically co-extensive with the family.

LEPORINE, a. *lěp'ōr-īn* [L. *leporinus*, like a hare—from *lepus*, a hare]: pertaining to a hare.

LEPRA, *lěp'ra* [see LEPER]: a term formerly applied to a scaly affection of the skin, but now regarded as synonymous with leprosy (q.v.).

LEPROHON, MRS. ROSANNA ELINOR (MULLINS): Canadian authoress: b. Montreal 1832; d. 1879. She married Dr. Leprohon in 1851; contributed largely to periodicals and was noted as a musical artiste and linguist. Among the published works are *Ida Beresford*; *Florence Fitz-Harding*; *Eva Huntingdon*; *Antoinette de Mirecourt*; *Manor House of de Villerai*; *Collected Poems*.

LEPROSY: a chronic, slightly contagious or infectious, general disease, with lesions confined principally to the skin, caused by the presence of a specific microbe, *Bacillus lepræ*. The disease is found in all parts of the world, but chiefly in the tropics, though many cases are found

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as far north as Norway and Iceland. It affects chiefly those who live near the sea—on islands or along the coast, and from this fact has developed the theory that the eating of putrescent fish is the exciting cause of the disease.

There are two forms of leprosy—the tubercular (*Lepra tuberosa*) and the anæsthetic (*L. anæsthetica*). In the first form the earliest symptom is an eruption of reddish or purplish patches, which at first come and go, but finally persist and become transformed into nodules of irregular size and shape. The eruption may occur on any part, but is most noticeable and characteristic on the face, to which the thick aggregation of tumorous masses separated by horizontal furrows imparts a peculiar appearance which has been likened to the face of a lion—hence the name formerly given to this variety of leprosy, *leontiasis*. The tubercles may coalesce and form large masses, which, after the lapse of months or years, may break down and form destructive ulcers. These may heal later, or may invade the deeper tissues and even cause the destruction of fingers and toes.

The anæsthetic form of leprosy is usually slower in its course than the tubercular, and is perhaps less repulsive in its lesions. There is first an eruption of reddish or purplish spots preceded by itching, numbness, or other abnormal sensation in the affected region. In time the central portions of these patches become lighter in color and devoid of sensation, while their edges are often extremely sensitive. After a while blisters form, break, discharging a serous fluid, and then heal or form ulcers. The muscles of the hands, feet, and face may become atrophied, and often the bones of the fingers and toes, one or more, or even of an entire foot or hand, may become necrotic and fall off, leaving nothing but little tabs of shriveled skin to mark the sites of the former digits.

Leprosy is undoubtedly contagious, although apparently in slight degree; therefore the safety of the community demands the segregation of all sufferers from the disease. When this plan has been effectually carried out, the number of new cases has been markedly diminished.

The drug most frequently employed and most strongly recommended in the treatment of leprosy is chaulmoogra oil, derived from the seeds of an East Indian plant, *Gynocardia odorata*, ord. *Capparideæ*. Other remedies that have been employed from time to time with more or less apparent success, are arsenic, thyroid extract, chryso-robin, corrosive sublimate, ichthyol, antivenene (the anti-toxin of the serpent venom), and *x-rays*. The very fact of the employment of such a variety of remedies is evidence that no specific cure for leprosy has yet been discovered.

The nature of the leprosy mentioned in the Bible has been the subject of much dispute, many holding that the

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white color of the lesions, as frequently referred to in the Scriptures, shows it to have been what is now called vitiligo. Yet the mention of ulcers makes it evident that, in some cases at least, some other disease than vitiligo was present. It is probable, indeed, that a number of chronic skin diseases—possibly that which we now call leprosy, among the rest—were grouped under this one title. During the middle ages leprosy was a widespread disease, affecting great numbers of the inhabitants of every country in Europe; there were no less than 2,000 leper asylums in France in the 13th century, and over 19,000 in all of Europe. The disease became less general in the following century, probably in consequence of the establishment of leproseries, when sufferers were isolated and kept from intercourse with the well, and by the 17th century it was to be found in only a few places. It has been asserted that the disease is again on the increase, but in these days of diffused sanitary intelligence there is no danger that entire communities will ever again become infected.

LEPSIUS, *lěp'sē-ûs*, KARL RICH: German Egyptologist: 1813, Dec. 20—1884, July; b. Naumburg; son of an advocate and magistrate who was a zealous antiquary. The younger Lepsius studied at Leipzig, Göttingen, Berlin, and Paris. His first work was *Die Paläographie als Mittel der Sprachforschung* (Berl. 1834), for which he obtained the Volney prize of the French Institute. This was followed by works on the most ancient alphabets and other kindred subjects. In 1836, he associated himself intimately with Bunsen at Rome, and eagerly prosecuted his favorite studies there. Between 1834 and 42, he published *Lettre à M. Rosellini sur l'Alphabet hiéroglyphique* (Rome), and a number of dissertations on the monuments of Egyptian art and their general architectural style. He published the remains of the ancient Etrurian and Oscan languages in his *Inscriptiones Umbricæ et Oscæ* (Leip. 1841), and other works. In 1842 he was placed at the head of an antiquarian expedition sent to Egypt by the king of Prussia; and on his return was appointed ordinary prof. in Berlin. His *Denkmäler aus Aegypten und Aethiopien* (folio 1853-57), a magnificent work, was published at the expense of the king of Prussia. His *Chronologie der Aegypter*, and *Ueber den ersten Aegypt. Goetterkreis*, laid the foundation for a scientific treatment of earlier Egyptian history. Other works are his letters from Egypt, Ethiopia, and Sinai (1852); a communication on the Egyptian monuments (1853), the work in which he expounds the *Standard Alphabet*, a modified Roman alphabet for hitherto unwritten languages, now used in many cases (1855); a work on the Egyptian ell and other measures; the *Königsbuch*, a list of kings (1858); the *Todtenbuch*, the Egyptian Book of the Dead. (1867). He wrote also on Chinese, Arabic, and Assyrian philology; was editor of the Berlin *Zeitschrift*

LEPTANDRA—LERDO DE TEJADA.

of Egyptology; was a member of the Royal Acad.; and chief librarian of the Royal Library at Berlin. He was a creator of Egyptology as a scientific study, and a perfect type of a German professor.

LEPTANDRA, *lěp-tăn'dra*: proposed generic name for *Veronica virginica*, or 'Calver's physic.' See SPEEDWELL.

LEPTOCAR'DIA: order of fishes. See LANCELET.

LEPTOSPERMUM, n. *lěp'tō-spēr'mŭm* [Gr. *leptos*, slender; *sperma*, seed]: genus of trees and shrubs, natives of Australia, New Zealand, etc., of nat. ord. *Myrtaceæ*, sub-ord. *Leptospermeæ*. They are evergreen, with leaves somewhat resembling those of myrtles. Some of them bear the name TEA-TREE, as *L. lenigerum*, *L. baccatum*, *L. flexuosum*, and *L. grandiflorum*, because the leaves have been used as a substitute for tea. *L. scoparium* is sometimes called the *New Zealand Tea-plant*, sometimes the *Broom-tree* or *Dogwood-tree*. It is common in New Zealand and Australia.

LE QUEUX, *lě kŭ*, WILLIAM: English novelist: b. London, England, 1864, July 2. He studied art in Paris and was subsequently a journalist there, but presently returned to London and in 1888 was a parliamentary reporter for the *Globe*, and its sub-editor 1891-3. In 1900 he was appointed English consul to San Marino. Among his numerous fictions are *Guilty Bonds* (1890); *Sinned Against* (1891); *The Great War in England* (1892); *Stolen Souls* (1894); *Whoso Findeth a Wife* (1897); *The Day of Temptation* (1897); *Scribes and Pharisees* (1898); *Wives of the Wicked* (1900); *In White Raiment* (1900); *The Tickencote Treasure* (1902); *Secrets of the Foreign Office* (1903); etc.

LERAY, *lě-rā'*, FRANCIS XAVIER: American Roman Catholic bishop: b. Châteaugiron, France, 1825; d. France 1887. He was educated at Rennes, but in 1843 crossed the Atlantic and settled at Baltimore. He went through the ordinary theological course under the direction of the Sulpicians, and was admitted to the priesthood 1852. He was a chaplain in the Confederate service during the war, and afterward returned to Vicksburg, and while the plague of 1867 raged, was always at hand to comfort and assist the sufferers. In 1873 he was consecrated to the see of Natchitoches, La., and 10 years later promoted to the archiepiscopal chair of New Orleans.

LERDO DE TEJADA, *lār'dō dā tā-hā'dā*, SEBASTIAN: Mexican statesman: b. Jalapa, Mexico, 1825, April 25; d. New York 1889, April 21. He was educated at the College of San Ildefonso, Mexico, was admitted to the bar in 1851, and was appointed a judge of the supreme court in June, 1857. He was minister of foreign affairs in 1857; member of Congress in 1861-2 and in 1862-3; and accompanied President Juarez in 1863-7, during which time he was successively minister of justice and minister of foreign affairs. He was elected chief justice of the

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supreme court in December, 1867, and on the death of Juarez 1872, July 18, succeeded to the presidency, and in the following November was elected to that post. In 1876 he was again candidate to succeed himself, and after a doubtful election was declared re-elected by Congress. This action resulted in a revolution and Lerdo was forced to leave the country. He lived in retirement in New York city till his death.

LERE, n. *lēr* [see LORE 1]: in *Scot.* and *OE.*, learning: V. to learn; to teach. LER'ING, imp. LERED, pp. *lērd*.

LÉRIDA, *lēr'ē-dâ* or *lārē-thâ*: province of n.e. Spain, in Catalonia, directly s. of France, and touching the Republic of Andorra; bounded e. by Gerona and Barcelona, s. by Tarragona, w. by Saragossa and Huesca; 4,772 sq. m. It is mountainous and well wooded, with physical features characteristic of the s. slope of the Pyrenees. The two highest peaks of the Pyrenees are in this province. The largest river is the Segre. Bees and silkworms are largely raised; the soil is mostly fertile, producing grain, fruit, and many kinds of garden vegetables. The principal minerals are iron, lead, zinc, copper, coal, granite, marble, gypsum, lime, and jasper. It has only one city whose pop. exceeds 5,000, this being Lérida, its cap., one of the most important military posts in Spain. Pop. (1900) 274,590.

LÉRIDA, *lēr'ē-dâ*: town of Spain, cap. of the province of Lérida, on a tributary of the Ebro, about 100 m. w.n.w. of Barcelona. The town is a gloomy labyrinth of mean-looking streets, but has a castle and two cathedral churches. There are manufactures of woolen, cotton, leather, and glass. Lérida is probably the Celtiberian *Ilerda*. Near it, Scipio Africanus defeated Hanno and Cæsar, lieutenants of Pompey. A council was held at Lérida in 564. Pop. 20,500.

LÉRINS, *lār-ăng'*, THE: group of islands in the Mediterranean Sea, 2½ m. off the s.e. coast of France, between capes Roux and Guaroupe, belonging to the dept. of Alpes-Maritimes. The two principal islands are: 1. St. Honorat (anc. *Lerina*), the smaller but more attractive, containing ruins of the earliest abbey of the Gauls, founded by St. Honoratus, Abp. of Arles, once famous as the seat of St. Vincent de Lérins and of St. Hilary, and in the 5th century the theological centre of Europe; 2. Ste. Marguerite (anc. *Leron*), 2 m. long, opposite Cannes, 15 m. s.w. of Nice, favorite winter resort for invalids, but occupied in summer by only a garrison and fishermen. Here Napoleon landed when he escaped from Elba, 1815. In its old castle Monterey, now a state prison, the 'man in the iron mask' was confined, 1686-98, and Marshal Bazaine, 1873-4. In its monastery of Ste. Marguerite, Francis I. was imprisoned while on his way as a captive to Madrid.

LERMONTOF—LEROUX.

LERMONTOF, *lër'mon-tof*, MIKHAIL YUREVITCH: the most distinguished of the Russian Byronic school of poets, next to Pushkin: 1814, Oct. 15—1841, July 27; descended from a Scottish immigrant called Learmonth. Lermontof was an officer in the Russian Guard. He wrote admirable lyrics and poetical narratives (*The Novice*, *Ismail Bey*, *The Demon*, *Song of the Tsar Ivan*); and a novel, *The Hero of Our Days*, in which a fellow-officer in the army in the Caucasus, deeming himself caricatured, challenged and shot him in a duel.

LERNEADA, *lër-ně'a-da*: order of Crustacea, having the mouth formed for suction alone; in organization inferior to any of the other crustaceans, so that the genus *Lernæa*, from which the order derives its name, was placed even by Cuvier not among crustaceans, but *Entozoa*. The true relations of these creatures, however, were finally demonstrated by Von Nordmann. A remarkable fact is, that, when young, they resemble the higher crustaceans much more than in their mature state; having then organs for swimming, which they are capable of doing with great agility, and eyes—or an eye as in Cyclops, to which they show much general resemblance; whereas, when mature, they are fixed to a single spot, as parasites on fishes, and are destitute both of eyes and of organs of locomotion. The number of the lerneada is very great, each kind of fish having apparently its own peculiar species of parasite. Some of them adhere to the eyes of fishes, which they render blind, some to the gills, some to other parts of the body.

LERO, *lā'rō*, or LEROS, *lě'ros*: island, one of the Sporades; in the Ægean Sea, off the s.w. coast of Asia Minor, near Caria; 9 m. long. Pop. 2,000.

LE ROSSIGNOL, *lě rōs'sēn-yōl*, JAMES EDWARD, PH.D.: American educator: b. Quebec, Canada, 1866, Oct. 24: He was graduated at McGill College and University, Montreal, in 1888; taught in the public schools of that city 1888-9; from 1889 to 1892 was a graduate student in Germany; in 1892-4 was professor of psychology and ethics in Ohio University; and since then has been professor of economics at the University of Denver. During 1900 he was special lecturer in economics at McGill College and University. He has written much on economical subjects, and has published *Monopolies, Past and Present* (1901); *Orthodox Socialism* (1907); etc.

LEROUX, *le-rō*, CHARLES MARIE GUILLAUME: French painter: b. Nantes (Loire-Inférieure) 1814; d. 1895. He studied law and entered legal practice; but abandoned the bar for art, and, after study with Corot, became a landscape artist. Among his canvases are *Souvenir de Fontainebleau*; *Fête in Haut-Poitou*; *The Erdre in Winter*; *Dunes des Chênes Verts*.

LEROUX, FRÉDÉRIC ETIENNE: French sculptor: b. Ecouché (Orne), 1836, Aug. 3. He studied with Jouffroy

LE ROUX—LE ROY.

and at the Beaux-Arts, became an exhibitor at the Salon in 1863, obtained a medal of the second class at the Paris exposition of 1878, and a silver medal at that of 1889. Among his best known works are *Demosthenes on the Shore*; *Joan of Arc*; *Marchand de Violettes*; *Bouquetière*.

LE ROUX, HECTOR: French painter: b. Verdun 1829, Dec. 27. He was a pupil of the Beaux-Arts and of Picot, in 1857 obtained by his *Lazarus* the second Prix de Rome, traveled in Greece and Asia Minor, and became known for his reposeful and dignified scenes from the ancient life of Greece and Rome. Among his works are *A New Vestal* (1863); *Funeral in the Columbarium of the House of the Cæsars* (1864); *Messalina* (1868); *The Burial of Themistocles* (1876); *The Fall of Hercules* (1881).

LE ROUX, LOUIS EUGÈNE: French painter: b. Paris 1833, Sept. 28. He studied with Picot, became known for his genre-scenes derived from Breton life, and painted, among his more important works, *Le Nouveau-Né* (in the Luxembourg Gallery); *Avant l'Ensevelissement*; *La Prière*; and *Avant la Confession*.

LE ROUX, ROBERT HENRI (called HUGUES): French journalist and author: b. Havre 1860. He became a journalist at Paris, where he wrote for the *Temps*, *Matin*, *Figaro*, *Journal*, and other newspapers, and published two works on Russia, *La Russie Souterraine* (1885), and *L'Attentat Sloughine*, a story of the Nihilists. He has visited the United States as lecturer before the Cercle Français de l'Harvard. His further works include *L'Autre France* (1900), a drama, with Decourcelle; the works of fiction, *Un de Nous* (1886); *Le Maître de l'Heure* (1897); *Le Fils à Papa* (1900); and the studies and sketches, *Au Sahara* (1891); *Portraits de Cire* (1891); *En Yacht* (1892); *Marins et Soldats* (1892); *Notes sur la Norvège* (1894); and *Nos Filles: Qu'en Feron-Nous?* (1898).

LE ROW, lě rō, CAROLINE BIGELOW: American educator; b. New Brighton, Staten Island, N. Y., 1843, Dec. 12. She was graduated at the Boston Normal School, and took courses in physical culture, voice culture and elocution under private instruction. In 1865 she entered the profession of teaching, which she has since followed, her present position being with the Girls' High School, Brooklyn, N. Y. She has published *Duxberry Doings*; *A Fortunate Failure*; *How to Teach Reading*; *A Practical Reader*; *Practical Recitations*; *Columbian Speaker*; *English as She Is Taught* (1902); *The Young Idea* (1902).

LE ROY, le roy, WILLIAM EDGAR: 1817, Mar. 24—1888, Dec. 10; b. N. Y.: naval officer. He entered the U. S. navy as midshipman 1832, Jan. 11; was promoted passed midshipman 1838, lieutenant 1843, commander 1861, captain 1866, commodore 1870, and rear-admiral

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1874, Apr. 5; and was retired 1880, Mar. 20. He served in the *Princeton* in the Mexican war; in the *Keystone State* at the capture of Fernandina, Fla. (1862), and in an engagement with Confederate iron-clads off Charleston (1863); in the *Ossipee* in the battle of Mobile Bay, where he received the surrender of the Confederate ram *Tennessee* (1864); and commanded the S. Atlantic station 1876-78.

LEROY-BEAULIEU, *lê-rwâ-bō-lê-é*, HENRI JEAN BAPTISTE ANATOLE: French historical writer: b. Lisieux, Calvados, 1842. He is a brother of Pierre Paul Leroy-Beaulieu (q.v.). In 1881 he was appointed to the chair of modern history in the Ecole Libre des Sciences Politiques, and in 1887 was elected to the Academy of Moral and Political Sciences. He contributed extensively to the *Revue des Deux Mondes*, and published in 1887-9 the important work, *L'Empire des Tsars et les Russes*, a study of Russian history, politics, and civilization, based partly on direct observation. Others of his publications are *La France, la Russie, et l'Europe* (1888); *La Révolution et le Libéralisme* (1890); *Israël chez les Nations* (1893).

LEROY-BEAULIEU, PIERRE PAUL: French economist: b. Saumur, Maine-et-Loire, 1843, Dec. 9. He was educated at the Lycée Bonaparte and the Ecole de Droit of Paris and the universities of Bonn and Berlin; became a journalist at Paris; wrote his *De l'Etat Moral et Intellectuel des Populations Ouvrières* (1868), crowned by the Academy of Moral and Political Sciences; assisted in founding the Ecole Libre des Sciences Politiques; and was appointed professor of finance there in 1872. In 1880 he became professor of political economy in the Collège de France. He established in 1873 *L'Economiste Français*, which he has continued to edit. In 1878 he was elected to the Academy of Moral and Political Sciences. Among his further writings are *Les Guerres Contemporaines* (1853-66, 1868-9); *Traité de la Science, des Finances* (1877; 6th ed. 1899); *Précis d'Economie Politique* (1888; 3d ed. 1891); *La Colonisation chez les Peuples Modernes* (1874; 5th ed. 1902); *L'Algérie et la Tunisie* (1887; 2d ed. 1897); *Essai sur la Répartition des Richesses* (1880; 4th ed. 1897); *Le Collectivisme* (1883; 4th ed. 1903); *L'Etat Moderne et ses fonctions* (1889; 3d ed. 1900); *Traité théorique et pratique d'économie politique* (1896; 3d ed. 1900); *le Sahara, le Soudan, et les chemins de fer Transsahariens* (1904); etc.

LEROY DE SAINT ARNAUD, *lêh-rwâ' dèh sǎng târ-nō'*, JACQUES: French marshal of the second empire: 1801, Aug. 20—1854, Sep. 29; b. Paris. He entered the army 1816, but found it necessary more than once to leave it, so that after 15 years he was only a lieutenant. In 1837, he was appointed captain of the foreign legion, and first rose to eminence in the African wars. His valor at the

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siege of Constantine won the cross of the Legion of Honor. In 1840, he became a *chef de bataillon*; 1842, lieutenant-colonel; 1844, colonel; 1847, he was raised to the rank of field-marshal; 1851, general of division. At this period, Louis Napoleon, plotting the overthrow of the republic, was seeking resolute and unscrupulous accomplices; and Leroy de St. Arnoud was appointed to the command of the second division of the city forces. 1851, Oct. 26, he became war minister, and was active in the *coup d'état* of Dec. 2 and the subsequent massacres at the barricades. On the breaking out of the Crimean war 1854, he was intrusted with the command of the French forces, and co-operated with Lord Raglan in the battle of the Alma, Sep. 20. He died of disease nine days afterward.

LERY, *lā-rē'*, JEAN DE: 1534-1611; b. Lery, France: first Prot. minister in America. In 1555, while a Calvinistic minister at Geneva, he was induced to accompany Villegagnon's expedition to Brazil to introduce the Reformed religion there; and for some time preached to the colonists on an island in the bay of Rio de Janeiro. On the failure of the colony he returned to France. In 1560 he was made a citizen of Geneva, and subsequently preached at Belleville, Nevers, and Saucerre. After the massacre of St. Bartholomew he settled in Berne, where he passed the remainder of his life. He published an account of the Brazilian enterprise (La Rochelle 1578).

LE SAGE, *lēh sâch'*, ALAIN RENÉ: French dramatist and novelist: 1668, May 8—1747, Nov. 17; b. Sarzeau, now in the dept. of Morbihan. He studied under the Jesuits, and, 1692, came to Paris to pursue philosophic and juristic studies, and to seek employment. His personal qualities attracted a lady of rank, who offered him her hand; but, 1695, he married the daughter of a citizen of Paris. He turned from law to literature, and lived entirely by his literary labors, till the Abbé de Lyonne gave him a small pension of 600 livres. Some of his dramatic pieces attained great popularity; and, 1709, he was offered, but refused, 100,000 francs to suppress one of them, *Turcaret*, a bitter satire on the financiers of the time. His comic novels, never excelled by anything of the same kind, won for him a still higher place in literature, particularly *Le Diable Boiteux*, *Les Aventures de Guzman d'Alfarache* (abridged translation from the Spanish of Aleman); and *Gil Blas de Santillane* (2 vols. Par. 1715), universally regarded as his masterpiece. A complete ed. of his works was published, Paris 1730. The novels above named have been translated into different languages, and *Gil Blas*, in particular, is extremely popular.

LES'BOS: ancient name of an island in the Grecian Archipelago, belonging to Turkey, called, during the middle ages, *Mitylene* (from its cap. city), hence by the modern Greeks, *Mitylini*, or *Melino*, and by the Turks

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Midilli. It lies 40 m. s.e. of Lemnos (q.v.), 10 m. from the coast of Asia Minor; area, about 600 sq.m. Lesbos is rather mountainous, but only one of the mountains attains an elevation of 3,000 ft. The climate is salubrious beyond that of any other island in the Ægean, and the soil is fertile. Anciently, it was famous for its wines—Horace celebrates the *innocentis pocula Lesbii*—but the modern product is mediocre. Its figs are excellent; but its principal exports are oil, timber, and gall-nuts. The chief town is Castro (q.v.).—Lesbos was the birthplace of Terpander, Arion, Alcæus, Sappho, Pittacus, Theophrastus, and Cratippus. Pop. 40,000.

LESCHETIZKY, *lěsh-ě-tīts'kī*, THEODORE: Austrian pianist: b. Lemberg, Austria, 1831. He received his musical education in Vienna, and after a successful concert tour in 1864 was made professor of the pianoforte at the conservatory of St. Petersburg, where he turned out many illustrious pupils. In 1878 he returned to Vienna with an ever-increasing reputation. As a pianist he is remarkable for delicacy of touch and a magic power of expression. As a composer he has published some very elaborate pieces for the piano, some songs, and an opera *Die erste Falte* (1867). Perhaps the most famous of all his pupils is Paderewski (q.v.).

LESGHIANs, *lěs'gī-anz*: a Tartar people professing Muradism, a form of Mohammedanism established by a native prophet about 1830. They inhabit the Eastern Caucasus, and form the chief portion of the inhabitants of western Daghestan. They were among the most stubborn of the Caucasian peoples in their resistance to the Russians.

LESION, n. *lě'zhŭn* [Fr. *lésion*—from L. *læsĭōnem*, an injury—from *læsus*, hurt: It. *lesione*]: a hurt or hurting; an injury; a morbid alteration in a function or structure. In *Scotch law*, a term to denote injury or prejudice sustained by a minor or by a person of weak capacity, sufficient to be a ground of action to reduce or set aside the deed which caused the lesion. See INFANT.

LESLEY, *lěs'li*, J. PETER: American geologist: b. Philadelphia 1819, Sep. 17; d. Milton, Mass., 1903, June. He was graduated at the University of Pennsylvania in 1838, for the next three years was engaged as assistant in the first geological survey of Pennsylvania. In 1844 he was graduated at the Princeton Theological Seminary and licensed as a minister. Visiting Europe, he made foot-journeys through several countries, and for a while studied at the University of Halle. From 1845 to 1848 he labored for the American Tract Society among people in the mountain districts of Pennsylvania, and then served two years as minister of a Congregational church at Milton, Mass., resigning on account of a change in his religious views. Returning to Philadelphia, he resumed his geological researches, extending his investigations through-

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out the coal, oil, and iron regions of this country and Canada. In 1855 he became secretary of the American Iron Association; in 1858 secretary and librarian of the American Philosophical Society; and state geologist of Pennsylvania in 1874. He was also professor of geology at the University of Pennsylvania 1872-8, and there in 1886 was appointed emeritus professor. In 1863 he went to Europe to examine the Bessemer iron-works for the Pennsylvania Railroad Company, and in 1867 was appointed by the United States Senate a commissioner to the Paris Exposition. He edited many works, published numerous scientific papers in various journals and reports, and also wrote *A Manual of Coal and Its Topography* (1856); *The Iron Manufacturer's Guide* (1858); *Man's Origin and Destiny from the Platform of Sciences*; *Historical Sketch of Geological Explorations in Pennsylvania* (1876); and *Paul Dreifuss, His Holiday Abroad* (1882).

LESLEY, JOHN: Scottish prelate and historian: b. Scotland 1527, Sep. 29; d. near Brussels, Belgium, 1596, May 31. He was educated at King's College, Aberdeen, and in 1554 became professor of canon law there. A firm friend of Mary, Queen of Scots, and by her appointed bishop of Ross, he was concerned in the scheme for her marriage to the Duke of Norfolk, and in the consequent rebellion in the north of England, and was imprisoned in the Tower. While there he wrote *Piæ Consolationes*. When released in 1573 he crossed to the Continent, and in 1593 became bishop of Coutances in Normandy. His chief production is a history of Scotland (1578), in 10 books, 7 in Latin and the last 3 Scottish dialect.

LESLIE, CHARLES ROBERT, R.A.: distinguished artist: 1794, Oct. 19—1859, May 5; b. London, of American parents resident there at the time. They returned to America 1799, taking Charles Robert with them. His father died 1804, leaving the family in straitened circumstances. Young Leslie wished to be a painter, but was bound apprentice to Messrs. Bradford and Inskip, booksellers and publishers in Philadelphia. He had been three years at his apprenticeship, when he managed to execute a drawing of the popular actor, George Frederick Cook. The likeness having been pronounced excellent by a number of connoisseurs, a subscription was raised to enable the young artist to study painting two years in Europe. He accordingly returned to England 1811, and entered as a student in the Royal Acad. The first picture that brought him into notice was *Sir Roger de Coverley Going to Church*, exhibited in the Royal Acad. 1819. In 1821 his picture of *May-day in the Reign of Queen Elizabeth*, secured his election as an associate of the Acad.; and *Sancho Panza and the Duchess*, painted for Lord Egremont, and exhibited 1824, his best work (of which there is a repetition in the National Gallery), obtained for him the rank of academician. After this, till near his death,

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there were few exhibitions of the Royal Acad. to which Leslie did not contribute. Leslie's principal pictures are embodiments of scenes from the works of many of the most popular authors—Shakespeare, Cervantes, Le Sage, Molière, Addison, Sterne, Fielding, and Smollett. His works have had great influence on the English school; and though he almost always executed repetitions of his principal works—a practice that generally tends to decrease the value of pictures—his pictures bring immense prices. Great power of expression, and a delicate perception of female beauty, are leading points in Leslie's pictures. In the early part of his career, his style may be objected to as deficient in color, and rather dry and hard; but the influence of Newton turned his attention to the Venetian masters, and led him to impart greater richness to his coloring. Later in life, the example of Constable inclined him to strive at producing *empasto*, or fulness of surface, in his pictures. Leslie accepted the appointment of prof. of drawing at the military academy of West Point, N. Y.; but he gave up this occupation after a five months' residence, and returned to England. In 1848, he was elected prof. of painting at the Royal Acad., but resigned 1851. He died in London. His lectures were published 1845 under the title *A Handbook for Young Painters*—a most useful work. An excellently written life of his intimate friend and brother-artist, Constable, whose great talent he was the first fully to appreciate, was published by him 1845. The *Autobiographical Recollections* of Leslie were edited by Tom Taylor.

LESLIE, ELIZA: American authoress: b. Philadelphia 1787, Nov. 18; d. Gloucester, N. J., 1858. Her girlhood was spent partly in London, England, where her brother, Charles Leslie (q.v.), afterward became distinguished as an English artist. She returned to the United States in 1799, and the rest of her life was nearly all passed in her native city. She first became famous by her *Seventy-five Receipts for Pastry, etc.* (1827), followed by *The Domestic Cookery Book* (1837), 40,000 copies of which were sold; *The Home Book* (1840); and *The Ladies' Receipt Book* (1846). She had, however, soon after the success of her first work, begun to write juvenile and other works, and for a generation was one of the most popular of American prose writers. Her books are mainly, though not invariably, written to enforce moral instruction, and among them are *The American Girls' Book* (1831); *Stories for Helen*; *Kitty's Relations*; *Leonilla Lynmore*; *The Maid of Canal Street*; *The Dennings and Their Beaux* (1851); *Mrs. Washington Potts*; and *The Behavior Book* (1853). She edited for many years *The Gift*, a popular annual for young women.

LESLIE, FRANK (assumed name of Henry Carter): American publisher and journalist: b. Ipswich, England, 1821; d. New York 1880, Jan. 10. He was educated at Ipswich; entered a mercantile house at 17; developed

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artistic abilities, and under the name of Frank Leslie contributed sketches to the *Illustrated London News*. The success of these led to his giving up commercial pursuits to become superintendent of engraving for that paper. In this position he produced valuable inventions, and made himself master of technicalities. Coming to the United States in 1848, he followed his profession here, and in 1854 founded the *Gazette of Fashion* and the *New York Journal*. In 1855 he began the publication of *Frank Leslie's Illustrated Newspaper* (now *Leslie's Weekly*), following these with the *Chimney Corner*, the *Boys' and Girls' Weekly*, the *Budget of Fun*, and others. In 1867 he was appointed commissioner to the Paris Exposition, where he received a prize for his services to art. He married Miriam Florence Folline, of Louisiana, and she, having taken at his death, by legislative act, the name of Frank Leslie, successfully continued the business, from which she finally withdrew in 1900.

LESLIE, SIR JOHN: 1766, Apr. 16—1832, Nov. 3; b. Largo, Fifeshire, Scotland: natural philosopher. Showing strong bias for the exact sciences, he was sent to St. Andrews Univ. 1779. In 1785, he entered the Edinburgh Divinity Hall, but gave most of his time to the sciences, particularly chemistry. In 1788, he left Edinburgh, and after two years in America as tutor to the sons of a Virginian planter, he returned to London 1790, and till 1805 was tutor to the family of Mr. Wedgewood, at Etruria, Staffordshire, or was travelling on the continent, contributing to the press, and making experimental researches: the fruits of his labors were a translation of Buffon's *Natural History of Birds* (1793), the invention of a Differential Thermometer, a Hygrometer, and a Photometer, and the publication of *Experimental Inquiry Into the Nature and Propagation of Heat* (1804), a most ingenious work, constituting an era in the history of that branch of physical science, and for which the Royal Soc. awarded him the Rumford medals. In 1805, March, he was, after a great deal of opposition from the Edinburgh clergy, elected professor of mathematics in the Univ. of Edinburgh, and soon commenced the publication of his *Course of Mathematics*. In 1810 Leslie invented the process of artificial congelation, performed the experiment in the following year before the Royal Society of London, and 1813 published a full explanation of his views on the subject; subsequently, he discovered a mode of freezing mercury. In 1819 he was transferred to the chair of natural philosophy, a position better adapted to his peculiar genius; and 1823 published one volume of *Elements of Natural Philosophy*, never completed. In 1832 he was created a knight of the Guelphic Order; and in that year he died at Coates, a small estate which he had purchased near Largo. Besides the instruments above mentioned, he invented an Æthrioscope, Pyroscope, and Atmometer, and contributed many articles to various periodicals on scien-

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tific subjects. His last important work was his discourse on the *Progress of Mathematical and Physical Science During the Eighteenth Century*, which constitutes the fifth dissertation in the first vol. of the *Encyclopædia Britannica* (7th and 8th ed.).

LESQUEREUX, *lā-kê-ré'*, LEO: Swiss-American palæontologist: b. Fleurier, Neuchâtel, Switzerland, 1806, Nov. 18; d. Columbus, Ohio, 1899, Oct. 25. He was educated at the Academy of Neuchâtel, at Weimar, and at the University of Berlin; was principal of the College of Chaux-de-Fonds (Switzerland) in 1829-34; made a special study of peat, and was appointed by the Neuchâtel authorities to examine the peat bogs of that canton. In 1844 he received from the Neuchâtel government a gold medal for his treatise, *Directions for the Exploration of Peat Bogs*. In 1848 he came to the United States; was for a short time assistant to Louis Agassiz at Cambridge; and later became assistant to W. S. Sullivant (q.v.), in the study of American bryology, at Columbus, Ohio, where he resided until his death. He made particular investigation of the coal formations of the United States, more especially of the Pennsylvania coal flora, and he became the chief American authority on fossil botany. He published with Sullivant: *Musci Americani Exsiccati* (1856; 2d ed. 1865), and *Icones Muscarum* (1864); and with T. P. James, *Manual of the Mosses of North America* (1884). He also contributed (1880-4) three volumes on the coal flora to the Pennsylvania geological survey, which has been considered one of the chief American works on carboniferous plants; and three reports to the volumes published by the Hayden survey. He wrote more than 50 memoirs on scientific subjects. In 1864 he became a member of the National Academy of Sciences, and in 1888 of the Geological Society of London.

LESS, a. *lēs* [It. *lasso*, faint: F. *lasche*, slack: O. Fris. *lessa*, less: Bav. *lass*; OE. *lash*, slack, loose—in all kinds of action, the idea of relaxation is identical with that of diminution: Icel. *-lauss*, less]: comp. of *little*; smaller; not so large or great: AD. not so much; in a smaller or lower degree: N. the inferior; a smaller portion. LESSER, a. *lēs'sēr*, another comp. of *little*; smaller; inferior; in OE., LESS for UNLESS. *Note.*—The postfix *less*, as in *hopeless*, *fearless*, is identical with Eng. *loose*, and thus connected with Ger. *los*, loose, free.

LESSEE, n. *lēs-sē'* [from LEASE, which see]: the person who receives or holds a lease. LES'SOR, n. *-sōr*, one who grants a lease. See LANDLORD AND TENANT.

LESSEN, v. *lēs'n* [from *less*]: to diminish; to reduce; to become less. LESSENING, imp. *lēs'nīng*. LESSENER, pp. *lēs'nd.*—SYN. of 'lessen': to weaken; impair; abate; lower; decrease; degrade.

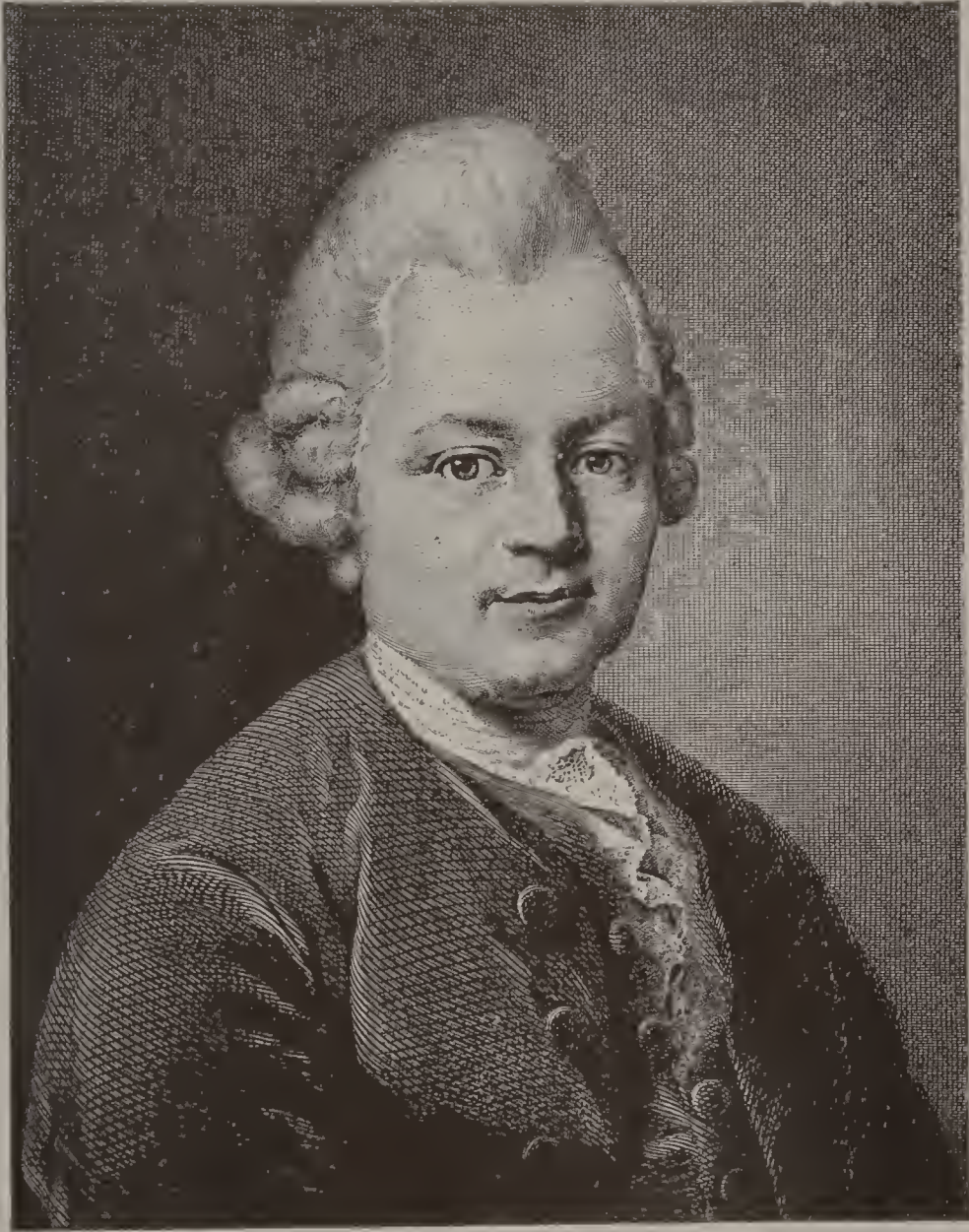
LESSEPS, *lā-sēps'*, FERDINAND DE, Vicomte: 1805, Nov. 19—1894, Dec. 7: French diplomatist and engineer; b.

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Versailles. He entered the consular service, and held office successively in Central America, Lisbon, Tangiers, Tunis, and Alexandria. When at Rome 1849, on an extraordinary mission, a change of policy with the home government, in which he could not concur, led him to abandon political life, after 29 years of diplomatic service. His attention was now occupied with the cultivation of a farm at Berry, and the study of the East and Egypt. In a lecture, 1870, he said: 'It was after five years of study and of meditation in my closet, five years of investigation and of preparatory labors in the isthmus, and 11 years of execution, that we attained the end of our efforts.' (See SUEZ; SUEZ CANAL.) Lesseps started a kindred scheme 1880, the piercing of the Isthmus of Panama (q.v.) for a ship canal; and so influential and popular had he become, that for a time he received all the capital he called for, and became both financial and professional manager. He promised that the canal would be finished by 1889, and would not exceed \$220,000,000 in cost; but in 1888, April, he announced that the total debt of the canal company in stocks and bonds was \$357,923,000, with fixed charges of \$20,000,000 per annum. In the December following, the company defaulted in payment of interest, and 1889, May 7, abandoned the work. An investigation into the affairs of the company followed, showing the grossest mismanagement and a system of corrupting public officials and the press, without a parallel. In 1893, Feb. 14, Lesseps and his son Charles were each sentenced to five years' imprisonment and a fine of 3,000 francs. The sentence was never enforced against Lesseps, and was set aside on technical grounds in Charles's case, after a few months in prison. In consideration of past services the Suez Canal Company made him an allowance which kept him from want. The honors and decorations which were showered on him as a result of his earlier success were in striking contrast with the disastrous result of his last enterprise. He was elected to the Academie of Sciences in 1875, and to the Académie Française in 1884. Among his writings are *Mémoire à l'Académie des Sciences sur le Nile Blanc et le Soudan; Principaux Faits de l'Histoire d'Abyssinie; Lettres, Journal et Documents relatifs à l'Histoire du Canal de Suez* (1875-81), crowned by the Academy; *Souvenirs de Quarante Ans* (1887); and *Origines du Canal de Suez* (1890). Consult biographies by Bertrand and Ferrier (1887) and by Smith (2d ed. 1895).

LESSES, n. *lës'èz* [F. *laissées*, dung of wild animals—from *laisser*, to leave]: the ordure or dung of the wild boar and wolf.

LESSING, *lës'ing*, GOTTHOLD EPHRAIM: illustrious German author and literary reformer; 1729, Jan. 22—1781, Jan. 22; b. Kamenz, in Saxon Upper Lusatia, where his father was a clergyman of the highest orthodox Lutheran school. After spending five years at a school in Meissen,



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he went to the Univ. of Leipzig 1746, with the intention of studying theology. But he soon began to occupy himself with other matters, made the acquaintance of actors, contracted a great fondness for dramatic entertainments, and set about the composition of dramatic pieces and Anacreontic poems. This sort of life pained his severe relatives, who pronounced it 'sinful,' and for a short time Lessing went home; but it was his destiny to revive the national character of German literature; and after one or two small literary ventures at Leipzig, he went to Berlin 1750, where he commenced to publish, in conjunction with his friend Mylius, a quarterly, *Beiträge zur Historie und Aufnahme des Theaters*, which went to the length of only four numbers. About this time appeared his collection of little poems, *Kleinigkeiten*. After a brief residence at Wittenberg, in compliance, once more, with the wishes of his parents, he returned to Berlin 1753, and 1755 produced his *Miss Sara Sampson*, the first specimen of *bourgeoisie* tragedy in Germany, which, in spite of some hostile criticism, became very popular. Lessing now formed valuable literary friendships with Gleim, Ramler, Nicolai, Moses Mendelssohn, and others. In company with the last two, he started (1757) *Bibliothek der Schönen Wissenschaften*, the best literary journal of its time, and still valuable for its clear natural criticism; he also wrote *Fabeln*, *Literaturbriefe*, and miscellaneous articles on literature and æsthetics. Between 1760-65, he lived at Breslau, as sec. to Gen. Tauenzien, gov. of Silesia. The year after his return to Berlin, he published his masterpiece, the *Laocoon*, perhaps the finest and most classical treatise on æsthetic criticism in the German or any other language. In 1767, appeared *Minna von Barnhelm*, national drama, hardly less celebrated than the *Laocoon*; and 1768, *Dramaturgie*, which exercised a powerful influence on the controversy between the French and the English styles of dramatic art—i.e., between the artificial and the natural, between the conventional and the true, between shallow and pompous rhetoric, and genuine human emotion. In 1770, Lessing was appointed keeper of the Wolfenbüttel Library. Two years later appeared his *Emilia Galotti*; and 1774-78, the far-famed *Wolfenbüttelsche Fragmente eines Ungenannten*. These Wolfenbüttel Fragments are now known to have been the composition of Reimarus (q.v.), but the odium of their authorship fell at the time on Lessing, and he was involved in much bitter controversy. In 1779, he published *Nathan der Weise*, dramatic exposition of his religious opinions (his friend Moses Mendelssohn is said to have been the original of Nathan); and 1780, *Erziehung des Menschengeschlechts*, which is the germ of Herder's and all later works on the Education of the Human Race. He died at Brunswick. Lessing is one of the greatest names in German literature. If his works seem hardly equal to his fame, it is because he

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sacrificed his own genius for the sake of others. When he appeared, the literature of his country was corrupted and enslaved by French influences. The aim of Lessing was to reinvigorate and emancipate the national thought and taste; and the splendid outburst of national genius that followed, was in a large measure the result of his labors. See Sime's *Lessing, his Life and Works* (1877); Miss Zimmern's *Lessing* (1878); and Schmidt's *Lessing* (2 vols. 1884-92).

LESSING, KARL FRIEDRICH: German painter, grand-nephew of G. E. Lessing (q.v.): b. Wartenberg, Silesia, 1808, Feb. 15; d. Karlsruhe, Baden, 1880, June 4. He was sent about 1822 to the architectural school of Berlin, to fit himself for an architect. After a severe struggle between duty and inclination, he yielded to his artistic inclinations and by the production of his *Churchyard with Gravestones and Ruins* (1825) fixed his profession irrevocably. This picture produced a strong impression, and for a year or two the artist devoted himself to landscape; but coming under the influence of Schadow, established himself in Düsseldorf, and studied historical painting with enthusiasm and success. *The Court Yard of the Convent—a Snow Scene*, is perhaps the most striking of all his landscapes. *The Tyrant Ezzelin in Captivity refusing the Exhortations of the Monks* (1838), was his first important historical picture in the new style. It was followed by *Huss before the Council of Constance* (1842), the *Seizure of Pope Pascal II.*, the *Martyrdom of Huss* (1850), now in New York, and many others, under the influence of which the school of Düsseldorf divested itself of the strictly Catholic spirit by which it was previously characterized, and adopted a bolder and more dramatic manner, and a greater freedom in the choice of subjects. Lessing, however, is distinguished from his associates by depth of thought, energy of expression, and vivid dramatic conception, at the same time that his pictures exhibit the hardness of outline and defective coloring peculiar to the Düsseldorf school. Being the chief master of the Romantic School in Germany, Lessing occupies an important place among landscape painters; his pictures were chiefly mountain scenes, and were usually taken direct from nature. Consult: Jordan, *Ausstellung der Werke Karl Friedrich Lessings* (1880).

LESSON, n. lēs'n [F. *leçon*, a lesson—from L. *lectiōnem*, a reading: comp. Ger. *lesen*, to read]: that which a pupil learns, repeats, or does at one time; the task, etc., set by the teacher for the pupil; a precept or doctrine taught; a portion of Scripture read at divine service; reproof; instruction derived from experience: V. in *OE.*, to teach; to instruct.

LESSON, RENÉ PRIMEVÈRE: French naturalist: b. Rochefort, 1794, Mar. 20; d. 1849, Apr. 28. Aside from

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a course in medicine at Rochefort, by which he was enabled to become a ship's surgeon, his education was obtained chiefly at home. He was on board the *Regulus* when that vessel was burned by the British at Bordeaux; from 1822-25 was director of the botanical gardens at Rochefort; and was then ordered to join the corvette *La Coquille*, accompanying her on the famous voyage around the world. He wrote *Voyage autour du monde sur la corvette La Coquille* (1830) with Garnot and Guérin; supplements to Buffon (1828 and 1835-41); a popular description of the voyage around the world (1838); and numerous works on natural history and zoology.

LES'SON, in Liturgical Literature: portion of the church service appointed to be read, chiefly with a view to instruction and exhortation, not couched in the form of a prayer, nor, even when found in the mass or the communion service, directly bearing on the consecration of the Eucharistic elements. The lessons of the Eucharistic service in the Rom. Cath. Church are always taken from the books of the Old or New Testament (including the Apocrypha); but in some of the other services of the Roman, Greek, and Oriental churches, portions of the writings of the Fathers, lives of saints, and occasionally short narratives from church history, are employed. The very earliest notices which we have of the liturgical services of the first Christians, allude to the usage of reading portions of sacred Scripture publicly in the church. The practice existed among the Jews in their synagogues (Luke iv. 16), and the apostle Paul frequently alludes to its use also in Christian assemblies, in his epistles to the infant churches of Colossæ, Laodicea, and Thessalonica. It is even more circumstantially referred to by Tertullian (*Apolog.* c. 39; and again, *Prescript.* c. 36), and by Justin the Martyr in his *Apology* (1 *Apol.* n. 67). Our information regarding the liturgy of this early period is too scanty to enable us to say what order was followed, and what principles were adopted in selecting the portions of Scripture; but from the Fathers of the 4th and later centuries, it is plain that the selection was in some degree regulated by the seasons; and, at all events, that it was not left to the determination of each individual minister or church. In general, the extracts seem so disposed as to present the several books of Scripture in succession; but at particular times, portions were chosen which seemed appropriate to these times. Thus, the lessons at and after Easter were the Gospel narratives of the Resurrection; between Easter and Pentecost, the Acts of the Apostles; in Lent, they were from Genesis and the other books of the Pentateuch; in Passion-tide, from the Book of Job. In the modern Greek Church, so strictly is this order observed, that the Sundays of certain periods are known by the names of the Evangelists read at that time—as

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the first, second, or third 'Matthew-Sunday,' 'Mark-Sunday,' etc. In the Roman missal, the distribution of the Gospel lessons is regulated more by the subjects than by the authors; and in addition to the distribution according to time, there is another regulated by the nature of the festivals, or the special characteristics of the saints to whose offices they are appropriated. The time and the origin of this distribution are uncertain; but it is commonly ascribed, at least in part, to St. Jerome, and distinct traces of it are found in several writers of the 5th and following centuries.

In the service-books of the Rom. Cath. Church, the lessons of the missal are always from Holy Scripture; and they are, unless in a few exceptional cases, two in number, the first called (as being ordinarily from one of the Epistles of Paul, or the canonical epistles) the 'Epistle;' the other, the 'Gospel.' A second Gospel is commonly read, which is from Jn. i. The Epistle is taken either from the canonical epistles of the New Testament, or, less frequently, from one of the books of the Old Testament, including the Apocrypha (generally from Wisdom, Ecclesiastes, Ecclesiasticus, or Proverbs), but occasionally from the books of the Pentateuch and other historical books. On a few exceptional occasions, chiefly in Advent and Lent, or at the Quarter Tenses (as the Ember-days are named in the Roman Church calendar), more than one Epistle occurs. The distinction of the 'Epistle Lesson' and the 'Gospel Lesson' is at least as ancient as the time of St. Augustine (see Aug. Serm. 176). In the solemn or high mass, each of these lessons is chanted or recited by a separate minister—the Epistle by the sub-deacon, the Gospel by the deacon; the former being chanted at the right side, the latter at the left side of the altar. In the low mass, both are read by the priest; but the same difference of position in reciting them is observed by the single priest. Anciently, one or both were chanted from an elevated platform or pulpit called *ambo*, and in Gothic churches, from a gallery attached to the rood-screen. The recitation from the ambo is retained in the Ambrosian rite as still practiced in the Milan Cathedral. In the several Eastern rites, the lessons are more numerous than those corresponding to the Roman Epistle, being chosen from the Old Testament, from the Acts of the Apostles, from St. Paul's Epistles, and from the Catholic epistles. The Gospel-lessons are, of course, from the four Evangelists. In the Greek Church, the former is read by the *anagnostes* or *lector*; the latter by the deacon. In the other Eastern churches, both are read by the deacon, with the exception of the Syrian Church, in which the Gospel is read, not by the deacon, but by the priest.

The 'lessons' of the Roman breviary are more varied. They occur only in matins, with the exception of a 'short lesson' in Prime and in Compline. The lessons of matins are sometimes three, sometimes nine in number,

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according as the matins consist of one or of three 'nocturns.' See BREVIARY. When there are three nocturns, the lessons of the first are commonly from the Holy Scriptures, the books of which are so distributed throughout the seasons, that portions of every book shall be read during the year. The lessons of the second nocturn consist either of a narrative of the life of a saint, or of the circumstances of a festival, or of a sermon or other discourse from a holy Father; and those of the third are generally from a homily of one of the Fathers upon the Gospel appropriate to the festival. The 'short lessons' of Prime and Compline consist of sentences from the Holy Scripture.

In the public and solemn offices, the lessons are chanted, the tones being reputed of ancient origin; and the chanting of the Gospel especially being accompanied with special marks of reverence for the word of God, as the incensation of the book of the Gospel, signing it with the sign of the cross, and the bearing of lights during the singing—a practice which was already ancient as early as the days of St. Jerome's controversy with Vigilantius. When the pope officiates solemnly, the Epistle and Gospel are chanted in Greek as well as in Latin, in order to denote the union of both the rites in one Catholic Church; and at the coronation of at least one of the popes (Alexander V.), the Gospel was sung in Latin, Greek, and Hebrew.

In the Church of England and the Prot. Episc. Church in the United States, the term is used only of the portions of Scripture appointed to be read at morning and evening prayer, and at the burial of the dead. The enlargement of this part of the service formed a great feature of the Reformed liturgy, and was a return to the more ancient use, entire chapters being substituted for short selected passages. In the Anglican Book of Common Prayer, four lessons are appointed for every day, two at morning and two at evening prayer. The first lesson, at each service, is taken from the Old Testament—which is read through, in course, once a year (the order of the books being departed from only in the reservation of Isaiah for the season of Advent)—and from certain books of the Apocrypha, viz., Tobit, Judith, Wisdom, Ecclesiasticus, Baruch, and the histories of Susanna and of Bel and the Dragon, which are read for the reasons quoted from St. Jerome, in the Sixth Article of Religion, viz., 'for example of life and instruction of manners,' but not 'to establish any doctrine.' The second lessons are from the New Testament, which is read through three times in the year—that in the morning from the Gospels and Acts of the Apostles, that in the evening from the Epistles. 'Proper,' i.e., special first lessons, are appointed for all Sundays and holidays; those for Sundays were fixed at the restoration of the Reformed liturgy under Elizabeth, and consist of chapters selected from the various books, so arranged as to

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follow the seasons of the church—e.g., those during Advent are taken from Isaiah, those from Septuagesima to Easter from Genesis and Exodus, so that the account of the institution of the Passover, and the going out from Egypt, falls on Easter Day. The general purpose of the Sunday proper lessons, seems to be that of representing the divine dealings with the church of the Old Testament. The first lessons, on the minor holy-days, are taken, in course, from the didactic books of the Old Testament and Apocrypha. Except on the chief festivals, there are no proper *second* lessons, the New Testament being ordinarily read through, in course, on Sundays and week-days, so causing the fixed first lesson to combine with the varying second lesson, in a manner which sometimes throws much light on both. Parts of Leviticus and Joshua, and the two books of Chronicles, are omitted; and the Apocalypse is resorted to, only to supply the second lessons for the feast of St. John the Evangelist, and at evening service on All Saints' Day.—In the Prot. Episc. Church in the United States, the appointment of lessons is on the same general principles: the following alterations from the Anglican usage are noticeable: From Septuagesima to Easter, passages from the prophets, or of a penitential character are read: thence to Witsunday, chapters adapted to the seasons; and from Trinity Sunday to the 22d Sunday after Trinity, parts of the Historical books. In the New Testament, special lessons are chosen for Sundays. The lessons for each service are ascertained by reference to a calendar, prefixed to the Book of Common Prayer—the proper lessons, which always supersede the others, being given in separate tables. When a lesson is directed to be read *to* any verse, it is always *exclusive* of that verse. The lessons are allowed to be read by persons not in holy orders, but are directed to be so read 'as may best be heard of all present.' Each lesson is followed by a canticle or psalm, after the manner of the old responsory, and on the principle that every revelation of the divine character and dealings affords fresh material for His praise.

LESSOR. See under LESSEE.

LEST, conj. *lēst* [AS. *las*, lest; *the læs*, the less, lest: really a corruption of AS. *les-the*, less-that]: for fear that; that not.

LES'TER, CHARLES EDWARDS: American author: b. Griswold, Conn., 1815, July 15; d. Detroit, Mich., 1890, Jan. 29. He studied law in Mississippi, and was admitted to the bar, but afterward spent two years at the Auburn Theological Seminary, and was duly ordained. The pulpit, however, proved not more congenial to his tastes than the bar, and he employed his time chiefly with the pen. He was appointed United States consul at Genoa 1842-7, and was afterward prominent as a

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journalist and political speaker. He published *Glory and Shame of England* (1841); *Condition and Fate of England* (1842); *The Artist, Merchant, and Statesman* (1846); *Life and Voyages of Americus Vesputius* (1846); *Artists of America* (1846); *My Consulship* (1851); *Our First Hundred Years* (1874-5); and translations of Alfieri's *Autobiography* (1845); Massimo d'Azeglio's *Challenge of Barletta* (1845), and Macchiavelli's *Florentine Histories* (1846).

LESTER, JOHN HENRY: American inventor: b. Montville, Conn., 1815, Sep. 27; d. Brooklyn, N. Y., 1900, Jan. 10. He was one of the earliest sewing-machine makers in the United States, and besides inventing a lock-stitch sewing-machine, he devised a wood-planing machine, and other labor-saving machines. In 1859-60, he established a wood-planing manufactory in Richmond, Va., and when the civil war broke out was ordered by the Confederate government to alter arms for its army. Lester, being loyal to the North, withdrew from the firm and went to Washington, D. C., where he had an interview with President Lincoln. Nevertheless, his loyalty was suspected and he was sentenced to ten years' imprisonment by a military commission, but was freed after 20 months' confinement.

LES'TODON: a genus of fossil animals of Patagonia, allied to *Mylodon*, and distinguished by the possession of canine teeth. See GROUND-SLOTH.

LESTRANGE, *lēs-trānj*, SIR ROGER: English journalist and pamphleteer: b. Hunstanton, Norfolk, 1616, Dec. 17; d. London, 1704, Dec. 11. He was probably educated at Cambridge. In 1629, he accompanied Charles I. in his expedition against Scotland. In 1644, he formed a plan for surprising Lynn Regis, but was seized and condemned as a spy. He was, however, respited from time to time until he had been in prison four years, when he escaped to the Continent. In 1653, he returned to England, was licenser of the press from the Restoration until the close of the reign of James II., and edited the *Public Intelligencer* in 1663, the *London Gazette* in 1665, and the *Observer* in 1681, the latter existing till 1687. He was author of a great number of coarse and virulent political pamphlets, and translated Josephus, Cicero's *Offices*, Seneca's *Morals*, Quevedo's *Visions*, and other works of ancient and modern writers.

LESUEUR, *lē-sü'ër*, EUSTACHE: French painter: b. Paris, 1617, Nov. 19; d. there, 1655, Apr. 30. He was taught drawing by his father, a sculptor, and was afterward placed at the school of Vouet, where the Italian masters became his models. His masterpiece is the series of paintings executed for the Carthusian monastery in Paris in 1645-8. These pictures are now in the Louvre, and in twenty-two panels depict the principal scenes in the life of St. Bruno. In 1650, he painted for the cor-

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poration of goldsmiths the *Preaching of the Apostle Paul at Ephesus*, which was presented to the chapter of Notre Dame, but has been now removed to the Louvre. He did much in decorating the old parish churches of Paris and among his later productions are some mythological scenes in the Hotel Lambert. His works are distinguished by purity of line, careful execution and are conceived in a mood of profound feeling.

LE SUEUR, JEAN FRANÇOIS: French composer: b. Drucat-Plessiel, near Abbeville, 1760, Jan. 15; d. Paris, 1837, Oct. 6. At six he was placed at the musical school of the cathedral of Amiens, and after completing his studies was made director of music in the cathedrals at Séz, Dijon, etc., and in 1784 in the Church of the Innocents, Paris. In 1786, he became master in the Church of Notre Dame. He was afterward induced to compose for the theatre, *Telemachus*, his first opera, being given with great success in the Théâtre Feydeau. From 1788 he devoted his time altogether to theatrical music. His opera *La Caverne* was produced in 1793; *Paul et Virginie* in 1794; *Télémaque* in 1796; *Les bardes* in 1804; and *La Mort d'Adam* in 1809. He was made professor of music in the National Institute. In 1813, he became a member of the fourth class of the institute; in 1814, composer to the king; and in 1817, professor of composition to the conservatoire. His sacred music consists of 33 masses, and of oratorios and motets. He also wrote several works on musical subjects.

LET, v. *lēt* [AS. *latan*, to let, to suffer: Ger. *lassen*, to permit, to let: Icel. *láta*; Dut. *laten*; Goth. *leten*, to permit, to let go]: to allow, suffer, or permit; to grant to a tenant; to put to hire; to give power or leave to; to lease. LETTING, imp. LET, pt. and pp. *lēt*. To LET ALONE, to suffer to remain. To LET BE, to leave off; to discontinue; to let go. To LET A-BE, in *Scot.*, to let alone; not to annoy or vex. To LET BLOOD, to free it from its confinement; to suffer it to flow out of the vein. To LET DOWN, to lower; to permit to sink. To LET DRIVE or FLY, to send forth or discharge with violence, as a stone. LET IN, signifies the sinking in of one portion of wood or metal into another, as in the case of rapping plates which are let in to the patterns, and brass rings let in to sluice cock faces, etc. To LET IN, to allow to enter; to insert, as a piece of wood. To LET INTO, to give admission; to make acquainted with. To LET LOOSE, to free from restraint. To LET OFF, to discharge, as an arrow or gun; to release, as from an engagement; to suffer to escape. To LET ON, in *Scot.*, to seem to observe a thing; to mention a thing; to hint. To LET OUT, to suffer to escape; to give to hire or farm; to reveal as a secret.

LET, v. *lēt* [AS. *lettan*; Dut. *letten*, to delay, to hinder: Icel. *latr*, lazy: Icel. *letja*; Goth. *latjan*, to be late,

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to tarry: Bav. *letzen*, to retard—from *laz*, late (see **LET** 1)]; in *OE.*, to impede; to obstruct; to hinder; to delay or omit to do; in the sense of 'obstruction,' used as a noun, in the phrase, 'without *let* or hindrance.' **SORE LET**, in *OE.*, grievously prevented or hindered. **NO LET OF LENDING**, in *OE.*, no hindrance of lending. *Note.*—The idea of 'slackening' lies at the root of both applications of the term *let*; when we speak of '*letting* one go,' '*letting* him do something,' we conceive him as previously restrained by a band, the loosening or slackening of which will permit the execution of the act in question.

LETCII, n. *lěch* [L. *lix*, ashes: AS. *leah*; Ger. *lauge*, an infusion of the salts of ashes]: a quantity of wood-ashes through which water is made to pass in order to be saturated with the alkali among them; a tub or vat in which to make lye by causing water to pass through wood-ashes: V. to wash, as ashes, to separate the alkali. **LETCII'ING**, imp. **LETCIIED**, pp. *lěcht*. *Note.*—*Letch* is commonly spelled *leach*.

LETCII'WORTH, WILLIAM PRYOR, LL.D.: American writer and philanthropist: b. Brownville, N. Y., 1823, May 26. From 1848 to 1869 he was a manufacturer and merchant in Buffalo, and retired from business to devote himself to benevolent work. In 1873, he became a member of the State Board of Charities, was its vice-president and for ten years its president, resigning from the board in 1896. In 1883, he was president of the National Conference of Charities, and in 1900 president of the first New York State Conference of Charities and Correction. In 1893, the University of New York conferred on him the degree of LL.D. 'for distinguished services to the state.' He secured the passage of the New York law for removal of children from almshouses, etc., and has done much for the insane and for their unfortunate classes. He has published: *The Insane in Foreign Countries* (1889); *Care and Treatment of Epileptics* (1900); and papers on social science.

LETHAL, a. *lē'thāl* [L. *lethālis*, mortal—from *lethum*, death—from Gr. *lēthē*, oblivion]: deadly; mortal; fatal. A **LETHAL WEAPON**, a dagger, a revolver, or the like: in Scotch criminal law, a weapon with which a death has been caused.

LETHARGY, n. *lēth'ār-jī* [F. *léthargie*—from L. and Gr. *lethar'gīā*, drowsiness—from Gr. *lēthē*, forgetfulness; *argos*, idle]: heavy, unnatural slumber; morbid drowsiness; dulness; inattention; inaction. **LETHARGIC**, a. *lē-thār'jīk*, or **LETHAR'GICAL**, a. *-jī-kāl*, preternaturally sleepy; very drowsy. **LETHAR'GICALLY**, ad. *-lī*.—**SYN.** of 'lethargic': drowsy; sleepy; heavy; dull.

LETHBRIDGE: Canada, a railway and mining town of Alberta; on the Belly river and on a branch of the Canadian Pacific railway, 100 miles west of Medicine Hat, 100 miles southeast of Calgary; the northern ter-

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minus of the Great Falls & Canada railway, running southward across the international boundary into the United States. It is in a picturesque region formerly given over to ranching, but now as the centre of a vast irrigation system rapidly developing dairying and mixed farming. A good quality of lignite coal is mined here, the seams easily workable estimated to contain more than 350,000,000 tons. The mines give employment to several hundred men, and supply the larger portion of southern Alberta and Assiniboia. It has good schools, churches, banks, and weekly newspapers. Pop. 3,000.

LETHE, n. *lē'thē* [Gr. *lēthē*, forgetfulness]: in *anc. myth.*, one of the rivers of Hades, whose waters, when drunk, caused forgetfulness of the past, oblivion. LETHEAN, a. *lē-thē'ān*, of or pertaining to Lethe.—The theory was that souls were to drink of Lethe before passing into the Elysian fields, that they might lose all recollection of earthly sorrows.

LETTER, n. *lēt'tér* [F. *lettre*, a letter—from *litĕrā*, a letter—from L. *litus*, besmeared, as being scrawled or smeared on parchment and not engraved: It. *lettera*, a letter]: a mark or character representing a sound or an element of speech (see LETTERS AND ARTICULATE SOUNDS): a written or printed message; an epistle; a character formed of metal or wood, used in printing books (see LETTERS, RELATIVE FREQUENCY, ETC.): V. to stamp or mark with letters. LET'TERING, imp.: N. the act of impressing letters; the letters impressed. LET'TERED, pp. *-tĕrd*: ADJ. educated. LET'TERER, n. *-ĕr*, one who impresses letters. LET'TERS, n. plu. *-tĕrz*, learning. LETTERPRESS, matter printed from type. LETTERWRITER, one who writes letters for others, a common profession in India and Turkey; a machine for copying letters; a book containing directions for letter-writing. A DEAD LETTER, a term used at the post-office for a letter addressed to a person who cannot be found; that which has lost its force or authority, usually by lapse of time; that which has fallen into disuse or become ineffective, as the law has become a *dead letter*. THE LETTER, the literal meaning; the bare meaning as conveyed by the words without any reference to the real or intended meaning, as the *letter* of the law and not its *spirit*. LETTER MISSIVE, in Congl. Church usage (see COUNCIL, in Congl. usage). LETTERS OF ADMINISTRATION, the instrument by which one is authorized to administer the goods and estate of an intestate deceased person. LETTER OF ADVICE, a letter giving notice of a transaction. LETTER OF CREDIT, a letter given by a bank or other person, authorizing the bearer to receive a specified sum of money at some distant place. LETTER OF LICENSE, a customs permit; permission or privilege granted as by creditors to an insolvent trader, to go on with his business under surveillance. LETTERS OF MARQUE, permission or license given by government to a private ship in

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time of war to seize on the ships of another state; so called because the sovereign allowed a *market* or mart, i.e., authorized the disposal of the captured property. It is piracy for a private vessel to make war without letters of marque. Privateering under such letters was abolished by the European nations by the treaty of Paris 1856. **LETTERS OF SAFE CONDUCT**, a writ to a citizen of another state which is at war with the state issuing the writ, authorizing him to travel or deal in the state whose govt. issues the writ; such writ protects him and his goods from seizure. **LETTERS PATENT**, a written document granted by government, authorizing a person to do some act or enjoy some right, to the exclusion of others—or in Britain creating a peer, etc. (see **PATENT**). **LETTERS ROGATORY**, instrument sent by a judge from a court to a court in another jurisdiction, requesting such court to cause certain named witnesses to be examined and their depositions to be returned to the court issuing the letters; such letters are occasionally issued from admiralty courts. **LETTERS TESTAMENTARY**, a legal instrument granted to an executor after probate of a will, authorizing him to act. See **EXECUTOR**; **PROBATE COURT**.

LETTERS, RELATIVE FREQUENCY IN USE OF: proportionate use of the various letters in the English alphabet, as shown by the experience of printers.

GENERAL USE.							
e	1,000	h	540	f	236	k	88
t	770	r	528	w	190	j	55
a	728	d	392	y	184	q	50
i	704	l	360	p	168	x	46
s	680	u	296	g	168	z	22
o	672	c	280	v	158		
n	670	m	272	b	120		

USE AS INITIAL LETTERS.							
S	1,194	M	439	W	272	Q	58
C	937	F	388	G	266	K	47
P	804	I	377	U	228	Y	23
A	574	E	340	O	206	Z	18
T	571	H	308	V	172	X	4
D	505	L	298	N	153		
B	463	R	291	J	69		

LETTERS AND ARTICULATE SOUNDS: elements of language—written and spoken. Letters are conventional marks or visible signs of the elemental sounds of spoken language. The earliest symbols of sounds represented syllables rather than simple sounds (see **ALPHABET**; **HIEROGLYPHICS**; **CHINESE LANGUAGE**). It was only gradually that syllables were reduced to their ultimate elements, and all alphabets still bear marks of their syllabary origin (see letter **K**), displaying various imperfections either of excess or of defect.

Articulate sounds are divided into vowels and consonants; and the latter are subdivided into voiceless and vocal elements (otherwise called 'sharps' and 'flats'), obstructive and continuous elements (otherwise called

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'mutes' and 'semi-vowels'), and liquids. Many other divisions have been proposed, but the above classification embraces all real varieties. The elemental sounds are classified also according to the organs which form them, as labials, linguals, gutturals, nasals, etc. A physiological description of the articulate sounds used in English speech, shows the necessary extent of a perfect system of letters, and the deficiencies of the present alphabet.

All the elements of speech are susceptible of separate formation; and in the following description, reference is always intended to the exact sound of each element, and not to the name of its letter.

Emitted breath mechanically modified forms every articulate sound. The breath is modified first in the throat, by a certain amount of constriction in the larynx, without which restraint, the air would flow out noiselessly, as in ordinary breathing, or gushingly, as in sighing. The breath is thus economized into a steady stream, and rendered audible by the degree of roughness or 'asperation' that it acquires when forced through a narrow aperture. This 'asperated' current of air, when articulated, forms whispered speech. In passing through the larynx, the breath is acted on further by the opposing ligaments of the glottis (the aperture of the larynx), and sonorous voice is produced. The vocalized or asperated breath then receives vowel and articulate modification in its passage through the mouth. When the mouth is sufficiently open to allow the breath to flow without obstruction or oral asperation, the air is molded into the various qualities of *vowel*-sound; and when the channel of the month is obstructed, or narrowed so much as to cause a degree short of asperation of the breath between the tongue and the palate, the lips, etc., *consonant*-sounds are produced.

The upper part of the mouth is an immovable arch; all variations in the shape of the oral passage are consequently effected by the tongue and the lips. [A nasal variety of vowel-sounds occurs in French—represented by *n* after the vowel-letters. These sounds are formed by depressing the soft palate, which otherwise covers the inner end of the nostrils, and allowing part of the breath to pass through the nose, while the remainder is modified in the usual way.]

Vowels.—When the tongue is raised in its greatest convexity toward the roof of the mouth, but without being so close as to roughen or asperate the breath, the resulting vowel quality is that heard in the word *eel*; and progressively less degrees of elevation produce a series of lingual vowels, of which *Ah* is the most flattened—the lips being equally expanded throughout the series to allow the breath to escape without labial modification.

When the aperture of the lips is contracted in greatest degree short of asperating the breath, the resulting

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vowel-quality is that heard in the word *ooze*; and progressively less degrees of labial contraction form a series of labial vowels, of which *Aw* is the most open—the tongue being retracted throughout the series, to direct the breath without lingual modification forward against the lips.

A third series of vowels is formed by combining elevated positions of the tongue and contracted positions of the lips, or retracted positions of the tongue, and expanded positions of the lips. Of this labio-lingual series, the German *ä* is the most contracted, and the English sound heard in the word *err* the most open.

The following table shows the principal vowels of each class:

	Lingual.	Labio-Lingual.	Labial.
Close,	<i>ee(l)</i>	<i>u</i>	<i>oo(ze)</i>
Medial,	{ <i>ai(l)</i>	{ <i>eu</i>	{ <i>o(ld)</i>
Open,	{ <i>e(re)</i>	{ <i>o</i>	{ <i>o(re)</i>
	<i>ah</i>	<i>e(rr)</i>	<i>a(l)</i>

The possible modifications of the oral channel are endless and untraceably minute, as are the shades of vowel-quality heard in dialects, and among individual speakers. In English, there are altogether *thirteen* established varieties, as heard in the words *eel, ill, ale, ell, an, ask, ah, err, up, all, ore, old, ooze*. Besides these, which a perfect alphabet must represent, we have the diphthongal sounds heard in the words *isle, owl, oil*, and the asperated compound *yoo*—the sound of the letter *u* in *use*—which is often, but erroneously, supposed to be a diphthongal vowel.

The Aspirate H.—The letter H (see *ASPIRATE*) represents an expulsive breathing, modified by the form of the vocal element which follows it—as in *he, hay, high, hoe*, etc., in which the H will be observed to have the quality of *ē, ā, ī, ō*, etc., but without the laryngeal contraction, and consequent asperation of the breath, which forms a whispered vowel.

Consonants.—When the tongue is raised convexly against the back of the palatal arch so as to stop the breath, the separation of the tongue from the roof or back of the mouth is accompanied by a percussive effect, represented in the English alphabet by C, K, and Q, and by G when the obstructed breath is vocalized. While the tongue is in this obstructive position, if the soft palate be depressed so as to uncover the inner end of the nostrils, the breath will pass through the nose. This, with vocalized breath, is the formation of the element represented in English, for lack of an alphabetic character, by the digraph *ng*.

[The percussive effect of K—G is slightly modified by the point at which the tongue leaves the palate before different vowels, as in the words *key* and *caw*; the consonant of the latter word being struck from the soft palate, and that of the former word further forward, from the hard palate. A peculiar Anglicism of pronunciation is derived from the substitution of the an

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terior for the posterior formation of K—G in certain words, as *kind, card, guide, guard, girl*, etc.

When the fore-part of the tongue is raised to the front of the palate, so as to stop the breath, the separation of the tongue is accompanied by the percussive effect represented by T, and by D when the obstructed breath is vocalized. The uncovering of the end of the nostrils while the tongue is in this obstructive position produces, with vocalized breath, the sound represented by N.

When the lips are brought in contact (the lower lip rising to join the upper lip), their separation from the obstructive position is accompanied by the percussive effect represented by P, and by B when the obstructed breath is vocalized. The uncovering of the nares while the lips are in contact, produces, with vocalized breath, the sound represented by M.

The remaining consonants all are of the continuous or non-obstructive class; the organs of articulation being so placed as merely to narrow the apertures, central or lateral, through which the breath issues with a degree of hissing or asperation.

The elevation of the base of the tongue so as to leave a narrow aperture between its centre and the back-part of the palate, forms, with vocalized breath, the sound of Y initial as in *ye*. The sound of *y* resembles that of the vowel *ē*, but with the contracted aperture and resulting oral asperation of the breath essential to a consonant. The same position with voiceless breath forms the German *ch* as in *ich*—an element heard in English as the sound of H before *ū*, as in *hue*. [The Scotch guttural heard in *loch* differs from this only in the more retracted position of the tongue, which is approximated to the soft instead of the hard palate. The same position with vocalized breath produces the soft Parisian *burr*. The approximation of the concave root of the tongue to the fringe of the soft palate causes the uvula to flutter in the breath, and forms the rough Northumbrian *burr*.]

The elevation of the middle of the tongue toward the front of the palatal arch, with a narrow central passage for the breath, produces the element which, for lack of an alphabetic character, is represented by the digraph *Sh*; and the same position forms, with vocalized breath, the common element heard in *pleasure, seizure*, etc., but which has no appropriate literal symbol in English.

The approximation of the flattened point of the tongue to the front of the mouth, so as to leave a narrow central passage between the tongue and the upper gum, forms the sound represented by S; and by Z when the breath is vocalized.

The elevation of the tip of the tongue toward the rim of the palatal arch causes a degree of vibration of the edge of the tongue, and consequent asperation of the breath, proportioned to the degree of elevation, which is the English sound of the letter R. [R final, or before a consonant, has little or no asperation, but has almost the

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pure sonorousness of a vowel, as in *err*, *earn*, etc. The roughly trilled Scotch or Spanish R is formed by the quivering of the whole fore-part of the tongue as it is laxly approximated to the palate.]

The approximation of the lower to the upper lip, so as to leave a central aperture for the breath, produces, with vocalized breath, the sound of W initial, as in *woo*. The sound of *w* resembles that of the vowel *oo*, but with a more contracted aperture. The same position, with voiceless breath, forms the element represented, for lack of an alphabetic character, by the digraph *Wh*.

The remaining varieties of English articulate sounds are formed by forcing the breath through *lateral* apertures, instead of one central aperture.

When the fore-part of the tongue is spread against the front of the palate, and vocalized breath passes laterally over the middle of the tongue, the sound of L is heard. [The same position of the tongue forms, with voiceless breath, the sound of *Ll* in Welsh. The English L, as heard before *ū* (= *yoo*) is modified by convexity of the back-part of the tongue toward its position for Y, forming the sound represented in Smart's Dictionary by L', as in *lure*, pronounced *l'oor*. A peculiar Gaelic variety of L is formed by raising the back-part of the tongue to the soft palate, and passing the voice laterally over the root of the tongue.]

When the tip of the tongue is applied to the upper teeth (or the gum), and the breath is emitted laterally over the point of the tongue, the sound of the digraph *Th* as in *thin* is heard; and, with vocalized breath, the sound of *Th* in *then*—neither of which elements is represented in our alphabet.

When the middle of the lower lip is applied to the edge of the upper teeth, and the breath is emitted laterally between the teeth and the lip, the sound represented by F is produced; and, with vocalized breath, the sound of V.

Liquids.—The voice is so little intercepted in passing through the nostrils (forming *m*, *n*, or *ng*), and through the wide apertures of L, and also of R when not initial in a syllable, that the sound has almost the pure sonorousness of a vowel; and these elements have received the name of Liquids, to designate their property of syllabically combining with voiceless consonants—seeming to flow into and to be absorbed by them, and losing much of their natural quantity as vocal sounds; as in *lamp*, *temse*, *tent*, *sense*, *tenth*, *ink* (= *ingk*), etc.; *milk*, *spill*, *help*, *self*, *else*, *Welsh*, *health*, etc.; *hark*, *heart*, *harp*, *serf*, *earth*, *harsh*, *horse*, etc. The characteristic effect of the Liquids is perceived best by contrasting such words as *temse* and *Thames*, *hence* and *hens*, *else* and *ells*, *curse* and *curs*—in which the normal influence of vocal consonants on subsequent elements is manifested in the vocalizing of the sibilant in the second word of each pair.

From this review of the physiological varieties of

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articulate sounds, it is evident that our alphabet of 26 letters is very imperfect, both by redundancy and deficiency. (1.) The same sounds are represented by more than one letter; as C, K, and Q; C and S; G and J. (2.) The same letter represents more than one sound; as C, which is sometimes K, and sometimes S; G, which is sometimes the vocalized form of K, and sometimes J; N, which is sometimes N, and sometimes *ng*; S, which is sometimes S, and sometimes Z; and Y, which is sometimes a consonant (when initial), and sometimes a vowel, sounded like the letter I. (3.) Single letters are used to represent articulate compounds; as G and J, which are sounded *dzh* [the voiceless form of J is represented by *ch*, as in *chair*]; U, which is sounded *yoo*; and X, which is sounded *ks*, and sometimes *gz*. (4.) The alphabet contains no characters for six of our undoubted consonant elements—viz., Wh, Th(in), Th(en), Sh, Zh, Ng. (5.) Each vowel-letter represents many sounds; and the lack of seven characters to denote the excess of our vowel-sounds over the number of our vowel-letters, is supplied by about 60 combinations of two or of three letters, so that the original phonetic character of the alphabet is almost entirely lost in the confusion of our orthography.

Consonants form, as it were, the bare and bony skeleton of speech; vowels give definite shape and individuality to words. Thus the consonants *sprt* constitute the common skeleton of such diverse words as *sport*—*spirt*, *sprat*—*sprite*, *spirit*, *support*, *separate*, *aspirate*—*asperate*, which receive their distinct configuration and filling up from the vowel-sounds, which cover the consonant skeleton with molded elegance and variety. Consonants are thus the more stable elements of words, and their interchanges in the corresponding words of allied tongues are found to follow certain general laws dependent on the relations and affinities of letters: see GRIMM'S LAW. These relations are exhibited in the following table:

	SHUT.		OPEN.		NASAL.	
	Sharp.	Flat.	Sharp.	Flat.	Sharp.	Flat.
1. Labials, .	<i>p</i>	<i>b</i>	{ <i>f</i> <i>wh</i>	<i>v</i> <i>w</i>	†	<i>m</i>
			{ <i>th</i> <i>s</i>	<i>dh</i> <i>z</i>		
2. Linguals, .	<i>t</i>	<i>d</i>	{ <i>sh</i> *	<i>zh</i> <i>r</i>		<i>n</i>
			{ <i>ll</i> (Welsh) <i>ch</i> (loch)	<i>l</i> <i>gh</i>		
3. Gutturals, .	<i>k</i>	<i>g</i>	{ <i>ch</i> (ich)	<i>y</i>		<i>ng</i>

In pronouncing the letters of the first class, the lips chiefly are concerned; in the second, the principal organ

* The 'sharp' or voiceless *r* is of frequent but unrecognized occurrence. It is heard in French, as the sound of *r* final after a consonant, as in *theatre*: and in Scotch, as a substitute for *thr*, as in *three*, pronounced *rhee*.

† The 'sharp' forms of the nasals are in constant use as interjectional sounds, as in *humph!* (pronounced 'hm!') 'hn! (expressive of sneering) and 'nhm! used in Scotland as an affirmative.

LETTER-WOOD—LETTRES DE CACHET.

is the tongue, or the tongue and the teeth (whence they are called also *dentals*); and in the third, the back parts of the tongue and palate are employed. But while all the sounds of each class have thus a common organic relation, the first pair differs from the other letters of the same class by being *obstructive* or shut—otherwise called *Mute* (q.v.); the remaining letters, having open apertures, are *continuous* or sibilant in effect—otherwise called *Asperate* (q.v.). The difference also between the members of the several pairs is of the same kind throughout; *p* differs from *b* as *f* does from *v*, or *t* from *d*, or *sh* from *zh*.

In Ellis's *Plea for Phonetic Spelling*, and Melville Bell's *Principles of Speech*, is presented a complete development of the theory of Articulate Sounds. Various attempts have been made to introduce a system of phonotypes, in which each sound should be represented by one invariable character. None of the schemes comes near in success to the system of *Visible Speech* (q.v.) published by Melville Bell some years ago.

LETTER-WOOD: one of the most beautiful productions of the vegetable kingdom; the heart-wood of a tree, found sparingly in the forests of British Guiana, the *Piratinera Guianensis* of Aublet, and the *Brosimum Aubletii* of Poeppig, belonging to the Bread-fruit family (*Artocarpaceæ*). It grows 60 to 70 ft. high, with diameter 2 to 3 ft. The outer layers of wood (alburnum) are white and hard; the central portion, or heart-wood, which rarely exceeds 7 inches in thickness, is extremely hard and heavy, and is of rich dark-brown color, most beautifully mottled with very deep brown, almost black spots, arranged with much greater regularity than is usually the case in the markings of wood, and bearing a slight resemblance to the thick letters of some old black-letter printing. Its scarcity and value make it an article of rare and limited application. It is used for fine veneer and inlaying work, and in Guiana for small articles of cabinet-work. The natives make bows of state of it, but are said to prefer a variety which is not mottled.

LETTIC RACE see LITHUANIA.

LETTISH, n. *lěi'ish*: the language of Lithuania, Courland, and Livonia; old Prussian. **LETTIC**, a. *lět'tik*, of or pertaining to.

LETTRES DE CACHET, *lět'r dēh kăsh'ă*: warrants of imprisonment issued by the kings of France before the Revolution. All royal letters (*lettres royales*) were either *lettres patentes* or *lettres de cachet*. The former were open, signed by the king, and countersigned by a minister, and had the great seal of state appended. Of this kind were all ordinances, grants of privilege, etc. All letters-patent were registered, or *enterinated*, by the parliaments. But these checks on arbitrary power did not exist with regard to *lettres de cachet*, also called

LETTUCE.

lettres closes, or sealed letters, which were folded up and sealed with the king's little seal (*cachet*), and by which the royal pleasure was made known to individuals or to corporations, and the administration of justice was often interfered with. The use of *lettres de cachet* became much more frequent after the accession of Louis XIV. than it had been before, and it was very common for persons to be arrested upon such warrant, and confined in the Bastile (q.v.), or some other state prison; where some of them remained for a very long time, and some for life, either because it was so intended, or, in other cases, because they were forgotten. The lieutenant of the police kept forms of *lettres de cachet* ready, in which it was only necessary to insert the name of the individual to be arrested. Sometimes an arrestment on *lettres de cachet* was a resource to shield criminals from justice.

LETTUCE, n. *lēt'tis* [OF. *laictuce*; F. *laitue*—from L. *lactūcā*, a lettuce—from *lac*, milk: Ger. *lattich*], (*Lactuca*): genus of plants of nat. ord. *Compositæ*, sub-ord. *Cichoraceæ*, having small flowers with imbricated bracteæ, and all the corollas ligulate, flatly compressed fruit, with a thread-like beak, and thread-like, soft, deciduous pappus.—GARDEN L. (*L. Sativa*) is supposed to be a native of the E. Indies, but is not known anywhere in a wild state, and from remote antiquity has been cultivated in Europe as an esculent, particularly as a salad. It has a leafy stem, oblong leaves, a spreading flat-topped panicle, somewhat resembling a corymb, with yellow flowers, and a fruit without margin. It is now generally cultivated in all parts of the world where the climate admits of it; and there are many varieties, all of which may, however, be regarded as sub-varieties of the COSS L. and CABBAGE L., the former having the leaves more oblong and upright, requiring to be tied together for blanching—the latter with rounder leaves, which spread out nearer the ground, and afterward *boll* or roll together into a head like a small cabbage. The L. is easy of digestion, gently laxative, and moderately nutritious, and is generally eaten raw with vinegar and oil, more rarely as a boiled vegetable. The white, and somewhat narcotic milky juice of this plant is inspissated, and used under the name of *Lactucarium* (q.v.), or *Thridace*, as an anodyne, sedative, opiate medicine. The best and most useful kind of this juice is obtained by making incisions in the flowering stems, and allowing the juice which flows to dry upon them. Lettuces are sown in gardens from time to time, that they may be obtained in good condition during the whole summer. In mild winters, they may be kept ready for planting out in spring.—The other species of this genus exhibit nothing of the bland quality of the garden lettuce.—The STRONG-SCENTED L. (*L. virosa*) is distinguished by the prickly keel of the leaves, and by a black, smooth seed, with a rather broad margin. *Lactucarium*

LEUCADIA—LEUCOCYTHÆMIA.

is prepared from its fresh-gathered leaves, in the flowering season. The leaves have a strong and nauseous, narcotic and opium-like smell.—*L. perennis* adorns with beautiful blue flowers the stony declivities of mountains and clefts of rocks in some parts of Germany, as in the Harz.

LEUCADIA, *lū-kā'dī-a*, mod. Gr. *lēf-kā-thē'ā*: ancient name of SANTA MAURA (q.v.).

LEUCH'TENBERG. See BEAUHARNAIS.

LEUCINE, *lō'sīn*: the chemical name of which is *α*, aminocapric acid, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$, is found in various glandular secretions of the human body and is produced by the action of acids, alkalies or putrefactive agents on albuminoid substances. It crystallizes in colorless, unctuous plates, melting at 170°C . The ordinary form of leucine rotates a ray of polarized light to the left (see OPTICAL ACTIVITY); it can be synthesized, as can also the dextro rotatory and inactive compounds, which are not formed from animal or vegetable material. Leucine is of great interest on account of its relation to proteids and has been used extensively for the synthesis of POLYPEPTIDES (q.v.).

LEUCIPPUS, *lū-sīp'ūs*: founder of the Atomistic School of Grecian philosophy, and forerunner of Democritus (q.v.). This is gleaned from notices of him in Aristotle; but nothing is known concerning him, neither the time nor the place of his birth, nor the circumstances of his life.

LEUCISCUS, *lū-sīs'kūs*: genus of fresh-water fishes, of family *Cyprinidæ*, containing a great number of species, among which are the Roach, Ide, Dace, Graining, Chub, Red-eye, Minnow, etc. There are no barbels. The anal and dorsal fins are destitute of strong rays.

LEUCOCYTHÆMIA, n. *lō'kō-sī-thē'mī-ā* [Gr. *leukos*, white; *kutos*, a cell; *haima*, blood; also LEUKÆMIA; in *med.*, disease in which the number of white corpuscles in the blood appears to be greatly increased, while there is simultaneous diminution of the red corpuscles. The disease was noticed almost at the same time (1845) by Bennett and Virchow. There are two forms of the disease, the *spleno-medullary*, in which the spleen and bone marrow are diseased, and the *lymphatic*, in which the lymphatic glands are enlarged. In the first form, the prominent symptom is anemia; with this are emaciation and progressive weakness, great shortness of breath, dropsical effusions into the chest and abdomen, spontaneous hemorrhages from the mucous membranes, and marked enlargement of the liver and spleen. In the second variety the liver and spleen may be somewhat enlarged, but the lymphatic glands are swollen, sometimes enormously so, and there is usually more or less fever. The two forms are also distinguished by differences in the constitution of the blood and by the

LEUCOCYTOSIS—LEUKAS.

predominance of one or another variety of the white blood corpuscles. No satisfactory treatment has yet been discovered for this disease, though its progress has seemed to be checked at times by the employment of quinine and arsenic.

LEUCOCYTOSIS: an increase in the number of white corpuscles in the blood. See **HEMATOLOGY**.

LEUCODERMA, n. *lô'kô-dêr'mă* [Gr. *leukos*, white; *derma*, skin]: a disease characterized by a mere discoloration of the skin, giving rise to no other symptoms.

LEUCOL, n. *lô'kôl*, or **LEUCOLINE**, n. *lô'kô-lîn* [Gr. *leukos*, white; L. *olëum*, oil]: an absolute term applied to quinoline (q.v.).

LEUCOMA, *lô-kô'ma* [from Gr. *leukos*, white]: white opacity of the cornea. It is the result of acute inflammation, giving rise to the deposition of coagulable lymph on the surface, or between the layers of the cornea. It is sometimes reabsorbed on the cessation of the inflammation, and the cornea recovers its transparency; but in many cases it is persistent and incurable.

LEUCOPHLEGMATIC, a. *lô'kô-flêg-măt'îk* [Gr. *leukos*, white; *phlegma*, phlegm]: in *med.*, showing a tendency to dropsy. **LEUCOPHLEGMA'SIA**, n. *-mă'sî-ă*, a drop-sical habit of body, characterized by paleness and flabbiness, with an excess of serum in the blood.

LEUCOPHYLL, n. *lô'kô-fîl* [Gr. *leukos*, white; *phul-lon*, a leaf]: in *bot.*, a colorless substance in parts of plants capable of becoming green, converted into chlorophyl by contact with oxygen.

LEUCOPYRITE, n. *lô-kôp'î-rît* [Gr. *leukos*, white, and Eng. *pyrites*]: a mineral of a color between white and steel-gray, with a metallic lustre, employed for the production of white arsenic, and also of artificial orpiment.

LEUCORRHEA, n., or **LEUCORRHŒA**, *lô'kô-rê'ă* [Gr. *leukos*, white; *rheô*, I flow]: a female ailment; the whites, in which the most prominent symptom is the discharge of a glairy fluid, often in considerable quantity. For the special character of this complaint, see medical treatises. Its general treatment consists in fomentations, applications of emollients, and administration of tonics and astringents.

LEUCO'THEA. See **INO**.

LEUCTRA, *lûk'tra*: anciently, a village of Bœotia, in Greece, famous for the great victory which the Thebans under Epaminondas (q.v.) won over the Spartan king Cleombrotus, B.C. 371, in consequence of which the influence which had been exercised by Sparta for centuries over the whole of Greece was broken for ever.

LEUKÆMIA, or **LEUKEMIA**, n. *lô-kê'mî-ă* [Gr. *leukos*, white; *haima*, blood]. See **LEUCOCYTHÆMIA**.

LEUKAS. See **AMAXICHI**.

LEUTHEN—LEVANT.

LEUTHEN, *loy'tén*: village of Prussia, in Lower Silesia, 9 m. w. of Breslau, notable for the victory, 1757, Dec. 5, of Frederick the Great, with 33,000 men, over the Austrians under Prince Charles of Lorraine at the head of 92,000. The Austrians lost 7,000 killed and wounded, 21,500 prisoners, and 134 pieces of artillery; the Prussians 3,000 killed and wounded. The result was the reconquest of the greater part of Silesia by the Prussians. Pop. 870.

LEUTZE, *loyt'séh*, EMANUEL: 1816, May 24—1868, July 18; b. Gmünd, Würtemberg: painter. He was brought to the United States while an infant, and was educated in Philadelphia. He began his art career by painting portraits, but not meeting with sufficient encouragement, he turned to large figure pieces and produced *Indian Gazing on the Setting Sun* (1840). This procured him numerous orders, and 1841 he went to Düsseldorf and began studying with Lessing, subsequently visiting the great galleries of Italy. He applied himself to historical subjects connected with America, lived in Germany till 1859, and spent the remainder of his life in Washington and Philadelphia. His works include *Columbus before the Council of Salamanca*; *Columbus in Chains*; *Landing of the Norseman in America*; *Washington Crossing the Delaware*; *Washington at Monmouth*; *Washington at the Battle of Monongahela*; *News from Lexington*; *Sergeant Jasper*; *Washington at Princeton*; *Settlement of Maryland by Lord Baltimore*; and the great mural picture in the national capitol *Westward the Star of Empire takes its Way*.

LE VAILLANT, *léh vǎ-yǒng'*, FRANÇOIS: traveller and ornithologist: 1753—1824, Nov. 22; b. Paramaribo, in Dutch Guiana, where his father, a rich French merchant, was French consul. When he was 10 years of age, his father returned to Europe, and settled at Metz. In 1777, Le Vaillant started as an explorer; and after great hindrances and difficulties, made two s. African excursions: the first, 1781, Dec.—1782, Apr., eastward, at no great distance from the coast, to the Great Fish river, whence he returned by a more northern route through mountainous regions; the second, 1783, 84, northward from Cape Town as far as the tropic of capricorn. He returned to France with a fine collection of skins of birds for stuffing, and printed the accounts of his discoveries in nat. history. His books were speedily translated into English: they are spirited and interesting. He published also *Natural History of the Birds of Africa* (6 vols. 4to, Paris 1796-1812).

LEVANT, n. *lě-vǎnt'* [F. *levant*, the East, the Levant—from *lever*, to rise or raise—from L. *levāre*, to raise: It. *levante*, the East]: the eastern part of the Mediterranean Sea, or those countries washed by that part, especially the coasts of Asia Minor, Syria, and Egypt:

LEVANT—LEVÉE.

sometimes in a wider sense including all the countries eastward from Italy as far as the Euphrates and the Nile: ADJ. eastern; in *geol.*, a term applied by Prof. Rogers to designate the fourth of the fifteen series into which he subdivides the Paleozoic strata of the Appalachian chain, the *sunrise* of the N. Amer. Paleozoics. LEVANT'ER, n. -*ér*, in the Mediterranean, a strong easterly wind. LEVANT'INE, a. -*în*, of or pertaining to the Levant. *Note.*—LEVANT and PONENT are old terms for east and west, and signify literally 'rising and setting,' with reference to the sun.

LEVANT, v. *lě-vănt'* [Sp. *levantar*, to raise: see above]: to run away without paying; to act as a levanter. LEVANT'ING, imp. LEVANT'ED, pp. LEVANT'ER, n. -*ér*, one who bets at a horse-race, and when he loses runs away without paying.

LEVASSEUR, *lě-vâ-sér*, PIERRE EMILE: French political economist and geographer: b. Paris, 1828, Dec. 8. He was educated at the Collège Bourbon and the Ecole Normale, and after holding several important educational posts became in 1876 professor of geography at the Ecole Libre des Sciences in Paris. He has been especially prominent in regard to geographical study in French school and in addition to a series of geographies is author of *Public Moneys among the Romans* (1854); *The Gold Question* (1858); *The Laboring Classes of France from Cæsar's Time to the Revolution* (1859); the same continued to 1867 (2 vols.); *The French Population* (1889-91), an important work; *France and her Colonies*.

LEVATOR, n. *lě-vă'tōr* [L. *levātus*, raised—from *levārē*, to raise]: in *anat.*, a muscle which serves to raise some part, as the eyelids or lips; a surgical instrument for lifting depressed parts of the skull.

LEVEE, n. *lěv'ē* [F. *levée*—from *lever*, to raise or rise: L. *levārē*, to raise: original meaning being, the time to rise]: originally the ceremonious visits paid to distinguished persons in the morning; assembly of gentlemen received by a sovereign or prince, or their representative, on stated public occasions; a complimentary attendance of the public on a person in authority.—*Levee* in Great Britain is the state ceremonial of the sovereign receiving visits from those subjects whose position entitles them to that honor. By the usage of the court, a levee differs from a 'drawing-room' in this respect, that only gentlemen are present (excepting the chief ladies of the court), while at a 'drawing-room' both ladies and gentlemen appear. The name is owing to such receptions being originally held in the monarch's bedchamber at the hour of rising.

LEVÉE, *lě-vă'*: French name for an embankment (q.v.): also English LEVEE, *lěv'ē*.

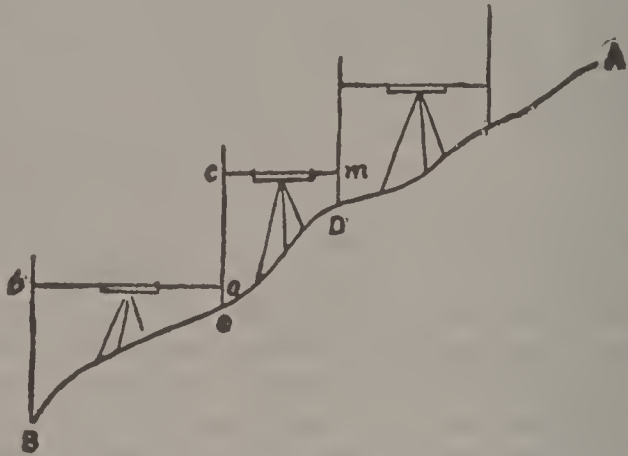
LEVEL—LEVELLING.

LEVEL, a. *lěv'ěl* [OF. *livel*, a level: It. *livella*, a plummet—from L. *libella*, a level or line—dim. of *libra*, a level, a balance]: even; flat; in the same line; horizontal; even with something else; equal in rank or degree: N. a plane surface; a plain; state of equality; the usual height or elevation; standard; line of direction; an instrument used to ascertain whether a surface is horizontal; an instrument employed in surveying to indicate the direction of a line parallel with the plane of the horizon: V. to make even; to make horizontal; to lay flat; to bring to an equality; to point in taking aim; to aim, as a gun; to direct to an end; to direct, as remarks; to aim at; in *OE.*, to conjecture; to make attempts; to accord; to square with. LEV'ELLING, imp.: ADJ. making flat or even; reducing to an equality of condition: N. the act or art of reducing to a plane or flat surface; in *surv.*, the art of operation of finding a horizontal line, or of ascertaining the differences of level between the various points in a survey. LEVELLED, pp. *lěv'ěld*: ADJ. made even or flat; reduced to an equal state or condition; brought down. LEV'ELLER, n. *-ēr*, one who aims at reducing all persons and things to a common level: name of a party which arose in the army of the Long Parliament, but was severely dealt with by Cromwell. It demanded equality of ranks, titles, and estates, throughout the kingdom. One of their books sets forth as their fundamental principles views mostly now incorporated in republican government. TO LEVEL UP, to raise from a lower to a higher level; to place a lower on an equality with the higher thing. SPIRIT-LEVEL, instrument to ascertain whether a surface is horizontal, using alcohol in a glass tube as water might freeze.—SYN. of 'level, a.': equal; alike; uniform; smooth; horizontal.

LEV'ELLING: art or act of finding a horizontal line, or of finding the difference of level between various points in a survey. Level is a term applied to surfaces that are parallel to that of still water, or perpendicular to the direction of the plumb-line; it is applied also to the instrument employed in determining the amount of variation from perfect levelness. The instrument is a cylindrical glass tube very slightly convex on one side, and so nearly filled with water, or, what is better, with alcohol (in the 'spirit-level'), that only a small bubble of air remains inside. The level is then mounted on a three or four legged stand, with its convex side upward, and by means of a pivot and elevating screws, is made capable of assuming any required position. If the level be properly constructed, the bubble should lie *exactly* in the middle of the tube when the instrument is properly adjusted, and, at the same time, the line of sight of the telescope attached to the level should be accurately parallel to the surface of still water. In ordinary levels, this first condition is seldom seen, and, instead,

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two notches are made on the glass to mark the position of the two extremities of the bubble when the instrument is level. The tube and bubble should be of considerable length to insure accuracy. The leveller requires two assistants, each furnished with a pole 10 to 14 ft. high, and graduated to ft. and inches, or ft. and tenths of ft. If he wishes to measure the height of A above B, he may do this by beginning either at A or B. Let the latter be the case, then one assistant is placed at B, holding his pole upright; the other is sent forward to C (which must be below the level of the top of the pole at B); the surveyor, who places himself between



them, reads off the height Bb , which he puts down in the back-sight column of his book, and then turns the level to C, reading off Co , which is entered in the front-sight column. The surveyor and his assistant at B then take up new positions, the latter at D; the back-sight Cc and the front-sight Dm are read off, and the process is repeated till one of the assistants reaches A. The excess of the sum of the back-sights over that of the front-sights gives the height of A above B. A little consideration shows that this method can hold true only when practiced at short range, with short distances between the levelling staffs. Otherwise as each line is tangent to the earth's surface at the place where the level stands the lines continually recede from the earth's surface. To be truly parallel thereto, the lines should be a curve; as this is impossible they should be so short as to be practically such collectively. This method carried out with due refinements and corrections is probably the most accurate known. In surveys of extensive areas when the curvature of the earth's surface has to be allowed for (see GEODESY), other methods are sometimes adopted. In trigonometrical surveying, the zenith distance of the distant point is determined. This is the angle between the vertical at the point of observation and the point in question. Its horizontal distance has also to be determined. As the radius of the earth at the given point is known, it is obvious that from these data the relative level of the two places can be calculated. Local attraction causing a deflection of the plumb-

LEVEN—LEVER.

line, and atmospheric refraction, interfere with the accuracy of this method. The horizontal distance for the latter reason should not exceed 12 or 15 miles. Heights are often determined by the barometer, by taking readings at the different stations as nearly simultaneously as possible. If only one barometer is available, then intermediate readings should be adopted (see ATMOSPHERE; BAROMETER). As the atmospheric pressure diminishes, the boiling point of water increases; this fact is used in determining mountain heights. An exceedingly delicate thermometer is suspended in a vessel over the surface of water which is caused to boil. The temperature of the steam evolved is observed, and gives the datum for determination of the height. The measurement of heights in geodesy is termed *hypsometry*. See HEIGHTS, MEASUREMENT OF.

LEVEN, LOCH, *loch lěv'én*: beautiful sheet of water, of oval form, in the e. of Kinross-shire, Scotland; between 10 and 11 m. in circuit, and dotted with small islands, the chief of which are St. Serf's Inch, at the e. end, 80 acres in extent; and another of 5 acres, opposite the town of Kinross. The loch is supplied by several small streams, and empties by the Leven into the Firth of Forth. It has long been noted for the quantity, quality, and size of its trout.

LEVEN, LOCH, *loch lěv'én*: arm of the sea, or rather of Loch Linnhe (q.v.), on the w. coast of Scotland, between Argyle and Inverness; about 11 m. in length by, on an average, less than one m. in breadth. It is remarkable for the wild grandeur of its scenery. The current produced in this loch by the ebb and flow of the tide runs at the rate of at least 4 m. an hour.

LÉVÊQUE, *lā-věk'*, JEAN CHARLES: educator: b. Bordeaux, France, 1818, Aug. 7; d. 1900. He was educated in the college and normal school at Bordeaux; was prof. of philosophy in the colleges at Angoulême and Besançon 1841-47, the French School at Athens 1847-48, and at Toulouse and Nancy subsequently; became prof. of Greek and Latin philosophy in the College of France at Paris 1856; succeeded Barthélemy Saint-Hilaire 1861; was elected member of the French Acad. of Moral and Political Sciences, succeeding Prof. de Saisset, 1865; and was chosen vice-pres. 1873. He published numerous philosophical works, and received several prizes for them.

LEVER, n. *lě'vēr* [OF. *leveur*, a raiser or lifter: F. *lévier*, an instrument for raising weights—from *lever*, to raise—from L. *levāre*, to raise: *levis*, light]: a strong bar of iron or wood, turning on a support or prop called a *fulcrum*, used for raising weights; one of the mechanical powers. LEVERAGE, n. *lě'vēr-āj*, the mechanical power gained by the use of the lever. LEVER WATCH, a watch in which a vibrating lever connects the action of the escape-wheel with the action of the balance. The

LEVER.

Lever is the most simple and common, but, at the same time, most important of the seven mechanical powers. It consists of an inflexible rod—straight or bent—supported at some point of its length on a prop called the *fulcrum*, and having the *weight* to be moved and the *power* to move it applied at other two points. In the accompanying illustration (fig. 1, a), AB is the lever, F the fulcrum, A and B the points of application of P and W, the power (or pressure) and weight respectively. If the arms AF and BF be equal, the power P and the weight W also must

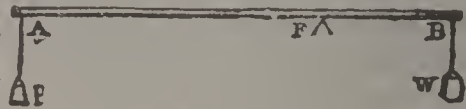


Fig. 1, a.

be equal to produce equilibrium; if the arm of the power, AF, be longer than the arm of the weight, BF, then, to produce equilibrium, the power P must be less than the weight W, and *vice versa*; if AF be double the length of BF, then P, to produce equilibrium, must be half of W; and, generally, as is shown in the elementary treatises on mechanics, *the power and weight are in the inverse ratio of their distances from the fulcrum*. This is equally true for straight or bent levers; but (fig. 1, b),

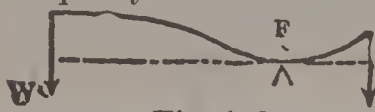


Fig. 1, b.

the distance of the power and weight from the fulcrum is not, in all cases, the actual length of the arms, but the lengths of perpendiculars from the fulcrum upon the directions of the power and weight. This principle holds good, whatever be the relative positions of the power, weight, and fulcrum; and as there can be three different arrangements of these, we thus obtain what are called 'the three kinds of levers.' *The first kind*, known as the 'common lever' (fig. 2), is one in which the fulcrum is placed

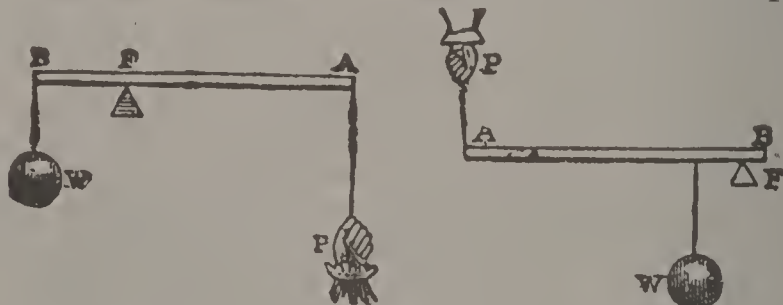


Fig. 2.

Fig. 3.

between the power and the weight; the Balance (q.v.), spade (when used for raising earth), see-saw, etc., are examples of this; and scissors and pincers are examples of double levers of the same kind. Levers of *the second kind* (fig. 3) are those in which the weight is between the power and fulcrum; examples of this are the crow-bar, when used for pushing weights forward, the oar—the water being the fulcrum, and the row-lock the point of application of the weight—and the wheel-barrow; and of double-levers of this kind nut-crackers are an example. In levers of *the third kind* (fig. 4) the power is

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between the weight and the fulcrum. Fishing-rods, whips, umbrellas, and most instruments used with the hand

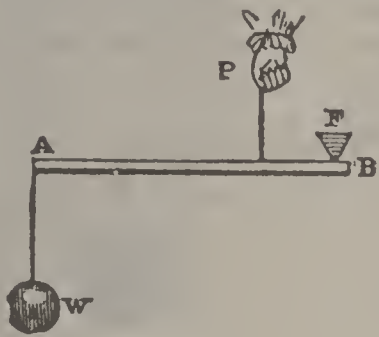


Fig. 4.

alone, are levers of the third kind, and shears, tongs, etc., are examples of double-levers of this class. It is evident that, to produce equilibrium in levers of the first kind, the power may, according to the ratio of the lengths of the arm, be either greater or less than the weight; in the second kind, it must always be less; and in the third

kind, always greater. This is expressed in technical phrase by saying that the first kind of lever gives a *mechanical advantage* or *disadvantage*; the second always gives a mechanical advantage, and the third always a mechanical disadvantage. Levers of the second kind, having the same mechanical advantage, are, when worked by man, twice as powerful as those of the first kind, because in the one case he uses his muscular force as the power, in the other case only his weight. Levers of the third kind are used when velocity, or a large extent of motion, is required at the expense of power; consequently this form is frequent in the structure of the limbs of animals. The structure of the human arm (fig. 5) is a very good example; the fulcrum is the socket (C) of the

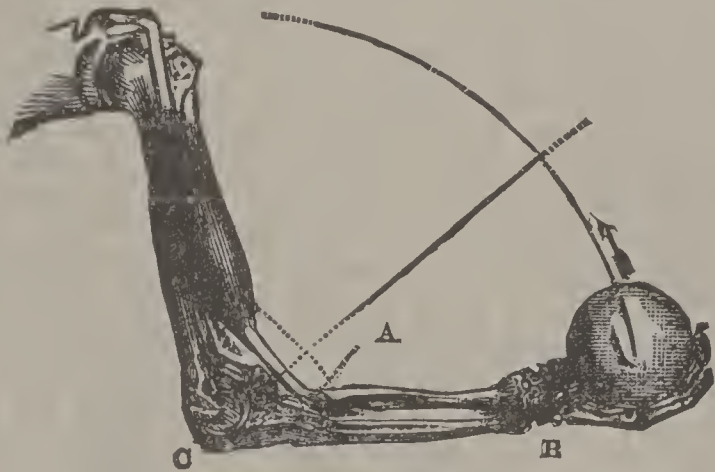


Fig. 5.

elbow joint, the power is the strong muscle (the *biceps*) which passes down the front of the *humerus*, and is attached, at A, to the *radius* (see ARM); the weight is the weight of the forearm, together with anything held in the hand, the two being supposed to be combined into one weight acting at B. By this arrangement, a large extent of motion is gained, by a slight contraction or extension of the muscle.

When a large mechanical advantage is required, this may be obtained, without inordinate lengthening of the

LEVER.

lever, by means of a combination of them (as in fig. 6). Here the levers have their arms in the ratio of 3 to 1, and a little consideration will make it plain that a power (P) of 1 lb. will balance a weight of 27 lbs.; but in this

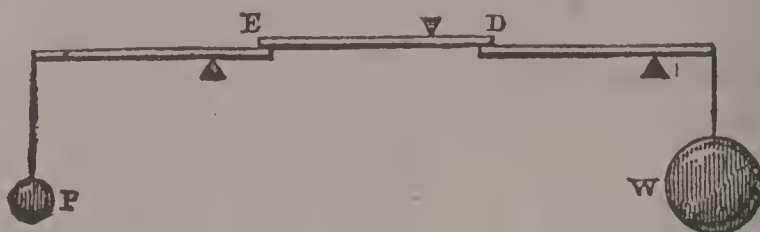


Fig. 6.

instance the particular defect of the lever as a mechanical power shows itself prominently; for if the weight has to be lifted two inches, the power requires to be depressed (2×27 or) 54 inches; and as the extent of sweep of the power cannot be largely increased without inconvenience, the advantages of this machine are confined within narrow limits. See MECHANICAL MOVEMENTS; MECHANICAL POWERS; MECHANICS.

LEVER, *l'évêr*, CHARLES, M.D.: Irish novelist: 1806, Aug. 31—1872, June 1; b. Dublin. He was educated for the medical profession, studying first at Trinity College, afterward on the continent. After taking his degree at Göttingen, he seems to have practiced medicine in some relation to the British legation at Brussels (see a quotation by Thackeray in *Book of Snobs*), though he was not formally appointed physician to the embassy. Afterward he became editor of the *Dublin University Magazine* (1842-45). He opened his brilliant literary career by *Harry Lorrequer*; after which he published a whole library of fiction, the larger proportion of which was issued in serial form with illustrations. Among Lever's best novels are *Charles O'Malley*, *Tom Burke*, *Roland Cashel*, *The Knight of Gwynne*, *The Dodd Family Abroad*, *Davenport Dunn*. When he undertook the editorship of the famous Irish magazine, Lever fixed his residence in the neighborhood of Dublin; but when, after a few years' trial, his work became distasteful, he removed to Florence. He was appointed vice-consul at Spezzia 1858, and was transferred 1867 to Trieste, where he died. The earlier novels of Lever are remarkable for boisterous mirth and whirl of incident. His ladies and gentlemen seem under the influence of champagne, his peasants and servant-men of 'potheen.' The great defect of his earlier work was that it lacked plot and unity, being composed of fragments carelessly pieced together. Individual characters and scenes, however, were so amusing as to give his books great popularity. Latterly, the current of his genius became broader and clearer, and several of his later works have a higher though scarcely an enduring interest. A life of Lever by N. J. Fitzpatrick appeared 1879.

LEVERET—LEVERRIER.

LEVERET, n. *lěv'ér-ět* [OF. *levrauli*; F. *levraut*, a young hare—from *lièvre*, a hare: L. *lepōrem*, a hare]: a young hare in the first year.

LEVERETT, *lěv'ér-ět*, **FRANK**: American geologist: b. Denmark, Iowa, 1859, Mar. 10. He was educated at Denmark Academy and the Iowa Agricultural College. In 1886, he entered the United States Geological Survey; was assistant geologist 1890-1900; and since 1901 has been geologist. His special lines of investigation are glacial geology and water resources. He is a member of many scientific societies, and has published: *Water Resources of Illinois* (1896); *Water Resources of Indiana and Ohio* (1897); *The Illinois Glacial Lobe* (1899); *Glacial Deposits of the Erie and Ohio Basins* (1901); *Water Supplies of Michigan* (1906); and various reports.

LEVERETT, **SIR JOHN**: American colonial governor: b. England, 1616; d. Boston, Mass., 1679, Mar. 16. At 17 he emigrated to America with his father, and settled in Boston. He returned to England in 1644 to take part in the struggle between the parliament and the king, and as commander of a company of foot soldiers gained military distinction and the friendship of Cromwell. He subsequently resided some years at the court of the Protector, as agent of Massachusetts. On his return to America he held successively some of the most important civil and military offices in the gift of the colony, and finally in 1673 was elected governor. His administration is important in colonial history as the era of the war with King Philip, which his skill and energy were instrumental in conducting to a fortunate issue. Two years previous to his death he was knighted by Charles II. in acknowledgment of his services to the New England colonies during this contest.

LEVERETT, **JOHN**: grandson of Sir John Leverett (q.v.): b. Boston, 1662, Aug. 25; d. Cambridge, 1724, May 3. He was an eminent lawyer and judge, speaker of the colonial legislature, and president of Harvard College from January, 1707, until his death. He was a man of unusual attainments, and received the honor, then rarely bestowed upon colonial subjects, of membership in the Royal Society.

LEVERRIER, *lě-věr'ī-ér*, **F. lěh-vā-rē-ā'**, **URBAIN JEAN JOSEPH**: French astronomer of great celebrity: 1811, Mar. 11—1877, Sep. 23; b. at St. Lô, dept. of Manche. He was admitted into the Polytechnic 1831, and was subsequently employed for some time as an engineer in connection with the Tobacco Board. In 1836, he published *Mémoires sur les Combinaisons du Phosphore avec l'Hydrogène et avec Oxygène*. His *Tables de Mercure*, and several memoirs on 'the secular inequalities,' opened to him the door of the Acad. 1846; and at the instigation of Arago, he applied himself to the examination of the disturbances in the motions of the planets, from

LEVI—LEVIN.

which the existence of an undiscovered planet could be inferred; and as the result of his laborious calculations, directed the attention of astronomers to the point in the heavens where, a few days afterward, 1846, Sep. 23, the planet Neptune was actually discovered, the same thing being also, by a remarkable coincidence, done about the same time, and independently, by the English astronomer Adams (q.v.). For this Leverrier was rewarded with the grand cross of the Legion of Honor, a professorship of astronomy in the Faculty of Sciences at Paris, and various minor honors. When the revolution of 1848 broke out, Leverrier sought distinction as a democratic politician; the dept. of La Manche chose him 1849, May, to the legislative assembly, where he at once became counter-revolutionary; and 1852, Louis Napoleon made him a senator. In 1854, Leverrier was appointed to the directorship of the Observatory of Paris, an office which, except for an interval of three years (1870-73), he held till his death.

LEVI, *lě'vī*: third son of Jacob and Leah (Gen. xxix. 34). He is conspicuous through the part he took with his brother Simeon in the slaughter of the inhabitants of Schechem, with Hamor and Shechem, their princes, while in a defenseless state, in order to avenge the wrong inflicted by the latter on his sister Dinah (Gen. xxxiv.). Jacob, even on his death-bed, could not forgive this their bloody 'anger and self-will,' and pronounced this curse on them both, that they should be scattered among Israel (Gen. xlix. 7). This was fulfilled in the case of Levi, the tribe of whose descendants, singled out for the service of the sanctuary and the general instruction of the people, had to reside in cities set aside for them throughout the length and the breadth of the land (see LEVITES). In Egypt, the house of Levi had divided itself into three families, those of Gershon, Kohath, and Merari.

LEVIATHAN, n. *lě-vī'ā-thān* [mid. L. *leviathan*—from Heb. *livyāthān*, a dragon or serpent]: scriptural term for a huge 'sea-monster,' especially a Crocodile (q.v.). In the Prophets and Psalms, it is occasionally used as a symbol of Egypt and Pharaoh. Leviathan in Ps. civ. 26 is probably the whale. Many wondrous allegorical tales are connected with this word in the Talmud and Midrash.

LEVIGATE, v. *lěv'ī-gāt* [L. *levigātus*, made smooth: It. *levigare*, to polish]: in *OE.*, to make smooth; in *chem.*, to rub or grind to a very fine powder by means of water and a stone. LEVIGATING, imp. LEVIGATED, pp. LEVIGA'TION, n. *-gā'shūn*, the act or process of grinding or rubbing a solid substance to an impalpable powder, with the aid of a little water,—*trituration* may be called the dry method.

LEVIN, n. *lěv'īn* [Norw. *ljon*; Dan. *lyn*; prov. Swed.

LEVIRATE—LEVITA.

lygna, a flash of lightning]: in *OE.*, a flash; a flash of lightning.

LEVIRATE, a. *lē-vī'rāt* [L. *lēvīr*; Gr. *dāēr*, a brother-in-law]: pertaining to the Jewish law by which a widow without issue was to be married to the brother of her deceased husband; also LEVIRATIONAL, a. *lēv'ī-rāt'ī-kāl*. LEVIRA'TION, n. *-ī-rā'shūn*, the act of marrying a brother's widow.—Levirate marriage was an institution not only among the Hebrews, but also among Moabites, Persians, etc., and still exists in Arabia, Abyssinia, etc.

LÉVIS, *lā-vē*, FRANÇOIS GASTON, Duc DE: French soldier in America: b. Château d'Anjac, Languedoc, 1720, Aug. 23; d. Languedoc, 1787. He served in the French army in various campaigns, and in 1756 was ordered to Canada, where he became second in command to General Montcalm. For his services at the defense of Carillon in 1758 he was promoted major-general; and at Montmorenci in 1759 he repulsed the English under Wolfe. After Montcalm's death on the Plains of Abraham, Lévis took command of the French army, and during the winter of 1759-60 he maintained a vigorous struggle against great odds. He was victor at Sainte Foye in 1760, and might have gained Quebec if the French vessels had arrived at the opening of navigation in that spring. Lévis returned to France, where he continued in the service; he was made a marshal in 1783.

LEVIS, *lā'vē*, or *lēv'īs*, LEVIS TOWN, or PORT LEVI, *lē'vī*: Canada, the chief town of Levis county, Quebec; on the Saint Lawrence river, opposite Quebec city, with which it has ferry communication. It is an important port with government docks; is the landing place for transatlantic travelers; and has a large export trade. Most of the square timber brought down the Saint Lawrence in rafts is here loaded into sailing ships for Europe. It is on the Intercolonial railway, and a terminus of the Quebec Central and of branches of the Grand Trunk railways. It is fortified, has a convent, a board of trade, factories, stores, and lumber-mills. Pop. 7,783.

LEVITA, *lē-vī'ta*, ELIJAH (*Halevi*, *Ben Asher*; *Ashkenasi* = the German, *Habaehur* = the Master, *Hamedakdek* = the Grammarian): Jewish grammarian and exegete: 1470—1549; b. Neustadt on the Aisch, near Nuremberg. One of the then frequent expulsions of the Jews forced him to seek refuge in Italy, where he held a high position as teacher of Hebrew, first in Venice, next in Padua, finally in Rome (1514). Cardinal Egidio here became his patron and pupil, but even he could not prevent Levita's being expelled from Rome with his Jewish brethren, 1527. He then returned to Venice, where he lived for the most part until his death. His principal exegetical and biblical works are *Commentary on Job in verse*, a *German Translation of the Psalms*,

LEVITE—LEVITES.

and *Edition of the Psalms with Kimehi's Commentary*, an *Edition of the Targum to Proverbs*, and of *Kimchi's Commentary to Amos*. His grammatical works are chiefly: *Masoreth Hammesoreth* (Tradition of Traditions), a treatise on the vowel-points, etc., in the Old Testament; *Tub Taam* (Good Judgment), a treatise on Accents; *Sefer Habachur* or *Dikduk* (Grammar), besides many minor treatises. In the field of lexicography, he has contributed *Meturgeman* (= Dragoman), an attempt at a Talmudical and Targumical Dictionary; *Tishbi*, a complement to Hebrew dictionaries; *Shemoth Debarim* (The Names of Things), a Hebrew-German dictionary; *Nimukim*, glosses to David Kimchi's *Book of Hebrew Roots*, etc. Most of Levita's works have been repeatedly edited and partly translated by Buxtorf, Münster, Fagius, and others, who owed most of their Hebrew knowledge to Levita exclusively; a fact not generally recognized.

LEVITE, n. *lē'vīt* [mid L. *levītēs*; Gr. *levītēs*]: one of the tribe of *Levi*, which was set apart for the public service of religion under the Mosaic law. LEVITICAL, a. *lē-vīt'ī-kāl*, belonging to the Levites; priestly. LEVITICALLY, ad. *-lī*. LEVITICUS, n. *lē-vīt'ī-kūs*, one of the books of the Old Testament Scriptures, containing the laws and regulations that relate to the priests and *Levites*.

LEVITES, *lē'vīts*: descendants of *Levi* (q.v.), singled out for the service of the Hebrew sanctuary. The term is employed particularly in distinction from *Priests* (q.v.), in designating all those members of the tribe who were not of the family of *Aaron*. It was their office—for which no further ordination was required in the case of the individual—to erect, to remove, and to carry the tabernacle and its utensils during the sojourn of the *Israelites* in the wilderness. When the sanctuary had found a fixed abode, they acted as its servants and guardians, and had to assist the priests in their holy functions in the sanctuary and in their medical capacity among the people. The vocal and instrumental music in the temple was likewise under their care, as were also the general instruction of the people, certain judicial and administrative functions, the keeping of the genealogical lists, and the propagation of the *Book of the Law* among the community. In order to enable them better to fulfil these functions, no special part of the land was allotted to them, but they were scattered—in accordance with *Jacob's* last words (*Gen. xlix. 7*)—in *Israel*; 48 *Levitical* cities, among which there were also certain 'cities of refuge,' being set aside for them on both sides of the *Jordan*; without, however, preventing their settling wherever else they pleased. Their revenues consisted of the annual *Tithe* (q.v.), and of a share in the second tithe, due every third year, and in the sacrificial repasts. The length of their service varied at different

LEVITICAL DEGREE—LEVITICUS

times. No special dress was prescribed for them until the time of Agrippa.

While in the desert numbering not more than 8,580 serviceable men, they had, under David, reached the number of 38,000 men fit for the service, 24,000 of whom this king selected, and divided them into four classes—sacerdotal assistants, doorkeepers, singers and musicians, and judges and officers. A very small number only returned from the exile, and all the Mosaic ordinances with respect to their cities, tithes, share in sacrificial repasts, etc., were virtually abrogated during the time of the second temple. Nothing but the service in the temple, in which they were assisted by certain menials called *Nethinim*, was left to them. It may be presumed that they earned their livelihood partly like the rest of the community, partly as teachers, scribes, and the like. Their travelling-garb consisted, according to the Talmud (*Jebam.*, 122 *a*), of a staff, a pouch, and a Book of the Law. Foreign rulers also granted them exemption from taxes. This is the only tribe which is supposed to have kept up its pure lineage to this day, and certain, albeit small, signs of distinction are still bestowed upon its members, especially in the case of the presumed descendants of Aaron (the *Kohanim*). But the purity of lineage is more than questionable in many instances.—Levites is a name given also to certain sacerdotal assistants in the Roman Church.

LEVITICAL DEGREE: a term used in law to denote the degrees of kindred that are prohibited in the 18th chapter of Leviticus.

LEVITICUS, *lě-vīt'v-kūs* (Heb. *Vajikra*): third book of the Pentateuch, containing chiefly the laws and ordinances relating to the Levites and priests. Little or no progress is made in it with respect to the history of the people, and the few events recorded are closely connected with the special aim and purport of the book. The erection of the sanctuary having been described at the end of Exodus, the nature of the worship—revealed by God within this tabernacle—is set forth in Leviticus, which forms its continuation. The order is not strictly systematic, but a certain plan is apparent, in outline at least.

The whole of the supposed 'original' or Elohist document (see GENESIS) is by some eminent modern critics held to be embodied, in its primitive shape, as nearly as possible at least, in the 'Leviticus' as we have it now. Among the few additions and alterations ascribed to the Jehovist, are reckoned chapters x. 16-20, xx. 20-25, xxv. 18-22, and the greater part of chap. xxvi. (3-35), the second verse of which (end of *Parashah* xxxii.) is held to have concluded the Sinaitic legislation in the original document. Many scholars, however, strongly question the principles on which such minute and positive criticism proceeds, though not denying them some possible general

LEVITY—LEVY.

application in a limited range, and as furnishing interesting and sometimes helpful conjectures. See PENTATEUCH.

LEVITY, n. *lěv'ĩ-tĩ* [L. *levitātem*, lightness, fickleness—from *levis*, light: It. *levita*]: lightness of temper or conduct; frivolity; idle pleasure; want of seriousness; in *OE.*, the quality by which one body has less weight than another.—*SYN.*: lightness; inconstancy; changeableness; unsteadiness; laxity; thoughtlessness; inconsideration; flightiness; volatility; buoyancy.

LEVULOSE: a variety of Glucose (q.v.); same as LÆVULOSE (q.v.).

LEVY, v. *lěv'ĩ* [F. *lever*, to raise—from L. *levāre*, to raise: F. *levée*, the act of raising or gathering]: to raise; to collect, said of troops or taxes: N. the act of collecting men for some service; the men thus collected: the act of raising money by assessment; the seizing by a sheriff of real or personal property to satisfy an execution against it. Personal property can be levied upon only by being brought under the personal power of the officer; but the setting forth the metes and bounds of the portion of real estate seized, suffices. LEV'YING, imp. *-ĩ-ing*. LEVIED, pp. *lěv'id*. LEVIABLE, a. *lěv'ĩ-ā-bl*, that may be collected or assessed. To LEVY WAR, to raise or begin war.

LEVY, *lā-vē*, EMILE: French painter: b. Paris, 1820, Aug. 20; d. Paris, 1900, Apr. 4. He studied at the Ecole des Beaux Arts and was also a pupil of Picot and De Pujol; he won the Grand Prix de Rome in 1854. In 1878, he was awarded a first class medal for a picture he exhibited in the Salon. He had received the cross of the Legion of Honor in 1868, and was much valued as a portrait painter. He was also successful in pastel. Among his works are: *The Death of Orpheus* (1866), now in the Luxembourg; *Supper of the Martyrs* (1859); *The Elements*, in the Louvre; *Presentation of the Virgin*, in the Church de la Trinité, etc.

LEVY, *lě'vĩ*, LOUIS EDWARD: American photo-chemist and inventor: b. at Stenowitz, Bohemia, 1846, Oct. 12. Coming to the United States in boyhood he received his early education at the Detroit public schools. He gave special attention to mathematics and astronomy at the University of Michigan (1866) and to practical optics in Detroit (1861-70). He was connected with the U. S. Lake Survey (1866), made researches in microscopic photography (1867-70) and invented a process in photo-chemical engraving (1875) called the 'Levytype.' He received (1896) with his brother Max, a medal for invention of 'Levy line screen,' and (1900) a gold medal for Levy 'acid blast,' both from Franklin Institute, Philadelphia, and a medal and diploma from the World's Columbian Exposition (1893) for original discoveries. He also received a decoration and diploma from the

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Imperial Photographic Society of Moscow, Russia, in 1896; gold medal, Paris, 1900, and from St. Louis Exposition, 1904, for invention of the acid blast; and a gold medal from the St. Louis Exposition, 1904, for the invention of the etch-powdering machine. He has published and edited in Philadelphia *The Evening Herald* (1887-90); *The Mercury* (1887-91); and has edited *The Jewish Year* (1895); *The Russian Jewish Refugees in America* (1895); *Business, Money, and Credit* (1896). He was elected vice-president of Inventors' Association at Paris in September, 1900.

LEVY, URIAH PHILLIPS: American naval officer: b. Philadelphia, 1792, Apr. 22; d. New York, 1862, Mar. 22. Sailing as a cabin boy before his 11th year, he was apprenticed as a sailor in 1804, and before he was 20 had passed through every grade and become master. On Oct. 23, 1812, he was commissioned sailing-master in the navy, serving until June, 1813, on the ship *Alert* and then on the brig *Argus*. He was placed in command of one of the prizes which the *Argus* secured, but it was subsequently recaptured and he, with his crew, was imprisoned in England for 16 months. In 1817, Mar., he was appointed lieutenant. Personal antagonism, in which religious prejudice played an important part, subjected him to nearly forty years' struggle, in the course of which he fought a duel, killed his opponent, was court-martialed six times, and finally dropped from the list as captain. He was finally restored to that rank in 1855, and later became commodore.

LEVY of Troops: compulsory raising of a body of soldiers from any specified class in the community for general defense or offense. When a country is in danger of instant invasion, a *levée en masse* is sometimes made—i.e., every man capable of bearing arms is required to contribute in person toward the common defense. On less urgent occasions, the levy may be restricted to a class, as to men between 18 and 40 years of age. At other times, a levy of so many thousand men of a certain age is decreed, and the districts concerned draw them by lot from among their eligible male population. In armies sustained by volunteering, the levy, which is a remnant of barbarous times, is unnecessary; but the system was frequently resorted to in France before the enactment of the conscriptions laws: in the civil war there were (1862) great levies in the United States; and in any country where great danger is apparent, and volunteers are not sufficiently numerous, recourse must at all times be had to a levy of the people.

LEVYNE, n. *lěv'in* [after *Levy*, the mineralogist]: one of the zeolite family, occurring chiefly in amygdaloid and other trap rocks in white or yellowish hexagonal crystals.

LEW-CHEW' ISLANDS. See LOO-CHOO ISLANDS.

LEWD—LEWIS.

LEWD, a. *lôd* [AS. *læwd*, or *læwede*, belonging to the laity—originally, illiterate, as opposed to the educated clergy, hence inferior, bad, lustful]: given to lustful indulgence; dissolute; licentious; impure; in *OE.*, inferior; bad. **LEWD'LY**, ad. *-lī*. **LEWD'NESS**, n. *-nēs*, lustful; licentiousness; debauchery; unchastity. **LEWDSTER**, n. *lôd'stēr*, in *OE.*, a lecherous man.—**SYN.** of 'lewd': profligate; lascivious; lecherous; lustful; libidinous; sensual; unchaste; impure; wanton; debauched.

LEW'ES (Del.). See DELAWARE BAY.

LEW'ES, GEORGE HENRY: 1817, Apr. 18—1878, Nov. 30; b. London: author. He studied medicine, but turned to authorship. In his 21st year, he went to Germany, where for two years he studied the life, language, and literature of that country. He made his residence in London, and was an industrious and successful *littérateur*—excelling as biographer and critic. He contributed to quarterlies and magazines; edited the *Leader* newspaper 1849-54; composed novels, comedies, and tragedies; and ultimately studied physiology and cognate branches of science, in which he won reputation. Lewes was the husband of 'George Eliot' (see EVANS, MARIAN). His principal works are *Biographical History of Philosophy* (1845, later a new and much enlarged ed.); *The Spanish Drama, Lope de Vega and Calderon* (1846); *Comte's Philosophy of the Sciences* (forming one of the volumes in Bohn's *Scientific Library*, 1853), not a mere translation, but in several parts a complete remodelling, by which the style does not suffer; *Life and Works of Goethe*, etc. (1855); *Seaside Studies at Ilfracombe* (1858); *Physiology of Common Life* (1860); *Problems of Life and Mind* (1873-4); *On Actors and the Art of Acting* (1875); and *The Physical Basis of Mind* (1877). In 1865, Lewes founded the *Fortnightly Review*, and for a time was its editor.

LEWIS, lū'is, AGNES SMITH, D.D., LL.D.: English scholar and palæographer. She was educated at the Irvine Academy, Ayrshire, in her childhood, and subsequently received her tuition from university men of learning. She was married to Rev. S. S. Lewis. Her remarkable services to palæographical science have been recognized by the bestowal upon her of honorary degrees from Halle, Wittenberg, and St. Andrews. In company with her sister, Mrs. Margaret Dunlap Gibson, she visited Sinai four times, and in 1892 discovered and photographed the Syro-Antiochene, or Sinaitic Palimpsest, the most ancient one of the four Gospels known. She has written also: *Introduction to the Four Gospels from the Sinaitic Palimpsest*; *Some Pages of the Sinaitic Palimpsest Retranscribed*; *A Translation of the Syriac Gospels*; *The Palestinian Syriac Lectionary of the Gospels*; and other learned works on Scripture antiquities.

LEWIS, ALFRED HENRY: American journalist and

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author. He was formerly Washington correspondent of the *Chicago Times* (*nom de plume* 'Dan Quinn,' and later had charge of the Washington bureau of the *New York Journal*. In 1898, he established in New York *The Verdict*, a humorous weekly. He has written: *Wolfville*; *Episodes of Cowboy Life*; *Sandburrs* (1900); *Wolfville Days* (1902); *Wolfville Nights* (1902); *Black Lion Inn* (1903); *Peggy O'Neal* (1903); *The Sunset Trail* (1905); *Story of Paul Jones* (1906); *The Throw-back* (1906); *When Men Grew Tall* (1907); etc.

LEWIS, ALONZO: American poet: once known as the 'Lynn bard'; b. Lynn, Mass., 1794, Aug. 28; d. there, 1861, Jan. 21. He was the author of *Forest Flowers and Sea Shells*, which reached 10 editions, and *History of Lynn*.

LEWIS, ANDREW: 1730—1781, Sep. 26; b. Donegal, Ireland: soldier. He came to America with his parents 1732; settled in Bellefonte, Augusta co., Va.; in the old French war was a volunteer soldier in the Ohio campaign 1754; maj. in Washington's Virginia regiment, and present at the surrender of Fort Necessity and at Braddock's defeat; commanded the Sandy Creek expedition 1756; was captured by the French at Fort Duquesne 1758; was Virginia commissioner to make treaty with the Iroquois at Fort Stanwix 1768; defeated the Shawnee confederacy at the mouth of the Great Kanawha river 1774; and was a member of the Virginia convention 1775, May-June. Congress appointed him brigadier-general 1776, Mar. 1, and he dislodged Lord Dunmore from Gwynn's Island by order of the council of safety. Ill health compelled him to resign 1777, Apr. 15. His statue is one of the cluster around the Washington monument in Richmond. His brother, CHARLES LEWIS, served under him on the frontier, became a colonel of Virginia militia, and was killed in the Shawnee battle 1774, Oct. 10.—Another brother, WILLIAM LEWIS, 1724-1811, served under Andrew in the French and Indian wars, and attained the rank of colonel in the revolutionary army.

LEWIS, CHARLES BERTRAND ('M. QUAD'): American journalist: b. Liverpool, O., 1842, Feb. 15. He was educated at the Michigan Agricultural College, and served in the Union army during the civil war. His journalistic work began on the staff of the *Detroit Free Press*, and he soon became known as a descriptive and humorous writer under the name of 'M. Quad.' In addition to his work in this field, in connection with various publications, he has also written: *Field, Fort, and Fleet: A Sketch-Book of the Civil War*; *The Lime-Kiln Club*; *Sawed-Off Sketches*; *Mr. and Mrs. Bowser*; *Quad's Odds*; and several plays.

LEWIS, CHARLTON THOMAS: American lawyer and author: b. West Chester, Pa., 1834, Feb. 25; d. Morristown, N. J., 1904, May 26. He was graduated at Yale

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in 1853, and after studying with a view to entering the ministry, served as professor at the State Normal University at Bloomington, Ill., 1856-7, and from 1858 to 1861 was professor in Troy University. In 1863-4 he was a United States deputy commissioner of internal revenue. He entered upon the practice of law in New York city in 1865; was associated with William Cullen Bryant in editing the *Evening Post*; and returned to law practice in 1871. At Harvard, Columbia, and Cornell universities, during 1898-9, he was a lecturer on insurance. He was also president of the Prison Association of New York and of the State Charities Aid Association of New Jersey. Among his published works are: *Gnomon of the New Testament*, translated from the German of Bengel (1861); *History of Germany* (1870); *Harper's Latin Dictionary*, in collaboration with Charles Short (1879); *Latin Dictionary for Schools* (1889); *Elementary Latin Dictionary* (1890); etc.

LEWIS, DIO: American physician and author: b. Auburn, N. Y., 1823, Mar. 3; d. Yonkers, N. Y., 1886, May 21. He studied at the Harvard Medical School, and practised for a time at Port Byron and at Buffalo, N. Y., publishing at Buffalo a monthly periodical with hygienic aims. He became widely known by his writing in advocacy of a system of higher gymnastics, and finally established a school in Boston in which teachers were trained in his new exercises; and a school for young ladies was also founded at Lexington, Mass., which was destroyed by fire in 1868. About 1883, he removed to New York. He wrote many articles for magazines, and his more extended works include *The New Gymnastics* (1862); *Weak Lungs and How to Make them Strong* (1863); *Talks About People's Stomachs* (1870); *Our Girls* (1871); *Chats with Young Women* (1871); *Chastity* (1872); *Gypsies* (1881); and *In a Nutshell* (1883).

LEWIS, EDMONIA (aboriginal name WILDFIRE): sculptor: b. Greenbush, near Albany, N. Y., 1845, July 4; daughter of a negro father and a Chippewa Indian mother. She was left an orphan when 3 years old; lived with the Indians till 1859; attended school in Oberlin, O., three years; began modelling in clay in Boston; achieved her first success with a portrait bust of Col. Robert G. Shaw; and 1865, was enabled to go to Rome, where she studied with Tadile and has since resided. Beside numerous portrait busts she has executed *The Freedwoman*; *Death of Cleopatra*; *The Old Arrow-maker and His Daughter*; *Hagar*; *Rebekah at the Well*; *Hiawatha's Wooing*; *Hiawatha's Wedding*; *Asleep*; *Madonna with the Infant Christ*; and many portrait busts, among them those of Lincoln, Sumner, and John Brown.

LEWIS, ESTELLE ANNA BLANCHE (ROBINSON): American dramatist: b. near Baltimore, Md., 1824, Apr.; d. London, 1880, Nov. 24. While a schoolgirl she made a

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verse-rendering of the *Æneid* into English; wrote *For-saken*, and published *Records of the Heart* (1844). Her best dramatic work, *Sappho of Lesbos* (1868), a tragedy, ran through seven editions, was translated into modern Greek, and played at Athens. Edgar A. Poe spoke of her as the rival of Sappho; Lamartine called her the 'female Petrarch.' Others of her works are: *The Child of the Sea, and Other Poems* (1848); *The Myths of the Minstrel* (1852); *Poems* (1866); and *The King's Stratagem* (1869), a tragedy.

LEWIS, FRANCIS: American patriot: b. Llandaff, Wales, 1713, Mar.; d. New York, 1802, Dec. 30. He entered commerce in London, but later came to America, and established a mercantile business in New York and Philadelphia. He made numerous successful business voyages to Europe, and in 1752 obtained the contract for clothing the British army in America. In the same year he was aide-de-camp to Gen. Hugh Mercer at Oswego, N. Y., when Montcalm advanced against it. After the capitulation, he was sent to France, and subsequently exchanged. For his services the government presented to him 5,000 acres of land. From 1765 he took part in public affairs. He was one of the New York committee in the 1st Colonial Congress (1765), in 1775 was elected to the 1st Continental Congress, in 1776 signed the Declaration of Independence, in 1777 was again elected to congress, and in 1779 became commissioner of the board of admiralty. He expended his wealth most freely in the patriot cause, to which his commercial knowledge also was very useful.

LEWIS, Right Honorable Sir GEORGE CORNEWALL, Bart.: English statesman and author: 1806, Apr. 21—1863, Apr. 13; b. London. He was educated at Eton and Christ Church, Oxford, where, 1828, he was first-class in classics, and second-class in mathematics. He was called to the bar of the Middle Temple 1831, and after acting on various commissions of inquiry, succeeded his father as poor-law commissioner 1839, remaining until the board was reconstituted 1847. He had meanwhile married Lady Maria Theresa, sister to the fourth Earl of Clarendon, and a connection by marriage of Earl Russell. Being thus incorporated into the number of whig official families, his political promotion was certain and rapid. He sat for Herefordshire 1847-52, and became successively secretary to the Indian board of control, under-secretary for the home department, and financial secretary to the treasury. In 1852, he lost his seat in the house of commons, and subsequently edited the *Edinburgh Review* till 1855, when he was elected for the Radnor district of boroughs. Lord Palmerston soon offered him the chancellorship of the exchequer in his first administration, which he held from 1855, Mar., to the dissolution of the government 1858, Feb. On the return of Lord Palmerston to power, 1859, June, Lewis accepted the post of

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secretary of state for the home department, which he exchanged, 1861, on the death of Lord Herbert, for the office of secretary of state for war. In the same year he published a work of much research, *Astronomy of the Ancients*. Lewis was an able, earnest, and sincere politician; not an eloquent orator, yet a man of sound sense, varied knowledge, and high moral and intellectual tone. His speculative writings show candor and practical good sense. His *Inquiry into the Credibility of Early Roman History* is conducted on the critical principles of Niebühr, but is more rigorous and skeptical in spirit. His works include: *Origin and Formation of the Romance Language*; *The Fables of Babrius*; *The Use and Abuse of Political Terms*; *The Influence of Authority in Matters of Opinion*; *The Method of Observation and Reasoning in Politics*; *Local Disturbances and the Irish Church Question*; *The Government of Dependencies*; *A Glossary of Provincial Words used in Herefordshire*; and *Astronomy of the Ancients*. His latest work was *Dialogue on the Best Form of Government*, which was published a few days before his death.

LEWIS, HENRY CARVILL: American geologist: b. Philadelphia, 1853, Nov. 16; d. Manchester, England, 1888, July 21. He was graduated from the University of Pennsylvania in 1873, served as a volunteer in the State Geological Survey of Pennsylvania in 1879-84, was professor of mineralogy in the Academy of Natural Sciences of Philadelphia in 1880-8, and of geology at Haverford College in 1883-8. In 1886-7, he studied at Heidelberg, and in 1887-8 made special investigations regarding the origin of the diamond. He prepared a chart of the various ancient ice-sheets and glaciers of England, Ireland, and Wales; for some time edited the mineralogical department of the *American Naturalist*, and wrote extensively on geological subjects, including: *The Antiquity of Man in Eastern America, Geologically Considered* (1880); *The Geology of Philadelphia* (1883); *Comparative Studies upon the Glaciation of North America* (1886), and *The Terminal Moraines of the Great Glaciers of England* (1887).

LEWIS, JAMES: American actor: b. Troy, N. Y., about 1840; d. West Hampton, Long Island, N. Y., 1896, Sep. 10. He first appeared in 1858 at the Troy Museum as Farmer Gammon in *The Writing on the Wall*, played second comedy parts for a time at the Greene street theatre of Albany, was later with a traveling company on the Georgia circuit, and was at Birmingham, Ala., when the Confederacy was proclaimed. Having escaped to the North, he afterward (1866) appeared at the Olympic, New York, as low comedian in *Your Life's in Danger*; and from 1869 until his death he was leading comedian in Augustin Daly's company. He took numerous parts with excellent versatility.

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LEWIS, JOHN FRANCIS: American politician: b. near Port Republic, Rockingham co., Va., 1818, Mar. 1; d. Harrisonburg, Va., 1895, Sep. 2. He was a planter, was a member of the Virginia state convention of 1861, refused to sign the ordinance of secession, and in 1869 was elected lieutenant-governor of the state on the ticket with G. C. Walker. In 1869, he was also elected as a republican to the United States senate, where he served from 1870, Jan. 24, to 1875, Mar. 3. He was appointed (1877) by President Hayes United States marshal for the western district of Virginia, but afterward resigned the post.

LEW'IS, MATTHEW GREGORY (known also as MONK LEWIS): 1775, July 9—1818, May 14; b. London: author. He was educated for the diplomatic service at Westminster School and Christ Church College, Oxford; studied the language, drama, and fiction of Germany, was appointed attaché to the British embassy at the Hague 1794; and published his remarkable romance *Ambrosia, or the Monk*, 1795. His work had a great sale, but was so licentious in details that the government compelled him to make many emendations before it would permit further editions. On attaining his majority he was elected to parliament, but soon tired of political life, and applied himself wholly to literature till the death of his father placed him in possession of a large estate in the W. Indies. He made trips thither 1815-16 and 1817-18 to improve the condition of his slaves, and died on a homeward voyage. Lewis dealt largely in mystery and tragic suggestion. He was author of the musical drama *The Castle Spectre* (1796); numerous operatic and tragic pieces: *Tales of Wonder*, in conjunction with Sir Walter Scott (1801); *The Bravo of Venice* (1804); *Timour the Tartar* (1812); and *The Journal of a West Indian Proprietor*, written on his first voyage and published posthumously (1834).

LEW'IS, MERIWETHER: 1774, Aug. 18—1809, Oct. 8; b. near Charlottesville, Va.: explorer. Of a naturally adventurous disposition, he joined the troops called out to suppress the whisky rebellion in w. Penn. 1794, and in the following year entered the regular army. He was promoted captain 1800, appointed private secretary to President Jefferson 1801, and was recommended by him to command an exploring expedition to the Pacific authorized by congress 1803. With Capt. William Clark (q.v.) and an escort of soldiers, he started on his overland journey in the summer of 1803; began ascending the Missouri river in the spring of 1804; reached its great falls 1805, July; ascended the Jefferson river to its source; reached the Kooskoosky river, branch of the Columbia, in October, and arrived at the mouth of the Columbia Nov. 15. The party reached St. Louis on the return 1806, Sep. Congress rewarded Lewis with the

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office of governor of Missouri Territory, and his followers with grants of land 1807. Lewis committed suicide in a fit of melancholy near Nashville. See Biddle and Allen's *Narrative of the Lewis and Clark Expedition*, with memoir of Lewis by Thomas Jefferson (1814).

LEWIS, MORGAN: soldier and statesman: 1754, Oct. 16—1844, Apr. 7; b. New York; son of Francis Lewis (q.v.). He graduated at the College of New Jersey 1773; joined the continental army as major of the 2d N. Y. regiment 1775, Nov.; was promoted colonel and chief of staff to Gen. Gates 1776, June; served through the Saratoga campaign; and was conspicuous in the battles of Stone Arabia and Crown Point. After the war he completed his legal studies, was admitted to the bar, and became judge of the court of common pleas, attorney-general of New York 1791, chief justice of the state supreme court 1792, and governor 1804. In 1812, he declined the office of secretary of war, and was appointed quartermaster-general of the army; 1813, promoted major-general, and served on the Niagara frontier; and 1814, commanded the defenses of New York. He was president of the Order of the Cincinnati and of the N. Y. Historical Society.

LEWIS (or SNAKE) RIVER: great southern branch of Columbia river; rising in the Rocky Mountains, on the w. border of Nebraska. After a circuitous course, the general direction is n.w. through Oregon; and after a total course of 900 m. it joins the Columbia near Fort Walla-Walla, lat. 46° 6' n., long. 118° 40' w.

LEWIS, TAYLER, LL.D., L.H.D.: 1802, Mar. 27—1877, May 11; b. Northumberland, Saratoga co., N. Y.; Reformed (Dutch) theologian. He graduated from Union College 1820, and studied law; but became principal of an academy at Waterford, N. Y., 1833; professor of Greek and Latin in the Univ. of the City of New York 1838; professor of Greek in Union College 1849; afterward professor of Oriental languages and Biblical literature till his death. He was an eager and versatile student: higher mathematics, astronomy, and music were enthusiastically pursued. He was proficient also in the Semitic languages and a leading Arabic scholar. He contributed largely to periodicals of the highest grade, and published numerous volumes. He wrote *The Six Days of Creation* (1855, 79); *The Bible and Science* (1856); *The Divine Human in the Scriptures* (1860); *The Light by which we see Light* (Vedder Lectures, pub. 1875); also other works. He died at Schenectady.

LEWIS, WILLIAM DRAPER, B.S., LL.B., PH.D.: American lawyer: b. Philadelphia, 1867, Apr. 27. He was graduated at Haverford College in 1888, and at the University of Pennsylvania in 1891. In the latter year he was instructor in legal historical institutions in the Wharton School, University of Pennsylvania; from 1890

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to 1896 was lecturer on economics at Haverford, since 1896 has been dean of the law department of the University of Pennsylvania, and has edited the *American Law Register*. He has written: *Federal Power over Commerce and Its Effect on State Action* (1891); *Our Sheep and the Tariff* (1891); *Restraint of Infringement of Incorporeal Rights* (1904); and many periodical articles on legal, historical, and economical subjects. Among the works which he has edited are *Wharton's Criminal Law* (1895); *Lewis' Edition of Greenleaf's Evidence* (1896); *Lewis' Edition of Blackstone's Commentaries* (1897); *Digest of Decisions and Encyclopedia of Pennsylvania Laws*; etc.

LEWIS AND CLARK EXPEDITION, THE: in American history, a celebrated expedition to the northwestern part of the United States in 1803, under the command of Captain Meriwether Lewis of Virginia, and Captain William Clark, the results of which gave a more definite idea of our natural resources in this hitherto unexplored region than had ever been known. Recognizing the importance of a thorough and accurate knowledge of the vast extent of country acquired by the United States with their independence, Thomas Jefferson, while minister to France, suggested to the traveler Ledyard an exploration of western America. Nothing came of it, however. In 1792, he made a similar proposition to the American Philosophical Society (q.v.), and Michaux, the celebrated traveler and botanist, proceeded as far as Kentucky, when he was recalled by the French minister. In 1803, Jan., in a confidential message to the congress, President Jefferson recommended an appropriation for this purpose. It was granted and he appointed Lewis, who had been his private secretary nearly two years, to the command of the expedition along with Clark. Lewis, while nominally in command of the expedition, always regarded Clark as his official equal, and during the three years of trying experience the two men worked hand in hand toward their great object with increased friendship and respect for each other. Lewis left Washington on July 5, 1803, and was joined by Clark at the Ohio. The expedition was delayed at Pittsburg till Aug. 31, then proceeded on its way toward the Mississippi, Lewis choosing volunteers from the military posts along the way. The intention had been to winter at La Charette, a French settlement on the Missouri, but owing to the advanced season the first winter camp was pitched at River Dubois, on the Mississippi, about opposite the mouth of the Missouri. On Mar. 9, 1804, Lewis was one of the witnesses to the transfer of Upper Louisiana at St. Louis; on May 14, 1804, he set out from River Dubois on the long journey up the Missouri. The party comprised in addition to Lewis and Clark, three sergeants, twenty-three soldiers, three interpreters, and Clark's negro slave York. Toward the end of October

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they reached the Mandan country and put up for winter quarters near the site of the present city of Bismarck, N. D., after a troublesome journey of 1,600 miles, battling against the swift current, the snags of the river, and its falling banks. Much of this distance Lewis traveled on foot, hunting, collecting specimens, and making notes upon the country. The journey was resumed 1805, Apr. 7, and on the 26th the party reached the mouth of the Yellowstone, one or the other of the captains, usually Lewis, pushing ahead with hunters on foot to provide game for the camps and to examine the country. On June 3 they passed and named Maria's river, and on the 13th came to Great Falls. Nearly a month was spent in making the portage, and on July 25 the party came to the triple fork of the Missouri. Naming the three branches Jefferson, Madison, and Gallatin, they proceeded up the Jefferson river, and on Aug. 12 reached the head of navigation. Then marching across the Nez Percé trail, along the Bitter Root Mountains, came to the headwaters of the Clearwater branch of the Columbia. On Oct. 7 they launched their canoes for the descent of this great river to the Pacific, which they reached Nov. 15. A fortified camp, called by the explorers Fort Clatsop, was pitched on the shore of Young's bay, and here with much hardship the winter was spent. The return journey was begun 1806, Mar. 23, and on May 8 the headwaters of the Clearwater were reached. On the return journey the party divided and explored a large part of the present state of Montana, uniting again below the mouth of the Yellowstone. Rapidly descending the Missouri they arrived at St. Louis 1806, Sep. 23. Both Lewis and Clark kept elaborate and valuable journals. Unfortunately they were never to edit them. A paraphrase by Nicholas Biddle, a friend of Jefferson, appeared in 1814, and has run through many editions. Not until 1903 were these priceless papers published in their complete form, presenting the first authentic record of this extraordinary expedition. In 1905, an exposition, known as the Lewis and Clark Centennial Exposition, was held at Portland, Ore., to commemorate these events.

LEW'IS-WITH-HAR'RIS [Lewis, from Norwegian *Ljodhhus*, the sounding house]: island of Scotland, one of the Outer Hebrides, most northern and largest of the group, about 30 m. n.w. from Ross-shire, from which it is separated by the Minch. Lewis, the larger and most northerly part of the island, belongs to Ross-shire; the other portion, Harris, belongs to Inverness. Length, 60 m.; greatest breadth, 30 m.; 770 sq.m. The coasts are wild and rugged; the chief indentations being Broad Bay, Lochs Erisort, Scaforth, Resort, and Roag. The Butt of Lewis, promontory at the extreme n., lat. 58° 31' n., long. 6° 15' 30'' w., rises 142 ft. above sea-level. The surface of the island is rugged, with tracts of swamp, a

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considerable portion is covered with peat, and there are remains of ancient forests. Barley and potatoes are principal crops. Remains of ancient edifices abound. The inhabitants are almost all of Celtic extraction, with the exception of a colony in the n., who, though they speak Gaelic, are of purely Scandinavian descent. Stornoway, on the e. coast, is the principal town. Pop. 32,000.

LEWISBURG, *lū'is-bérg*: Pa., borough, county-seat of Union co.; on the Susquehanna river, and on the Philadelphia & R. and the Pennsylvania railroads; about 50 miles north of Harrisburg. It is on the border of the great anthracite coal fields, and in a fertile agricultural valley. Its chief manufactures are flour, lumber, furniture, shirts, woolen goods, machine shop products, and acetylene gas. Its trade is chiefly in its manufactured products and in grain and vegetables. It is the seat of Bucknell University, opened in 1846 under the auspices of the Baptists. Pop. 3,500.

LEWISBURG, BATTLE OF: on May 21, 1862, Gen. Heth, with a Confederate force of three regiments of infantry, a battalion of dismounted men, a regiment of cavalry and three batteries, aggregating about 2,200 men, marched from Salt Sulphur Springs, Va., on Lewisburg, 24 miles distant, to surprise Col. Geo. Crook, who was encamped at that place with about 1,500 men. Heth marched through Union, crossed Greenbrier river, driving in Crook's pickets, and at 5 A.M. of the 23d formed line on a hill east of the town, Crook's camp being on the west side. Crook threw out a well supported skirmish line, which soon engaged Heth's advance; Heth at first had some success, but was gradually forced back; Crook charged his main line; a panic seized Heth's troops, and they fled from the field in disorder, retreating across the Greenbrier and burning the bridge behind them. Heth left on the field 38 dead and 66 wounded, four guns, and over 200 stand of small arms. Over 100 of his unwounded men were captured. Crook's loss was 13 killed, 53 wounded, and 7 missing.

LEWIS'IA: genus of plants, of nat. ord. *Portulacaceæ* (see PURSLANE): named from the American traveller Meriwether Lewis (q.v.). *L. rediviva* is found in the regions of his explorations, on the w. side of the Rocky Mountains. Its roots are gathered in great quantities by the Indians, and are highly valued as nutritive, and also as restorative, a very small quantity being deemed sufficient to sustain a man through a long journey and much fatigue. It is called *Tobacco Root* because, when cooked, it has a tobacco-like smell.

LEW'ISTON: city in Androscoggin co., Me., 36 m. n. of Portland; 30 m. s.w. of Augusta; on the left bank of Androscoggin river, opposite Auburn, with which it is connected by several bridges. It was laid out in 1770; incorporated in 1795; organized as city 1863; pop.

LEWISTON.

(1910) 26,247. Three railroads converge here, Me. Central, Grand Trunk, and Boston & Maine. The Lewiston, Brunswick & Bath Street railroad, the largest electric system in the state, is principally located here, and includes 57 m. of electric railroad. It has exceptional facilities for manufactures owing to its abundant water power derived from a dam across the river, a fall of the water of 50 ft. in a distance of 200 ft., and a canal 60 ft. wide to distribute the water. This dam and canal are owned by the Franklin Company, which constructed them at a cost of \$1,000,000. The city's largest single industry is the manufacture of cotton cloth. Some of the largest manufacturing plants in the country are located here, and their various products are found in nearly all the markets of the world. Their products are gingham, bed spreads, fine dress goods, seersuckers, fancy shirtings and colored cottons, sheetings, twills, jeans, grain bags, drills, momie cloths, fine and coarse yarns, quilts, linen and cotton towelings, scarfs and table covers. There are also several woolen mills whose products consist of blanket wrappers, chevots, cassimeres, repellants and meltonettes. One of the largest and most noted bleacheries and dye works in the United States, the Lewiston Bleachery and Dye Works, is located here. In addition to the textile manufacturing industries there is one large boot and shoe factory and other small industries, the products of which are machinery and mill supplies for cotton and woolen mills, engines, boilers, brick, lumber, carriages, clothing, foundry products, and agricultural implements.

There are two national banks, two savings banks and one trust and safe deposit company. The capital stock of the two national banks is \$600,000, surplus \$277,439, and the deposits aggregate \$940,639. The deposits in the savings banks and the trust company are about \$5,000,000. There are 12 churches in the city, some of which are imposing edifices. Three are Roman Catholic, one Episcopal, one Baptist, one Friends, one Congregational, two Free Baptist, two Methodist and one Universalist. There is also a Jewish synagogue. In connection with the Catholic churches are maintained four large Catholic parochial schools. Of the charitable institutions the more notable are the Sisters' Orphanage, the Healy Asylum, the Young Women's Home, the Home for Aged Women. There are two hospitals in this city—the Central Maine General Hospital and the Hospital of the Sisters of Charity. The city has five excellent hotels, commodious, comfortable and well appointed; two fine theatres, a splendid public library, a beautiful city hall, a new U. S. postoffice building and a handsome public park.

The public school system of the city is of the best. Its school buildings are numerous, conveniently located, with all the usual modern appointments. A new high school building was recently erected at a cost of \$75,000. The total value of the school property owned by the city

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is over \$300,000. In addition to the public schools are the Catholic parochial schools. Bates College is also located here. It is a coeducational institution and was the first college in New England to open its doors to women. The government is vested by charter in a mayor, board of aldermen and common council. The mayor is elected by the entire vote of the city, while one alderman and three councilmen are elected from each of the seven wards into which the city is divided. All are elected annually. The city owns its own waterworks. This city was the first in the United States to own and operate its own street lighting plant. The undertaking has proved a great success and many other cities in the country have since adopted the plan. The total assessed valuation of real and personal property is about \$18,000,000.

LEWISTON: town in Niagara co., N. Y.; on the Niagara river, and the New York Central & Hudson River railroad; 7 m. n. of Niagara Falls, at base of Mountain Ridge terrace. It is at the head of navigation from Lake Ontario, opposite Queenston, Canada. The famous Gorge Route from Niagara Falls, traversed by an electric trolley-line, connects at Lewiston by a suspension bridge with Queenston, Canada, and other points of interest in the vicinity are the Devil's Hole and Bloody Run, Rumsay Park, and the Tuscarora Indian Reservation. The place where Lewiston now stands was the site of an Indian village. In 1720, the French took possession of the place, and built a blockhouse, but abandoned it in a few years, when it was again occupied by the Indians. Joseph Brant's home was in this vicinity. On Sep. 14, 1763, occurred the Indian massacre at Bloody Run, a place near Lewiston. The first white settlement was made about 1800, and in 1818 the town was incorporated, and in 1843 the village. On Dec. 19, 1813, Lewiston was one of the towns burned by the English and Indians, in retaliation for the burning of Newark (now Niagara), Canada West, by the Irish-American General McClure; numbers of innocent persons perished on both sides. The place is now a favorite summer resort. Pop. (1910) 713.

LEWISTOWN: Ill., city, county-seat of Fulton co.; on the Chicago, B. & Q. and the Fulton County Narrow Gauge railroads; about 50 miles southwest of Peoria, and 60 miles north-northwest of Springfield, the state capital. It is situated in an agricultural region and is the trade centre of a large part of the county. Its chief manufactures are carriages and wagons, flour, lumber, brick, tile, furniture, and dairy products. Live-stock and farm products are shipped from Lewistown to the large markets. Pop. 2,590.

LEWISTOWN: Pa., borough, county-seat of Mifflin co.; on the Juniata river, and on the Pennsylvania railroad and on the Pennsylvania canal, about 60 miles

LEXICAL—LEXINGTON.

northwest of Harrisburg, the state capital. It is situated in a fertile agricultural region in which are valuable mineral deposits, especially of iron and glass sand. Lewistown is a trade centre for an extensive farming section; but it is also a manufacturing borough. The chief manufactures are steel, iron, flour, leather, lumber, foundry and machine-shop products, hydrants, and pumps. Lewistown and vicinity are now favorite summer resorts. Pop. (1910) 8,166.

LEXICAL, a. *lěks'ĩ-kāl* [from **LEXICON**, which see]: pertaining to a lexicon; settled by lexicography. **LEX'ICALLY**, ad. *-kāl-ĩ*.

LEXICOGRAPHY, n. *lěks'ĩ-kōg'rā-fĩ* [Gr. *lexikon*, a dictionary; *graphō*, I write]: the art of composing dictionaries, or the act of writing one; the principles according to which dictionaries should be compiled. **LEXICOGRAPHIC**, a. *lěks'ĩ-kō-grāf'ik*, or **LEX'ICOGRAPH'ICAL**, a. *-ĩ-kāl*, pertaining to the writing of dictionaries. **LEX'ICOG'RAPHER**, n. *-kōg'rā-fer*, the author or compiler of a dictionary.

LEXICOLOGY, n. *lěks'ĩ-kōl'ō-jĩ* [Gr. *lexikon*, a dictionary; *logos*, discourse]: the science of the derivation and signification of words; that branch of learning which treats of the proper meaning and application of words. **LEX'ICOL'OGIST**, n. *-jĩst*, one skilled in.

LEXICON, n. *lěks'ĩ-kōn* [Gr. *lexikon*, a dictionary—from *lexis*, a speaking, diction—from *legō*, I speak]: a dictionary; a dictionary of words of a foreign language, as of Latin, Greek, Hebrew, or German.—**SYN.**: glossary; vocabulary; dictionary; thesaurus; catalogue; directory; gazetteer; index; cyclopedia.

LEXIGRAPHY, n. *lěks'ĩg'rā-fĩ* [Gr. *lexis*, a speaking, a word; *graphō*, I write]: the definition of words. **LEXIGRAPHIC**, a. *lěks'ĩ-grāf'ik*, pertaining to lexigraphy.

LEX'INGTON: city, county-seat of Fayette co., Ky., on a fork of the Elkhorn river, about 87 m. e. of Louisville, 82 m. s. of Cincinnati, in the midst of the fertile and beautiful country known as the Blue Grass region; on the Louisville & Nashville, the Chesapeake & Ohio, and the Lexington & I. B. railways. The first railroad in the west ran on an oval track in a machine shop in Lexington in 1827. Lexington was settled, 1775, by Colonel Robert Patterson, and received its name because as the town was being laid out the news of the battle of Lexington, Mass., was received. It was incorporated 1782, by the Virginia legislature, and was the seat of the first legislature of Ky. It received a city charter in 1832. The city is handsomely laid out, streets well paved and lighted; its main street is 2 m. long, with a beautiful cemetery, containing a monument to Henry Clay, at its w. terminus. It has an extensive trade, and manufactories of whisky, carriages, flour, ropes, bagging, machinery, harness, saddlery, canned goods, etc.

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The 1900 census reports 272 establishments representing 62 industries, with a combined capital of \$1,707,118, employing 1,464 hands with an annual product of \$3,033,007. It has waterworks, gas and electric lights and electric street cars. Some of the important institutions are Kentucky University (Christian), Sayre Female Institute, Hamilton and McClelland Female Colleges, St. Catharine's Academy (Roman Catholic), State Agricultural and Mechanical College, and the Kentucky Reform School. It has the State Asylum for the Insane, St. Joseph's Hospital (Roman Catholic), Colored Industrial Home, and a Protestant infirmary. It has an excellent public library. There are also numerous public schools, churches, and banks. Pop. (1910) 35,099.

LEXINGTON: town in Middlesex co., Mass.; on the Boston & M. railroad; about 12 m. n.w. of Boston. The town contains the villages of Lexington, East Lexington, and North Lexington. Lexington was settled in 1642, was long known as 'Cambridge Farms,' and was incorporated as a town in 1713. It was the scene of the first conflict between the colonists and the British troops in the revolutionary war, in 1775, April 18. The British obtained the advantage and destroyed the stores of the colonists, but lost in the action 273 men killed and wounded. (See LEXINGTON, BATTLE OF.) Lexington is situated in an agricultural region, and its industries are connected chiefly with the products of the farms and the trade necessary for supplying local wants. It has important leather-binding works. It contains many points of interest, some of which are the first battleground of the revolutionary war, the monument commemorative of this battle; the Monroe Tavern, built in 1695, which was Earl Percy's headquarters; the old Belfry clubhouse, and the Hancock-Clarke house (1698), where Samuel Adams and Hancock lodged the night before the battle. The last mentioned building is now used as a museum for revolutionary and early settlement relics. A number of monuments in honor of the men and events which made Lexington famous adorn the city. It contains the Cary Library with nearly 25,000 volumes; a fine high school, the Hancock and Adams grammar schools, a town hall, and a number of fine churches and elegant residences. The old burying ground, visited annually by hundreds of people, is mute witness of the noble people who have lived in this town. Pop. (1910) 4,918.

LEXINGTON: town, co.-seat of Lafayette co., Mo., on s. bank of Missouri river, in the midst of a fertile country in which much hemp is raised and some coal mined. It has a brisk trade, being on the Missouri Pacific and the Atchison, Topeka & Santa Fé railroad. It is healthfully located on a bluff 300 ft. above the river, about 42 m. by rail e. of Kansas City, 55 m. n. of Sedalia. The town was settled in 1825 and incorporated

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in 1830. It is the seat of the Wentworth Military Academy, the Central Female College, and the Baptist Female College. There is a fine court-house; and the town has manufactures of furniture and woolen goods, and contains several saw-mills, flour-mills, and rope-walks, and 4 state banks. Lexington was the scene of two conflicts during the civil war. 1861, Sep., the Confederate Gen. Sterling Price, with a force of about 20,000 men, compelled the Federal Col. Jas. Mulligan to surrender the place after a stubborn defense from the hill at the n.e. of the town where his 2,800 men were entrenched; but on Oct. 16 the Federals recaptured the place. 1864 another fight took place between the Federals under Gen. Blunt and the Confederates under Gen. Price. Pop. (1910) 5,242.

LEXINGTON: town, co.-seat of Rockbridge co., Va.; on the n. fork of the James river, and on the Baltimore & O., and the Chesapeake & O. railroads; about 110 m. w. by n. from Richmond, and 44 m. n.w. of Lynchburg. It is in a rich farming valley w. of the Blue Ridge. Valuable deposits of sulphur ore are in the vicinity. The chief manufactures are dairy products, agricultural implements, flour, and lumber. The city owns and operates the waterworks. The water is brought some distance from springs in the mountains. Lexington is the seat of the Virginia Military Institute, opened in 1839, and the Washington and Lee University (q.v.). Generals Jackson and Lee are buried here, and statues have been erected in their memory. The mineral springs in the vicinity are becoming popular resorts; the Natural Bridge (q.v.), one of the natural curiosities of America, is about 15 m. s., separated from Lexington by low mountains or hills. Pop. 3,215.

LEXINGTON, BATTLE OF: 1775, Apr. 19, at Lexington, Middlesex co., Mass., between 60 or 70 American militia under Capt. John Parker, and about 800 British troops under Maj. Pitcairn; notable as the first armed encounter of the American revolution. The purpose of the British to send troops to Concord to destroy the military stores there, and to seize the patriot leaders, John Hancock and Samuel Adams, having been discovered by the Americans, Paul Revere during the night of Apr. 18, rode from Charlestown to Lexington, warning and arousing all the patriots along the road. These determined men promptly armed themselves and to the number of 130 assembled at Lexington before 2 o'clock at night; but seeing no signs of the enemy, they were dismissed, and guards stationed who were to watch for the approach of the British and give the alarm when needed. At daybreak Apr. 19, the advance guard of the enemy under Pitcairn was seen nearing the village. The drums were beaten; about 70 of the militia hastily responded and were drawn up in two ranks on the common, with Parker at their head. The British, seeing

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them, halted to load their muskets, then advanced at double-quick, Pitcairn riding at their head, and calling on the Americans to lay down their arms and disperse. They, disregarding his order, he fired his pistol at them and gave his men the order to fire. Their volley killed 4 Americans on the spot and wounded 9; 4 more were killed while trying to escape. Parker now ordered his men to retire, which they did, though a few of them returned the fire of the British, wounding 3 of them and killing Pitcairn's horse. After a halt of half an hour, Pitcairn and his men proceeded on their march to Concord, about 2 m. away, where another fight occurred. On their retreat thence, the country around being now fully roused, they were attacked on every side; sharp fights took place while they passed through Lincoln, and on Fiske's hill in the w. part of Lexington. The British were saved from destruction only by the arrival of Lord Percy with 1,200 men to reinforce him. It was only a skirmish, but its results were far reaching. It formally opened the war that gave America her independence. A monument was erected on Lexington common, 1799, to mark the spot of the first bloodshed of the war.

LEXINGTON, SIEGE OF: After the battle of Wilson's Creek, Mo., 1861, Aug. 10, Gen. Sterling Price moved northward toward the Missouri river, skirmished with a force under Gen. J. H. Lane, Sep. 7, at Dry Wood Creek, drove Lane out of the state, and followed as far as Fort Scott, which had been abandoned. On the 10th he was at Rose Hill, from where he marched for Warrensburg, which was reached on the 11th, Peabody's Thirteenth Missouri at that place retreating to Lexington. When Fremont, at St. Louis, heard of Price's northward movement, he ordered to Lexington a force which, when Price arrived at Warrensburg, numbered 2,800 men, with seven 6-pounder guns under command of Col. James A. Mulligan, Twenty-third Illinois. Mulligan took position and threw up intrenchments on College Hill on which was a substantial brick building erected for a college. On the morning of the 11th Price marched from Warrensburg toward Lexington, and that night, after a march of 30 m., halted 3 m. from the city, where he rested until dawn, when he drove in Mulligan's pickets, and from four different points opened a cannonade upon the hastily constructed works around the college. After several sharp encounters the Confederates captured some outworks and drove Mulligan's men behind the main line. At the end of the day Price withdrew to await reinforcements and ammunition. Mulligan, looking for reinforcements, strengthened his position and prepared for a siege. Price was anxious because he knew of the approach of Union troops to relieve Lexington; but being reinforced to 25,000 men, and his ammunition coming up, he again moved on the city

LEX LOCI—LEXOW.

on the 18th, took possession, closed in upon Mulligan, and began a siege. Fire was opened upon the Confederates from a dwelling on the hill, upon which the Confederates charged, and took the house, and also the bluff immediately n. of it. A gallant counter-charge by Capt. Gleason, with 80 men of the Twenty-third Illinois, retook the house, but it was soon regained, and the adjoining heights fortified. Firing continued all day of the 19th; water gave out, but Mulligan encouraged his men to hold on until help arrived. On the morning of the 20th Price caused to be taken to the river heights a number of hemp-bales, with which movable breastworks were constructed. These were rolled forward; under cover of them the Confederates moved to within 10 rods of the works; and at 2 p. m., after over two days' continuous fighting, Mulligan's men being without water or rations, and short of ammunition, a white flag was displayed, and Price ordered a cessation of firing. Mulligan had lost 42 killed and 108 wounded, and surrendered 1,624 men, 7 guns, many horses, and a large amount of stores. Price reported a loss of 25 killed and 72 wounded. Price remained at Lexington until Sep. 30, when, pressed by the Union advance from Jefferson City, he abandoned the place and retreated toward Arkansas, leaving a guard of 500 men with the prisoners taken. On Oct. 16, a squadron of cavalry under Maj. F. J. White surprised the party, captured 70, and released the prisoners.

LEX LOCI, *lěks lō'sī* [L. law of the place]: legal expression to denote the law of the country where a particular act was done, or where land is situated. See INTERNATIONAL LAW.

LEX NON SCRIPTA, *lěks nōn skřip'tā* [L., law not written]: expression often applied to the common law, or immemorial custom.

LEXOW, *lěk'sow*, CLARENCE: American lawyer and politician: b. Brooklyn, N. Y., 1852, Sep. 16. He studied abroad and at the Columbia Law School, graduating from the latter in 1872. He was admitted to the bar and established practice in New York city, receiving a large German-American patronage, and engaging in many important litigations. In 1882 he became a resident of Nyack, and was active in the republican party there. In 1890 he was an unsuccessful nominee for Congress, but lowered the usual democratic majority. In 1893 he was elected to the state senate, where he served till 1898. Here he at once became a leader, was chairman of the committee on internal affairs, and introduced the bi-partisan police bill calling for an investigation of the New York city police. This led to the appointment of the so-called 'Lexow Committee,' of which he was head; the investigations of this committee brought to light the system of protection of vice by the police in New York, and were the direct cause of the reform cam-

LEX REI SITÆ—LEYDEN.

paign and the election of Mayor Strong. Lexow was also the introducer of the bill creating the city of Greater New York, was chairman of the joint legislative committee for the investigation of trusts and unlawful combinations, of the committee on primary elections reform and of the judiciary committee. In 1896 he was chairman of the committee on resolutions at the republican state convention, and introduced the gold standard plank in the platform; in 1900 he was a presidential elector. He is author of reports on *Municipal Government* and on *Trusts and Unlawful Combinations*.

LEX REI SITÆ. See CONFLICT OF LAWS; FOREIGN COURTS; INTERNATIONAL LAW.

LEX TALIONIS, *lēks tā'li-ō-nīs* [L. *lex*, law: *tālīō*, retaliation, *tālīōnis*, of retaliation]: law of retaliation; common among all barbarous nations, by which an eye for an eye, and a tooth for a tooth, was considered the appropriate punishment. The doctrine is repudiated in all civilized countries.

LEY, n. *lē*: a different spelling of LYE, which see.

LEY, n. *lē*: another spelling of LEA or LAY, pastureland, which see.

LEYDEN, *lē'dn* or *lā'dn*, JOHN: 1775, Sep. 8—1811, Aug. 28; b. Denholm, village of Roxburgshire, Scotland: poet and orientalist. After the ordinary course in the Univ. of Edinburgh, he was licensed as a preacher or 'probationer' of the Church of Scotland. He was an enthusiastic student of languages, especially of the northern and oriental languages. He contributed many translations and original poems to the *Edinburgh Magazine*. He contributed to Lewis's *Tales of Wonder*, and aided Scott in amassing materials for his *Minstrelsy of the Scottish Border*. Having studied medicine, he sailed for India (1802) as asst.-surgeon on the Madras establishment. Removing to Penang for his health he studied the language, literature, history, etc., of the Indo-Chinese tribes. Afterward in Calcutta he was a prof. in the Bengal College; and then a judge. At Batavia, exploring a library of musty Indian manuscripts, he contracted a fever, of which he died. Leyden's versification is soft and musical; but 'he is an elegant rather than a forcible poet.' His attainments as an orientalist were extraordinary. The chief evidence extant of them, however, is *Essay on the Languages and Literature of the Indo-Chinese Nations*, published in the *Asiatic Researches*. His *Poetical Remains* were published 1819; and a new ed. of his *Poems and Ballads*, with memoir by Sir W. Scott, 1858. A monument to Leyden was erected in Denholm. In 1875—his centenary—two new editions of his poems appeared.

LEYDEN, or LEIDEN, *lē'dn* (Fr. *Leyde*, the *Lugdunum Batavorum* of the Romans, originally *Luijkduin*, from *luijk*, an end, and *dun*, a hill; during the middle ages,

LEYDEN.

Lugdun or *Leydis*): celebrated seat of learning in Holland, on the Old Rhine, 22 m. s.w. of Amsterdam, 17 m. n. of Rotterdam. Pop. (1900) 54,421. It is the oldest town in Holland, and has space for three times its present population. In 1640, Leyden contained 100,000 souls; in 1750, the numbers had fallen to 70,000; and at the beginning of the present century, to 30,000. Since 1830, trade has again flourished and the population has increased. The streets are straight, broad, and clean; Broad street (*Breede-straat*) being esteemed one of the finest in Europe. In it is situated the town-hall (*Stadhuis*), originally founded toward the end of the 16th c., a picturesque building, with 30 windows in a line in front, a tall spire, and three highly ornamented projecting gables. In the council-chamber are the painting of the *Last Judgment*, by Lucas van Leyden, and several good historical portraits; in part of the lower floor is situated the meat-market. None of the churches are remarkable; the Reformed Church of St. Peter contains monuments to Boerhaave, Spanheim, Scaliger, etc. Within the city are the ruins of an old castle, called the 'Burg,' supposed to have been built by the Romans before the birth of Christ. The principal manufactures are linen cloths, calicoes, woolens, but on a very small scale, as compared with former times. There is a weekly market, for the whole of that part of Holland called Rhineland, at which much butter and cheese change hands. But the chief ornament and glory of the city is its university—formerly unsurpassed in Europe. The university had a noble origin. In 1574, when Holland was struggling to throw off the yoke of Spain, Leyden was besieged by the Spaniards, and had to endure all the horrors of famine. For seven weeks the citizens had no bread to eat, and multitudes perished of hunger. The heroic burgomaster, Pieter Adriaanszoon Van der Werff, even offered his body as food to some who were imploring him to capitulate. At last, the Prince of Orange broke down the dikes, flooded the country, drowned a great number of the Spaniards, and relieved the inhabitants. The Prince of Orange then offered, as some compensation for their unparalleled sufferings, either to remit certain taxes or to establish a university in the city. The Leydeners nobly chose the latter, which was inaugurated by Prince William 1575. Many eminent men, from all countries of Europe, have been connected with it, both as professors and students: among them were Scaliger, Gomarus, Arminius, Grotius, Descartes, Boerhaave, Camper, Spanheim, Ruhnken. The university has between 20 and 30 professors and more than 800 students, of which about half are law students. It has a valuable library, with many rare MSS.; a magnificent collection in medicine; a botanical garden, valuable for its tropical plants; a museum of nat. hist., one of the richest in Europe; and another equally fine

LEYDEN—LEYTE.

of comparative anatomy. The Museum of Antiquities also is excellent. 1807, Jan. 12, the most beautiful quarter of the city was destroyed, and many lives lost, by the explosion of a ship's cargo of gunpowder, and the site of the ruined streets is now a plain on which troops are exercised.

LEY'DEN, LUCAS VAN: about 1494-1533; b. Leyden: one of the most celebrated painters of the early Dutch school. His talents were developed when he was very young, and he was placed in the school of Cornelius Engelbrechsten, artist of repute. He commenced engraving when scarcely nine years of age. His picture of St. Hubert, painted when he was only 12, brought him very high commendation; and the celebrated print, well known to collectors by the name of 'Mahomet and the Monk Sergius,' was published 1508, when he was only 14. He practiced successfully almost every branch of painting, was one of the ablest of those early painters who engraved their own works, and he succeeded, like Albert Dürer, in imparting certain qualities of delicacy and finish to his engravings that no mere engraver ever attained. The pictures of Lucas van Leyden are noted for clearness and delicacy in color, variety of character and expression; but his drawing is hard and Gothic in form. Examples are in many of the galleries on the continent. His range of subjects was very wide, and embraced events in sacred history, incidents illustrative of the manners of his own period, and portraits. His engravings are very highly prized by collectors, and are ranked about as highly as those of Albert Dürer. He also executed some wood-cuts, which are very rare. Bartsch gives a list of 174 engravings by him. His habits were expensive. He seems to have occasionally entertained his brother-artists in a sumptuous manner; was on terms of intimacy with the celebrated painter, Jean de Mabuse, who is alleged to have been rather too fond of good living; and held friendly intercourse with Albert Dürer, whose talents he admired without professional jealousy.

LEY'DEN, SCHOOL OF (OR RECENT DUTCH SCHOOL), in Theology: comprising a group of Dutch theologians centering at Leyden Univ., who—while professing to find in the Bible the true religion—limit its inspiration, and require that its facts shall be verified by science and by historical criticism. Applying historical criticism, they deny that the Biblical record is trustworthy farther back than the 8th c. B.C., or the time of Hosea and Amos: all beyond is hopeless myth.

LEYDEN-JAR, n. *lī'dn-jâr* or *lā'dn-jâr* [invented at *Leyden*, Holland]: a jar or bottle, coated inside and out with tin-foil, used to accumulate electricity. See ELECTRO-STATICS.

LEYTE, *lā'tā*: an island in the Philippine archipelago

LEZE-MAJESTY—L'HOPITAL.

occupying a central position in the Visayan group; length from n.w. to s.e., 121 m.; and n.e. to s.w., 52 m.; area, 3,872 sq.m. The interior of the island is mountainous and traversed by many fine rivers, and the coast line is indented by numerous bays, some of them the finest of the archipelago. It is one of the best cultivated islands of the archipelago, the chief agricultural product being hemp. The other products are sugar, rice, chocolate, oil, coffee, cotton, corn, cattle, horses, wax, honey, etc. Sulphur, gold, iron, magnetite, lead and silver are found; and the mountains are covered with large forests of wood of economic value. The leading industries are the manufacture of fabrics of abaca and cabonegro, or black boat cables, from hemp, and the extracting of cocoanut oil. Capital of island, Tacloban. Pop. (1899) 270,491.

LEZE-MAJESTY, n. *lěz-măj'ēs-tĩ* [F. *lèse-majesté*, treason—from *lèse*, hurt, treasonable—from L. *læsæ*, injured or hurt; *majestātis*, of majesty]: any crime against the sovereign power in a state; treason; also LESE-MAJESTY.

L'HAS'SA, or LAS'SA, or L'HA'SA. See H'LISSA.

L'HÔPITAL, *lō-pē-tâl*, GUILLAUME FRANÇOIS ANTOINE, MARQUIS DE ST. MESME: French mathematician: b. Paris 1661; d. 1704, Feb. 2. He devoted himself exclusively to the study of mathematics, having had Jean Bernouilli for a short time to give him instructions in the differential and integral calculus, and at the age of 32 distinguished himself by solving problems proposed to the lovers of mathematics by Jacques Bernouilli; and 1693 was admitted an honorary member of the Academy of Sciences at Paris. From that period he published, in the French and foreign journals, solutions of difficult questions, and other mathematical communications. Such was his reputation that Huygens, profound as was his acquaintance with science, applied to L'Hôpital for information relative to the nature of the differential calculus. This led to the publication of his *Analyse des Infiniment Petits* (1696), the first French work on the subject, of which a new edition was published by Lefevre (1781). Besides the work mentioned he was the author of *Les Sections Coniques, les Lieux Géométriques, la Construction des Equations* (1707); and *Une Théorie des Courbes Mécaniques*.

L'HÔPITAL (or L'HOSPITAL), MICHEL DE, *mē-shě'l'dēh*: 1505-1573, Mar. 15; b. Aigueperse, Auvergne. He studied law at Toulouse, and made himself known first as an advocate in the parliament of Paris; and after discharging various public functions, became chancellor 1560, during the minority of Francis II. France at this time was torn by contending factions. The Guises, in particular, were powerful, ambitious, and intensely Rom. Catholic; and when one of the family, the Cardinal de Lorraine, wished to establish the Inquisition in the coun-

LI—LIABILITY.

try, L'Hôpital boldly and firmly opposed him, and may be said to have saved France from that detestable institution. He summoned the states-general, which had not met for 80 years, and, being supported by the mass of moderate Rom. Catholics, he forced the Guises to yield. His speech at the opening of the assembly was worthy of his wise and magnanimous spirit: 'Let us do away,' said he, 'with those diabolical words of Lutherans, Huguenots, and Papists—names of party and sedition; do not let us change the fair appellation of Christians.' He induced the assembly to pass an ordinance abolishing arbitrary taxes, regulating the feudal authority of the nobles, and correcting the abuses of the judicial system. In the following year, he secured various benefits for the persecuted Huguenots; but politico-religious passions were too fierce and vindictive in France in those days to be satisfied with anything but blood; and in spite of the most strenuous efforts which L'Hôpital could make, the nation was plunged into the horrors of civil war, ending rather in the success of the Guises, the political *ultramontanes* of their day. The old patriot, who loved France too well to be either a partisan Huguenot or an ultramontane, went into retirement, where he heard the news of the massacre of St. Bartholomew, a crime against the unity of France, the rights of conscience, and common humanity, which broke his heart.

LI, n. *lê*: a Chinese mile = .577 Fr. Kilomètre, = .358 (little more than one-third) English mile.—*Li* is also a Chinese copper coin, often called a cash, worth about one-tenth of a cent.

LIABLE, a. *l'ă-bl* [F. *lier*, to tie, to bind, and postfix *able*—from L. *ligārē*, to bind]: responsible; obliged in law or equity; accountable; exposed; subject, usually in an ill sense, as *liable* to fall. LI'ABIL'ITY, n. *-bīl'ī-tī*, or LI'ABLENESS, n. *-bl-nēs*, the state of being bound or obliged in law or equity; responsibility; the state of being subject, as to contract disease. LI'ABIL'ITIES, n. plu. *-ī-tīz*, debts.—SYN. of 'liable': answerable; amenable; subject; bound.

LIABILITY, LIMITED: in modern statute law, a principle whereby the persons liable are bound under certain clearly defined conditions. The phrase is chiefly used in connection with stock companies, meaning that the stockholders shall not be called upon, under any circumstances, to contribute more than the par value of the shares of stock for which they have subscribed. If the debts of such a company, when wound up, amount to more than the resources of the company can meet, the creditors must bear the loss. In the United States shareholders in national and other banks, insurance companies, etc., are held to a specific and strict liability; in the case of the national banks, it is for twice the amount subscribed. In England the shareholders of a limited

LIA-FAIL—LIANAS.

company from whose name the word 'limited' must pay its debts in full. The United States Congress has adopted the rule followed by the British Parliament, and prevailing in European countries generally, with respect to the maritime law (q.v.) whereby a ship-owner, by surrender of the ship and the freight, may absolve himself from liability for negligence on the part of master or crew. Under the amended United States Revised Statutes the principle of limited liability is clearly maintained and defined as applicable in this country; wherefrom it appears that 'the owner of any vessel, whether steamer or canal-boat, employed whether in seagoing or inland navigation, whether he be an American citizen or a foreigner, may obtain a limitation to the value of his interest in the vessel and her pending freight, of his liability not only for the results of a single disaster, but for the results of a disastrous voyage, including all debts due on account of the vessel save seamen's wages.'

LIA-FAIL, n. *lĕ'a-fāl* [Gael. *lia*, stone; *fail* for *faidheil*, fate, destiny]: stone on which the ancient Irish kings are said to have been crowned, brought by Fergus to Scotland, and ultimately deposited at Scone, where the Scottish kings sat on it at their coronation; called also Jacob's stone. See SCONE.

LIAISON, n. *lĕ'ā-zōng'* [F. *liaison*, a connection—from mid. L. *legātiōnem*, a binding—from L. *ligārē*, to bind]: connection; union; an illicit or secret intimacy between a man and a woman.

LIANAS, n. plu. *lĕ-ā'nās*, or LIANES, n. plu. *lĕ-āns'* [F. *liane* or *liane*—from *lier*, to bind; *lien*, a band]: term used first in the French colonies, afterward adopted by English, German, and other travellers, to designate the woody, climbing, and twining plants which abound in tropical forests, and constitute a remarkable feature of the scene. Such plants are comparatively rare in colder climates, though the honeysuckles and some species of *Clematis* afford familiar examples of them; but as these often overtop the hedges or bushes in which they grow, and fall down again by the weight of their leaves as their stems elongate, so the lianas of tropical countries overtop the tallest trees, descend to the ground again in vast festoons, pass from one tree to another, and bind the whole forest together in a maze of living network, and often by cables as thick as those of a man-of-war. Many parts of the forest—as in the alluvial regions of the Amazon and Orinoco—thus become impenetrable without the aid of the hatchet, and the beasts which inhabit them either pass through narrow covered paths, kept open by continual use, or from bough to bough far above the ground. Many lianas—as some of the species of *Wrightia*—become tree-like in the thickness of their stems, and often kill by constriction the trees which originally supported them; and when these have

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decayed, the convolutions of the lianas exhibit a wonderful mass of confusion magnificent in the luxuriance of foliage and flowers. No tropical flowers excel in splendor those of some lianas. Among them are some valuable medicinal plants, e.g., sarsaparilla. The rattans and vanilla are lianas. Botanically considered lianas belong to nat. orders the most different. Tropical plants of this description are seldom seen in northern hot-houses, being difficult of cultivation.

LIAS, n. *Wās* [a probable corruption of *lyers* or *layers*: F. *lias*, formerly *lais*, a very hard freestone: comp. Gael. *leac*; W. *llech*, a flat stone]: in geology, a formation consisting of thick argillaceous and calcareous deposits, which constitute the base on which the oölitic series reposes. It is generally regarded as the lowest division of the Jurassic system, and it rests on the Triassic series. The upper portion of these deposits, including about two-thirds of their total depth, consists of beds of a deep blue marl, containing only a few irregular limestone beds. In the lower portion the limestone beds increase in frequency, and assume the peculiar aspect which characterizes the lias, presenting a series of thin stony beds, separated by narrow argillaceous partings, so that the quarries of this rock at a distance assume a striped and ribbon-like appearance. The lias is remarkable for the number and variety of its organic remains, among which are belemnites, ammonites, gryphites, and other shells, together with the remains of saurian or lizard-like animals, of which the ichthyosaurus and pleiosaurus are familiar examples. In the United States the lias is found in Oregon and California. The lias crosses England from near Whitby, in Yorkshire, to Lyme, in Dorsetshire. See GEOLOGY.

LI'ATRIS, or LACINARIA: a genus of plants of the thistle family containing about 16 species of tall perennial herbs growing in dry soil throughout the eastern and central United States and known as blazing-stars and button-snake roots, in reference to their globular tubers. They bear late in the season dense spikes of purplish flowers, often in the s. a foot in length and of a delicate lavender tint, very effective when seen in a mass of goldenrod or autumnal grasses. Gray-feather is another name indicating the conspicuous beauty of such fine species as the blue *L. scariosa* or *L. squarrosa*. The latter is known as colic-root, and all are in repute among the southern country folk, not only as good family medicine in the form of a decoction made from the root, but as a specific against rattlesnake venom.

LIB, v. *lib* [Dut. *lubben*, to castrate]: in *Scot.* and *OE.*, to castrate; to geld. LIB'BING, imp. LIBBED, pp. *libd.*

LIBANIUS, *li-bā'nī-ūs*: one of the latest and most eminent of the Greek sophists or rhetoricians: b. An-

LIBANON—LIBBEY.

tioch, in Syria, between 314 and 316; d. abt. 393. He studied at Athens under various teachers, and set up a school in Constantinople, where his prelections were so attractive that he emptied the benches of the other teachers of rhetoric, who had him brought before the prefect of the city on a charge of 'magic' and expelled. He then proceeded to Nicomedia; but after a residence of five years, was forced by intrigues to leave it, and returned to Constantinople. Here, however, his adversaries were in the ascendant; and after several vicissitudes, the old sophist, broken in health and spirit, settled down in his native city of Antioch, where he died. Libanius was the instructor of St. Chrysostom and St. Basil, who always remained his friends, though Libanius was himself a pagan. He was a great friend of Emperor Julian, who corresponded with him. His works are numerous, and mostly extant, and consist of orations, declamations, narratives, letters, etc. The most complete edition of the orations and declamations is that by Reiske (4 vols. Altenb. and Leip. 1791-97); and of the letters, that by Wolf (Amst. 1738).

LIB'ANON: also MT. LIB'ANUS: see LEBANON, MOUNT.

LIBATION, n. *lī-bā'shūn* [F. *libation*—from L. *libā-tiōnem*, a drink-offering, a libation—*from libārē*; Gr. *leibein*, to pour out, as in honor of some god]: literally, anything *poured out* before the gods as an act of homage or worship; a drink offering; also the act of pouring it out. The term was often extended in signification to the whole offering of which this formed a part, and in which not only a little wine was poured upon the altar, but a small cake was laid upon it. This custom prevailed even in the houses of the Romans, who at their meals made an offering to the Lares in the fire upon the hearth. The libation was thus a sort of heathen 'grace before meat.'

LIBAU, *lē'bow*: seaport of Courland, Russia, on the Baltic, 526 m. s.w. of St. Petersburg. It existed previous to the settlement here of the Teutonic Knights, who surrounded the town with walls, and erected 1300 a cathedral and a castle. In 1795, it was annexed to Russia. The port is open almost the whole year. Its inhabitants, since the 17th c., have devoted themselves to shipbuilding. Imports comprise salt herrings, wines, fruit, and colonial produce; exports are chiefly cereals, leather, flax, seeds, and timber. Recent railway connections have greatly increased the importance of Libau. The town is also a watering-place, and there is some trade in amber. Pop. 65,000.

LIBBARD, n. *līb'bērd*: in *OE.*, another spelling of LEOPARD, which see.

LIB'BEY, LAURA JEAN: American novelist: b. New York 1862, Mar. 22. She was married to Van Mater Stilwell in 1898. Her earliest writings were contributed

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to the New York *Ledger* and other story papers. Among her many fictions are: *Lovers Once but Strangers Now*; *When His Love Grew Cold*. The literary merit of her work is very slight.

LIBBY PRISON: a famous prison at Richmond, Va., during the civil war. It was a large brick structure named for its owner who used the building as a ship chandlery before the war. The Confederate government early secured it as a military prison for Federal soldiers, and many thousands were confined here. In 1863 and 1864 there were many deaths from disease and lack of food. In 1892, the building was torn down and removed, brick by brick, to Chicago, and set up there as a museum, but the enterprise proved a failure.

LIBEL, n. *lī'bēl* [F. *libelle*, a libel, a lampoon—from L. *libellus*, a little book—from *liber*, a book]: malicious or defamatory writing, reflecting on the character of a person, and punishable by law: declaration or charge in writing in an action at law—especially in Scotch law and English ecclesiastical law; also the usual form for beginning an admiralty suit in U. S. courts: V. to expose to public ridicule or hatred in writing, or by a picture; to exhibit a charge against in a court of law. **LI'BELLING**, or **LI'BELING**, imp: N. act of defaming or exposing to public contempt in writing. **LI'BELLED**, or **LI'BELED**, pp. *-bēld*. **LI'BELLER**, or **LI'BELER**, n. *-er*, one who libels. **LI'BELLANT**, or **LI'BELANT**, n. *-ant*, one who libels; in *law*, one who exhibits a charge in an ecclesiastical or admiralty court. **LI'BELLOUS**, or **LI'BELOUS**, a. *-ūs*, containing matter which exposes a person to public ridicule or hatred; defamatory. **LI'BELLOUSLY**, or **LI'BELOUSLY**, ad. *-lī*.—**SYN.** of 'libel, n.': calumny; aspersion; defamation; slander; detraction; vilification; reviling; lampoon; satire.

LIBEL: (1) a defamation of a person, with malice expressed or implied, made public by means of writing, printing or pictures, calculated to provoke him to anger, or expose him to hatred, ridicule or contempt. Spoken words, however opprobrious or injurious, do not amount to libel but are classed as slander; and, being more limited in their publicity, the offense is not so great as in a case of libel. There may be a libel by traducing the memory of one who is dead, as well as one which attacks the reputation of one who is living. Any publication which has a tendency to disturb the public peace or good order of society, is actionable as a libel, and may usually be prosecuted by either a civil action for damages or by a criminal proceeding, and both remedies are often pursued at the same time. In the absence of some statutory provision on the subject, proof of the truth of the matter contained in the libel does not ordinarily furnish a good defense to the offending party. The publication may be very limited and yet

LIBELLULA—LIBERAL.

amount to the offense. The malicious reading of a libel to one or more persons has been held sufficient and the sale of each copy of a book containing a libel has been pronounced by a court as sufficient to furnish a distinct offense. Libels against the government consist of calumnious publications in denunciation or unwarrantable criticism of the established governmental system or in censure of methods of administration, provided the allegations are of such a nature that their natural tendency or evident purpose is to promote disaffection among the citizens or to excite a spirit of revolution. But indictments for libel of this character are very rare, and would not be resorted to except in extreme and very plain cases. Many of the states have enacted statutes upon the subject of libels, declaratory of the old common law rules, with ancillary provisions, relating principally to forms of administration, with provisions as to punishment. A libel may be a misdemeanor only, or a felony, according to the character of the offense.

(2) Libel in admiralty practice denotes the complaint or pleadings by which an action is commenced, to enforce some claim or right in a marine matter, and contains a circumstantial statement of the claim. The general scope of the jurisdiction of admiralty embraces all marine contracts and maritime torts, including captures in time of war, and seizures for revenue forfeitures, and all duties appertaining to marine commerce and general navigation. The test of jurisdiction in torts is determined by the place where the same were committed. Such a libel is not required to be drawn with any degree of technicality, the substance being more important than the form. In the United States substantially all admiralty matters are transacted in the federal courts. The plaintiff, or moving party in an admiralty proceeding, is called the libellant, and the defendant, or party against whom the proceeding is brought, is termed the libelee or respondent. Sometimes a libel is directed *in rem* or against property only, without naming a respondent.

LIBEL/LULA AND LIBELLU'LIDÆ. See DRAGON-FLY.

LIBER, n. *l'vër* [L. *liber*, the inner bark of a tree, a book]: the fibrous inner bark or bast of trees or plants. See BARK; BAST.

LIBER, *l'vër*: one of a pair of deities, Liber and Libera, male and female, worshipped among the ancient Romans under varying forms and associations, but always with gross rites and wild revelry, as in the worship of Bacchus (q.v.), with whom Liber was largely identified.

LIBERAL, a. *l'v'ër-äl* [F. *libéral*—from L. *liberālis*, of or belonging to a freeman—from *liber*, free: It. *liberale*]: free in giving or bestowing; not mean; generous;

LIBERAL PARTY—LIB. REPUBLICAN PARTY.

not narrow-minded; tolerant of the opinions and practices of others; not literal or strict; in *OE.*, free to excess; licentious: N. party name, in politics, denoting one who advocates the extension of popular rights or influence. In *theol.*, denoting 1. a class who, with the German rationalists, deny the supernatural in revelation and in Christ—freethinkers in the popular sense of that word (see FREETHINKERS; DEISM; RATIONALISM; INFIDELITY); 2. a class of Christians of which the evangelical Unitarians and Universalists are types; 3. a class who, mainly agreeing with the standard doctrines of the church in their own belief, do not make those doctrines the test of fellowship—e.g., Latitudinarians (q.v.), and the modern Broad Church (q.v.). LIB'ERALLY, ad. -lĭ, largely; bountifully. LIB'ERAL'ITY, n. -ĭ-tĭ [F. *libéralité*]: the disposition of mind to give freely or largely according to means; generosity; impartiality; candor; catholicity; largeness of mind. LIB'ERALISM, n. -ĭzm, the principles or tenets of a liberal. LIB'ERALIZE, v. -ĭz, to make liberal; to imbue with a large and catholic spirit; to free from narrow views and prejudices. LIB'ERALIZING, imp.: ADJ. having the tendency to free from narrow views and prejudices. LIB'ERALIZED, pp. -ĭzd. LIBERAL ARTS, those which depend more on mental than on manual labor, as painting, and music. LIBERAL EDUCATION, an education extended beyond the mere requirements of life, and befitting a freeman or gentleman.—SYN. of 'liberal, a.': bountiful; munificent; free; profuse; large; lavish; beneficent; ample; open-hearted; enlarged; catholic.

LIBERAL PARTY: in politics, the party which claims to be distinctively that of reform and progress with a view to vast increased political power in the people, and to extend privileges to the masses. Most European countries have a liberal party, but in several of them, such as Germany, Belgium, and France, liberalism has lost heavily owing to the rapid spread of socialist doctrines, which involve economic and industrial rather than political reform. In Great Britain, Liberal and Conservative ministries follow each other at irregular intervals, and on the whole the system has worked well. The greatest of modern Liberal leaders was Gladstone, but his introduction, in 1886, of the Irish Home Rule and Land Purchase Bills alienated many of his supporters, and led to the formation of the Liberal Unionist party. On the question of the war policy in South Africa in 1899-1901 the Liberal opposition was split into several groups, such as the Liberal Imperialists, who supported the government; the so-called 'pro-Boer' Liberals, who opposed the war throughout; and those who, like Sir Henry Campbell-Bannerman, tried to combine both policies.

LIBERAL REPUBLICAN PARTY: in American politics, a party organized in 1872 by republicans, who were

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dissatisfied with General Grant's first administration as president. At a convention held by them in Cincinnati, in that year, Carl Schurz was elected its president, and a platform adopted demanding civil service reform, local self-government, and universal amnesty, recognizing the equality of all men, recommending the resumption of specie payment, etc. Horace Greeley and B. Gratz Brown were named for president and vice-president. This platform and these nominations were adopted by the regular democratic convention of that year, but dissensions arose, and other candidates were nominated, the result being that the republican nominee, General Grant, was elected by an overwhelming majority and the Liberal Republican party was thereafter practically dead. The real strength of the party lay in its presidential candidate, Horace Greeley, who had a large following, particularly of the farming element throughout the country, which was secured through the large and widespread circulation of the *New York Weekly Tribune*, of which Greeley was the editor. See also GREELEY, HORACE.

LIBERAL UNIONIST PARTY: in British politics, a party formed in 1886 by the liberals under the leadership of the Marquis of Hartington, who objected to Gladstone's Irish Government and Land Purchase bills as being dangerous to the empire. They gained their immediate object by coalescing with the conservatives, and in the election which followed the defeat of the Gladstonian ministry they succeeded in returning some 80 members to parliament. They have since acted with the conservatives.

LIBERATE, v. *lĭb'ér-āt* [L. *liberātus*, made or set free —from *liber*, free]: to free; to release from restraint. **LIB'ERATING**, imp. **LIB'ERATED**, pp. **LIB'ERATOR**, n. *-ā-tér*, one who frees or delivers. **LIB'ERA'TION**, n. *-ā'shūn* [F.—L.]: the act of delivering, or state of being delivered, from restraint.—**SYN.** of 'liberate': to release; rescue; deliver; discharge; manumit.

LIBERIA, *lĭ-bĕ'rĭ-a*: a negro republic on the w. coast of Africa between Sierra Leone and the Ivory coast. A convention with France in 1892 fixed the Cavally river as the southeastern boundary, and restricted the inland territories of the republic. The area is estimated at 35,000 sq.m. It was founded as a colony of free blacks by the American Colonization Society in 1820, under the philanthropic idea that many, if not all, of the liberated slaves would prefer returning to Africa to staying in America, where, at that time, they were denied political rights. Liberia was declared an independent state in July, 1847, and in the following year was recognized as such by Great Britain and France, when a treaty of trade and commerce with the state was concluded. A large proportion of the inhabitants speak English. The gov-

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ernment of the country is on the model of that of the United States, consisting of a president, a vice-president, a senate, and a house of representatives. It is provided that on the increase of the population each additional 10,000 shall have a representative. For political and judicial purposes the republic is divided into counties and townships. The counties are four in number, and called Montserrado, Grand Bassa, Sinoe, and Maryland. Each town is a corporation, with elected municipal officers. Monrovia (pop. 13,000), the capital and port of the colony, is situated on Cape Mesurado. There are besides a number of towns or villages in the territory.

The general line of the coast (about 500 m.) is from n.w. to s.e. There are several inlets and harbors at Cape Mount, Cape Mesurado, Cape Palmas, and Bassa Cove. There are many rivers, of which the principal is the St. Paul, which enters the ocean at Cape Mesurado. It is about half a mile wide, and at low tide has seven ft. of water on the bar at its mouth. It is navigable only about 18 m. from the sea. Other large rivers are the St. John, which empties at Bassa Cove; the Junk river, which runs between the St. Paul and the St. John; Cape Mount river, which flows into the sea at Cape Mount; and the Grand Sesters, e. of the St. John, which has 14 ft. of water over the bar at its mouth. The land on the coast is generally low and sandy, except near the capes, which are elevated, and in the s.e., where the shore is bold and rocky. From the coast the land gradually rises, until at the distance of 30 m. inland it swells into forest-covered hills, and in the remoter interior into mountain ridges divided by fertile valleys. The soil is generally good, though there is some poor land. It is of a yellowish color, and tinges the rivers which flow through it. There is little swamp land, the country being almost universally broken and rocky or gravelly. The climate is that common to regions near the equator. There are two seasons, the wet and the dry. The former begins with June and ends with October. Rain falls during the greater part of this season, though not without intervals of clear skies and successive days of fine weather, especially in July and August. In the dry season rain is rare, though there are occasional showers. The average heat of the year in Monrovia is 80° F., that of the rainy season being 76° and of the dry 84°. The mercury seldom rises above 90° in the shade and never falls below 60°; the daily variation seldom exceeds 10°. June is the coolest month, and January the hottest. Iron ore abounds in Liberia, and copper and other metals exist in the interior of the country. The vegetables are almost endless in their variety. The most important of the native trees are rosewood, teak, mahogany, hickory, poplar, brimstone wood (so called from its yellow color), sassa wood, and many others valuable in ship-building

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and cabinet work. Camwood and other dyewoods, ebony, the acacia which yields gum-arabic, and the copal trees are found. There are several varieties of palm, all highly useful, especially the nut-bearing palm, from which palm oil is made. Medicinal plants abound; among them are the copaiba tree, the *Croton tiglium*, which yields the croton oil, the castor oil plant, and the *Ricinus major*, whose seeds produce a highly purgative oil, and whose wood is much used for hedges and fences. Several varieties of maize and rice of excellent quality are cultivated, and on the highlands of the interior good crops of wheat, barley, and oats have been raised. Cotton flourishes, and sugar-cane and excellent coffee are easily produced. The esculent and farinaceous roots chiefly cultivated are the sweet potato, the cassava, the yam, the tenia, which in flavor resembles the potato, and the arrowroot. Cabbages, beans, peas, tomatoes, beets, cucumbers, and almost all the common garden vegetables known in America, thrive when planted in the proper season. The fruits are numerous and fine. Among them are the mango, lemon, lime, orange, guava, tamarind, pomegranate, cocoanut, plantain, banana, rose apple, African cherry, pineapple, avocado pear and the African peach. Wild animals are scarce, the elephant, hippopotamus, leopard, crocodile, boa constrictor, and deer, formerly abundant, being now rarely met with. Monkeys, guanas, chameleons, lizards, and ants in great variety, abound in the forests. The driver ants, which travel from place to place in countless multitudes, are welcomed by the people, for when they enter a house they soon clear it of every other species of insect and vermin. The Liberians build coasting-vessels, and possess a number of large vessels trading with Great Britain and the United States. An export and import trade is carried on, and a large number of the inhabitants of the interior depend upon Liberia for their supplies of European goods. The more important articles of export are coffee, sugar, palm-oil and palm kernels, cocoa, arrowroot, caoutchouc, ivory, kola nuts, etc. The total value of the trade, however, does not probably exceed \$2,500,000.

The population amounts to 2,060,000, of whom 60,000 are liberated American slaves and their descendants, the remainder indigenous negroes, including the Kroomen. No white man is allowed to acquire citizen's rights or to hold property. There is no standing army, but all citizens capable of bearing arms are enrolled in the militia. Slavery is declared illegal. Complete religious toleration exists, the Methodist forms prevailing. English money is current, though accounts are kept in dollars and cents; and English weights and measures prevail. The financial condition of the republic has been deplorable; latterly there has been a change for the better. The debt is about \$400,000. The republic unfor-

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Unfortunately is not in great favor with the native negroes, nor with those of the United States, although a few immigrants still arrive annually. Not only have the Liberians failed to make any impression on the aboriginal inhabitants, whom they were supposed to civilize, but, notwithstanding many honorable exceptions, they are lazy and quarrelsome, and unfortunately there is a general tendency in many respects to relapse into barbarism. About six sq.m. only of the territory is effectively administered. Consult, Blyden, *A Chapter in the History of Liberia* (1892); Bourzeix, *La République de Libéria* (1887); Büttikofer, *Reisebilder aus Libéria* (1890); Delafosse, *La République de Libéria* (1900); Durham, *The Lone Star of Liberia* (1893).

LIBERIUS, *lī-bē'rī-ūs*, Pope of Rome: b. early in the 4th century; d. 366 (pope 352-366, with an interval of more than two years); b. Rome. He succeeded to the papal see at the death of Julius I. His pontificate was in the stormiest period of the semi-Arian controversy: see ARIUS. Emperor Constantius supported the semi-Arian party with all his authority; and the council of Arles 353, and that of Milan 355, formally condemned Athanasius (q.v.), the great representative of the orthodox belief. Liberius refused to confirm this decree, and, even in opposition to the personal commands of Constantius, withheld his subscription. He was in consequence deposed and banished to Berœa by the emperor, who caused a Roman deacon, Felix, to be elected and consecrated in his stead. The later history of Liberius is a subject of controversy. He was restored to his see in 358, but the precise terms on which he was recalled are disputed: it seems beyond doubt that he yielded so far as to subscribe the third Sermian formula giving up the 'homoousion.' He died at Rome in high repute for sanctity. His only remains are some letters preserved by Constant in *Epistolæ Romanorum Pontificum*. During his life, many spurious letters and decrees were circulated in his name.

LIBER PONTIFICALIS, *lī'bēr pōn-tī-fī-kā'līs*: history of the popes of Rome, professing to extend from the apostle Peter to Nicholas I. (867), with subsequent extension to Stephen VI. (891). The earliest known copy dates from the end of the 7th or beginning of the 8th c. Earlier portions of it were compiled from materials which were written probably before 366. Later additions have been made.

LIBERTICIDE, n. *līb'ēr-tī-sīd* [L. *libertas*, liberty; *cædo*, I cut or kill]: a destroyer of liberty; destruction of liberty.

LIBERTINE, n. *līb'ēr-tīn* or *-tīn* [F. *libertin*, a freedman—from L. *libertīnus*, a freedman—from *libērō*, I set free: It. *libertino*—*lit.*, a freedman]: one who disregards the restraints of religion; a man who leads a licentious life; one living without restraint: ADJ. unrestrained; li-

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centious. LIB'ERTINISM, n. *-izm*, debauchery; licentiousness of opinion or practice. LIBERTINES, THE (or SPIRITUALS), odious sect that arose in Flanders and appeared in the Reformed Church of France, 16th c. They held a sort of pantheistic rationalism, which they developed into Antinomianism on the ground that not anything is in itself bad, since all things are in God, and man's natural passions are the voices of the Spirit. Coppin of Lille seems to have started the sect about 1529, but other leaders soon took his place. Calvin publicly attacked the libertines 1545 and 1547, and they disappeared not long afterward.—Libertine was the name also of a political party of native burghers in Geneva who made the city independent, and invited Calvin to introduce there the Reformation, but later turned against his severe moral reforms as a new tyranny.—Libertines in Acts vi. 9 were probably Jews (or descendants of Jews) who had been captured in war and sold as slaves in Rome, but had been freed and had returned to Jerusalem, and were maintaining a synagogue.

LIBERTY, n. *līb'ér-tī* [F. *liberté*—from L. *libertātem*, liberty—from *liber*, free: It. *liberta*]: freedom from restraint; the enjoyment of civil, political, and religious rights; privilege; leave; license; permission; freedom or power of choice, as opposed to necessity; neglect, or supposed neglect, of the observance of the laws of propriety and courtesy, as to take a liberty: in English *law*, a franchise, or portion of the royal prerogative delegated to a subject: also a privileged dist. in a county exempt from the sheriff's jurisdiction. THE LIBERTIES, *-tīz*, as of a *city*, the limits within which certain privileges or immunities are enjoyed. AT LIBERTY, free; unrestrained. LIBERTY, in Theology (see FREE-WILL). LIBERTY OF THE PRESS, freedom to print and publish without legal control and interference (see PRESS, LIBERTY OF). LIB'ERTA'RIAN, a. *-tā'rī-ān*, pertaining to the doctrine of free-will, as opposed to the doctrine of necessity: N. one who holds to the doctrine of free-will. LIB'ERTA'RIANISM, n. *-ān-izm*, the principles or doctrines of free-will.

LIBERTY BELL: the bell which formerly hung in the dome of the old State House (Independence Hall), Philadelphia, and was rung to announce the signing of the Declaration of Independence, 1776, July 4. It was cast in England especially for the State House, and was brought from there in 1752; in being taken from the ship it met with an accident which spoiled its tone, and it was recast in Philadelphia in 1753, when the words 'Proclaim liberty throughout all the land unto all the inhabitants thereof' were inscribed on it. When the British occupied Philadelphia, the bell was taken down and hidden in the Delaware river near Trenton, but was afterward hung in its old position, and for several years rung every Fourth. In 1835, it was broken while tolling

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for the death of Chief Justice Marshall. In 1854, it was placed in the hall of the old State House on a pedestal with 13 sides representing the number of original states. In 1893, it was carried to Chicago for the World's Fair, and in many cities through which it was carried was greeted with special demonstrations; and has since been specially exhibited in other cities. Consult: Belisle, *History of Independence Hall*.

LIBERTY, RELIGIOUS: natural right, which is inalienable in every human being, to form his religious opinions and to offer his worship and to conduct his religious activity according to his own judgment and conscience. The U. S. constitution provides for religious liberty by two of its articles: 'No religious test shall ever be required as a qualification to any office or public trust under the United States': 'Congress shall make no law respecting an establishment of religion or prohibiting the free exercise thereof.' Similar provisions are in the constitutions of the several states. Concerning these provisions, two classes of considerations are to be noted. On one hand, they do not, and indeed cannot separate the state from all possible relation to religion—nor even from all possible connection with religion; since it is impossible to separate the state from all connection with any important interest of its citizens such as religion, science, education, commerce: but these provisions utterly separate the government from all religious *organizations*, e.g., churches and the like. On the other hand, they confer no such freedom of worship or of religious activity as includes the right to form organizations called religious which shall not be amenable to the civil government: government, finding any form of religious action injurious to public peace and the general liberty, may suppress it.

LIBERTY, STATUTE OF: on Liberty (formerly Bedloe's) Island, New York harbor; designed by Frederic Auguste Bartholdi, French sculptor; paid for by contributions of the French people; and presented to the United States as an additional bond of political and commercial friendship between the two republics. The sculptor conceived the project 1865; the French-American Union was formed to promote the undertaking 1874; the actual modelling was begun 1875; the right hand and arm were exhibited at the Centennial exhibition in Philadelphia 1876, and afterward erected on Madison Square, New York; and the head was erected in the Paris exhibition 1878. The cost of the work was raised in France by popular subscription and an authorized lottery; 1884, July 4, the completed statue was officially presented to the United States through the U. S. minister to France. It was then taken apart for shipment to New York, where it was received with much ceremony 1885, June 17. In 1876, an American committee was formed to co-operate with the French-American Union; 1877, Feb., con-

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gress accepted the tender of the gift and set apart Bedloe's Island for its location; 1883 work on the pedestal was begun; and 1886, Oct. 28, the statue was formally dedicated. The statue cost about \$250,000, and the pedestal about \$300,000. The statue is 116.44 ft. high to top of diadem, and 151.14 ft. from base to top of torch; the pedestal is 90 ft. high above its base; total height of pedestal and statue above water 305 ft. 11 inches. The statue is officially a U. S. lighthouse. The torch is provided with a circle of powerful electric lights, and a second series of lights is arranged at the base, flooding each side of the pedestal with glaring light.

LIBERTY, EQUALITY, FRATERNITY: three words that for nearly a century have been accepted as embodying the creed of those who maintain the rightful supremacy of the numerical majority; and that were sounded as the watchword of that formidable movement on the continent of Europe, 'the Revolution,' whose object was and is to assert this supremacy by overturning the existing fabric of society. When contrasted with the democratic creed of antiquity, the only novelty which the modern symbol exhibits consists in the proclamation of 'equality;' for 'liberty,' in the widest sense—meaning thereby the ultimate extension of political power to the whole body of the citizens—has been the object of the most enlightened politicians of all ages; while the protest in favor of 'fraternity' is a mere sentimental commonplace, about whose speculative soundness in some possible mode of its application there never was any real difference of opinion.

The first state document of importance in which the doctrine of equality is set forth is the American Declaration of Independence, 1776, July 4. This celebrated document proceeds thus: 'We hold these truths to be self-evident: *that all men are created equal*; that they are endowed by their Creator with certain unalienable rights; that among these are life, liberty, and the pursuit of happiness,' etc. But as a speculative opinion, the doctrine of equality had been proclaimed by Hobbes more than a century before, and from his time till the period at which it thus received practical recognition, it had never been lost sight of by the class of speculative thinkers to which Hobbes belonged. Under different forms, and from various points of view, it has been reasserted by Spinoza, Rousseau, Helvetius, and ultimately by the class of political declaimers whose works were simultaneous with the American, and immediately preceded the French Revolution.

Hobbes was bolder than his followers, and by assuming a premise which, had it been true, would certainly have justified his conclusion, saved his logic, though he did not secure a very stable foundation for his law. He asserted that men are not only born, but continue in

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essentials very nearly equal. 'Nature,' he says, 'has made little odds among men of mature age as to strength and knowledge.' Rousseau, on the other hand, feeling that subjective and objective experience would at once repudiate such an assumption, admitted the existence of inequalities in maturity, and scarcely ventured to deny them even at birth, but ascribed them mainly to education, and to other distorting and deranging principles in human nature and human society, which it is the object of law and government to counteract. A third class of reasoners, admitting the fact of inequality, and not condemning it as abnormal in the case of individuals, asserted that the argument in support of social and political equality is sufficiently founded on the generic equality of mankind—on the proposition, viz., that *all men are equally men*. They forgot, or found it convenient to ignore, that the argument of their opponents rested on the proposition, that *all men are not equal men*; and consequently would not have been in the slightest degree affected even by the admission of the generic equality for which they contended. To this last class belongs Prof. Ahrens, whose work on Natural Law has been used as the text-book in the *Ecole de Droit* in Paris. But all these writers agree in maintaining the inalienable connection between equality and liberty; and in asserting that the realization of the latter must of necessity be in proportion to the completeness with which the former is realized. In Great Britain, hitherto, the opposite creed has prevailed. Experience, both subjective and objective, has led to the conclusion that in fact men come into the world and continue during all their earthly sojourn extremely unequal in strength, intelligence, virtue, and worth. It is on this assumption that the whole fabric of the British liberties claims to rest. So far from believing liberty to involve the fictitious recognition of an equality which does not exist, or the creation of an equality which is contrary to nature, the Briton holds it to necessitate the recognition of the inequalities which nature has established, and which God as the author of nature has decreed. Nay, further, he conceives its perfection to be in direct proportion to the completeness with which these inequalities are recognized, and their consequences, in the shape of property, social position, and the like, are vindicated by the political machinery of the state. Society in this view is an organic structure, is cosmic, just so far as it recognizes these inequalities; and begins to be inorganic, chaotic, just so soon as it ignores them. In like manner, the political, which in this view is only the mirror of the social organization of a state, performs its appropriate function only when, and so far as, it truly reflects the inequalities which society has recognized and sanctioned: it must neither add to nor take from the facts which society presents to it. To each it must assign his own, and nothing but his own;

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and his *own* politically is the place which society has already conceded to him. These views, which in a somewhat irregular manner have always been recognized and acted upon in England, have been thought out and systematized in recent years by John Stuart Mill and the class of politicians to whom in future the title of Progressive Conservatives may perhaps be applied. As to the immortal 'Declaration,' it was dealing not with theories of philosophy, but with facts concerning man in the sphere of law and government: *in this sphere*, with which it was its stern necessity to deal, it declares the divinely ordained equality of men. In proportion as Britain and America recognize this natural equality before the law and guarantee it to the humblest citizen, in that proportion will their governmental foundations be proved strong in the day of test. The true doctrine has been stated by no writer with greater force than by John Adams, friend and successor of Washington, and second pres. of the United States. The following passage is selected from many to the like effect in the recent edition of his works by his grandson, Charles Francis Adams: 'That all men are born to equal rights, is true. Every being has a right to his own as clear, as moral, as sacred, as any other being has. This is as indubitable as a moral government in the universe. But to teach that all men are born with equal powers and faculties, to equal influence in society, to equal property and advantages through life, is as gross a fraud, as glaring an imposition on the credulity of the people, as ever was practiced by monks, by Druids, by Brahmans, by priests of the immortal Lama, or by the self-styled philosophers of the French Revolution.' (VI. 454.)

LIBETHENITE, n. *lĭ-bĕth'ĭ-nĭt* [from *Libethen*, in Hungary]: phosphate of copper, occurring in many copper-mines in rhombic prisms, or in radiated masses of an olive-green color, resinous lustre, and brittle.

LIBIDINOUS, a. *lĭ-bĭd'ĭ-nŭs* [L. *libidinōsus*, full of lust—from *libĭdo*, inordinate desire: It. *libidinoso*: F. *libidineux*]: lewd, lustful. **LIBID'INOUSLY**, ad. *-lĭ*. **LIBID'INOUSNESS**, *-nĕs*, state or quality of being lustful.

LIBRA, n. *lĭ'bră* [L. *libra*, a level or balance]: the balance, seventh sign in the zodiac, which the sun enters at the autumnal equinox in September, as at the first point of Libra the ecliptic passes across the equator to the s. hemisphere. In *med.*, when the abbreviation for *libra* is preceded by Arabic figures, avoirdupois weight is meant, and when by Roman numerals, troy weight or pint measure; in some countries a pound weight.

LIBRARIES: collections of books in some considerable number.

Passing over the 'libraries of clay,' collections of inscribed bricks and tiles of the Assyrians and Babylonians, the first library, properly so called, of which we

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have any knowledge, is that which, according to Diodorus Siculus, was formed by the Egyptian king Osymandyas. The existence of this establishment, with its appropriate inscription, *Psyches iatreion*—the storehouse of medicine for the mind—was long regarded as fabulous; but the researches of Champollion, Wilkinson, and other modern investigators, go far to prove that the account of Diodorus, though perhaps exaggerated, is at least based upon truth. A more celebrated Egyptian library was that founded at Alexandria by Ptolemy Soter, for an account of which see ALEXANDRIAN LIBRARY. The library of Pergamus, a formidable rival to that of Alexandria, was founded probably by Attalus I., and was largely increased by the fostering care of his successors: it was ultimately removed to Alexandria, being sent by Antony as a gift to Cleopatra. At the time that this transfer took place, it contained, according to Plutarch, 200,000 volumes.

The first public library established at Athens is said to have been founded by Pisistratus; but information regarding this and other Grecian libraries is meagre. The earliest Roman libraries were collected by Lucullus and by Asinius Pollio. The latter was a public library, in the fullest sense; the former, though private property, was administered with so much liberality as to place it nearly on the same footing. Various other libraries were founded at Rome by Augustus and his successors; the most important, perhaps, being the Ulpian Library of Emperor Trajan. The private collections of Emilius Paulus, Sulla, Lucullus (already mentioned), and Cicero, are known to classical students.

The downfall first of the Western, subsequently of the Eastern Empire, involved the destruction or dispersion of these ancient libraries. The warlike hordes by whom these mighty monarchies were overthrown, had neither time nor inclination for cultivation of letters; but even in the darkest of the dark ages, the lamp of learning continued to shine with steady though feeble light. Within the sheltering walls of the monasteries, the books which had escaped destruction, the salvage of the general wreck, found safe asylum; and not only were they carefully preserved, but so multiplied by the industry of the transcriber, as to be placed beyond all risk of loss for the future. Among noticeable conventual libraries of the middle ages are those of Christ Church, and of the monastery of St. Augustine, Canterbury, England; of the abbeys of Fleury and Clugni, France; of Monte Cassino, Italy; and of St. Gall, Switzerland. Private collectors, too, existed then as now, though their number was small. Among these, Richard de Bury, Bp. of Durham, holds distinguished place.

The revival of learning in the 14th and 15th centuries, followed immediately by the invention of printing, led naturally to a vast increase in the production of books.

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and introduced a new era in the history of libraries intended for a use more or less general. The number of these is now immense: only a few—the most important—are here noted.

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Great Britain.—First among the libraries of Great Britain, and ranking perhaps second in the world, is that of the British Museum, with 1,900,000 printed volumes, beside vast numbers of tracts, pamphlets and charts, and 100,000 manuscripts. The Bodleian Library (q.v.) at Oxford contains about 600,000 printed volumes and nearly 30,000 manuscripts; the University of Cambridge library, 700,000 volumes and 8,000 manuscripts; Victoria University of Manchester, 100,000; the John Rylands Library, Manchester, about 100,000; University College, London, 100,000; the University of Wales, 40,000; the Inns of Courts, London, 172,000, including the Lincoln's Inn 54,000, the Middle Temple 40,000, the Inner Temple 60,000, and Gray's Inn 18,000; New College, Sheffield, about 135,000; the Birmingham Free Library, 170,000 volumes, and 11 leading libraries, 110,000; public libraries of Cardiff, Wales, 156,000; public library and branches of Liverpool, 236,000; Guildhall Library at London, 120,000; Leeds Public Library, 215,000; public library at Newcastle-Upon-Tyne, 135,000; the library of the Literary and Philosophical Society in the same city, 70,000; the Manchester Public Library and its branches, 375,000; Sion College, London, about 75,000; and there are numerous public libraries in the cities and boroughs of London which aggregate over 925,000 volumes.

In *Scotland* the chief libraries are the library of the Faculty of Advocates at Edinburgh, 485,000 volumes; Edinburgh University, 232,000; Glasgow University, 185,000; St. Andrew's University, 115,000; Aberdeen University, 140,000; the library of the Society of Writers to the Signet, Edinburgh, 100,000; the public library of Edinburgh, 165,000; and the Mitchell Library at Glasgow, 175,000, and 16 branches with about 150,000.

In *Ireland* the largest and most valuable library is that of Trinity College (Dublin University), consisting of about 300,000 volumes. Other valuable collections are the National Library of Ireland, Dublin, 165,000 volumes; the library of the Royal Irish Academy, Dublin, 72,000 volumes; and Marsh's Library, Dublin, 25,000 volumes. There are also many private libraries which contain several thousand volumes each, many of which are of extreme rarity and value.

France.—The great national library of France, formerly La Bibliothèque du Roi, now La Bibliothèque Nationale, is probably the largest and most valuable collection of books and manuscripts in the world. Attempts to form a library had been made by Louis XI. and his successors with considerable success; but the appointment of De Thou to the office of chief librarian

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by Henry IV. may be regarded as the foundation of the establishment as it now exists. The number of printed volumes is over 3,000,000; of manuscripts, 102,000; of plates, engravings, stamps, and maps, 2,500,000; and of medals and inscriptions, 120,000. Other libraries in Paris are the Ste. Geneviève, 220,000 volumes and 3,500 manuscripts; the Arsenal, with 500,000 volumes, 10,000 manuscripts, 2,500 cases of papers and documents from the Bastille, and 100,000 engravings; the Mazarine, 300,000 volumes and 5,000 manuscripts; and the Bibliothèque de la Ville, with 210,000 volumes, 25,000 manuscripts and 75,000 engravings and charts. The 27 libraries of the University of Paris contain more than 1,000,000 volumes, that of the Institut Catholique, 150,000; that of the Musée d'Histoire Naturelle over 220,000 and 28,000 drawings and charts; that of the chamber of Deputies, 130,000; and that of the Ministry of Justice, 40,000; beside which there are other large libraries and 79 public free libraries. Outside of Paris, besides about 25,000 popular libraries in connection with public schools, there are over 300 public libraries, the chief of which are those at Aix, 170,000 volumes; Bordeaux, 200,000; and Lyon, 160,000. The principal university libraries, beside that of the University of Paris above mentioned, are as follows: Université d'Aix Marseille, 98,000; Bordeaux, 98,000; Caen, 110,000; Clermont, 90,000; Grenoble, 106,000; Lyon, 198,000; Montpellier, 192,000; Nancy, 142,000; Rennes, 142,000; Toulouse, 118,000; Lille, 195,000.

Italy.—Italy is rich in important libraries. Besides the libraries connected with educational museums there are 1,831 other libraries, 32 of which are national institutions. Among these that of the Vatican at Rome is pre-eminent. The number of printed volumes is only about 220,000; but in the manuscript department the number is 26,000, one of the finest collections in the world. The Victor Emmanuel Library at Rome has 350,000 volumes, 250,000 pamphlets, 5,800 journals and reviews, 6,200 manuscripts, and 24,000 autographs; and the Casanata, also at Rome, has about 160,000. The Ambrosian Library at Milan has 230,000 volumes and 8,500 manuscripts, and over 41,000 medals; the Braidense National Library at Milan, 232,000 volumes, 138,000 pamphlets, 1,684 manuscripts, and 3,820 autographs; the Royal National Library at Florence, 535,750 volumes, and 683,000 pamphlets, 26,000 music scores, 20,220 portraits, and 208,215 biographical sketches; the Laurentian Library at Florence consists almost entirely of manuscripts; the Royal Lombard Institute of Science and Letters at Milan, 150,000; the Magliabecchi at Florence, 300,000; the Royal Library at Naples, 375,000; the Marciana National Library at Venice, 408,000 volumes, 94,500 pamphlets, and 12,000 manuscripts; the Biblioteca Angelica at Rome, 150,000; the Barberini at Rome, 100,000; the Biblioteca Palatina at Parma, 300,000; the

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National Library at Turin, 250,000; the Royal Institute of the Higher Studies, Florence, 125,000; the Biblioteca comunale at Palermo, 216,000; the Biblioteca governativa at Lucca, 208,000; the public library at Bologna, 200,000; the Biblioteca comunale at Fermo, 207,000; and the Estense Library at Modena, 150,000. The chief university libraries are those at Bologna, 308,000 volumes; Cagliari, 96,000; Catania, 270,500; Ferrara, 95,000; Genoa, 185,000; Naples, 283,000; Padua, 225,000; Palermo, 198,000; Parma, 342,500; Pavia, 330,000; Pisa, 226,750; Rome, 205,000; and Siena, 121,500.

Spain.—The principal libraries of Spain are the Biblioteca Nacional at Madrid, nearly 600,000 volumes; the library of the Escorial, 50,000, mainly Arabic; the University of Barcelona, 156,000; the Universidad Central de España at Madrid, 223,000; Granada, 40,000; Oviedo, 40,000; Salamanca, 80,200; Santiago, 45,000; Saragossa, 45,000; Seville, 82,000; Valencia, 61,000; and Valladolid, 35,000.

Portugal.—The Library of the Universidade de Coimbra, at Coimbra, contains 100,000 volumes; and the Bibliotheca Nacional, at Lisbon, 210,000.

Austria.—The Imperial Library at Vienna, founded by Frederick III., in 1440, is a notable collection of not fewer than 900,000 volumes and 24,000 manuscripts; the National at Buda-Pesth, 500,000; Franz-Josefs University, Czernowitz, Bukowina, 161,000; Karl-Franzens University, Gratz, Styria, 212,000; Leopold-Franzens University, Innsbruck, Tyrol, 197,000; Uniwersytet Jagiellonski w. Krakowie, Krakow, Galicia, 373,000; Uniwersitet Imienia Cesarza Franceska I., Lemberg, Galicia, 180,000; Karl-Ferdinand University, Prague, Bohemia, 320,000; University of Vienna, 659,000; Technische Hochschule at Vienna, 107,000; and the Museum Krábovstvi českého, Prague, Bohemia, 200,000.

Hungary.—The Krali. Sveučiliste Franje-Josipa I. u Zagrebu, at Agram (Croatia), contains 115,000 volumes; the Királ ji Magyar Tudomány-Egyetem, Budapest, 293,000; the Magyar Királ ji Ferencz József Tudomány-Egyetem, Klausenburg, 70,000; the Királ ji József Müegyetem Budapesten, Budapest, 76,000; Magyar nemzetu muzeum, Budapest, 467,000; and the Evangelische-Reformite Hochschule at Debreczin, 71,000.

Germany.—The Royal Library at Munich owes its origin to Albert V., Duke of Bavaria, about the middle of the 16th century; number of volumes, estimated, 1,000,000, including 13,000 incunabula, and 40,000 manuscripts; it is worthily lodged in the splendid building erected by King Ludwig I., in the Ludwig Strasse. The Royal Library at Dresden has about 500,000 volumes, including some of the rarest specimens of early printing, among them the Mainz Psalter of 1457, the first book printed with a date; also 6,000 manuscripts. The foundation of the Royal Library at Berlin dates from about

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1650; it now contains about 1,200,000 printed volumes, and 30,000 manuscripts. Germany has many other libraries, among them the Ducal Library of Wolfenbüttel, about 350,000; the Grand Ducal of Darmstadt, 500,000 volumes; University of Leipzig, 506,000 volumes, and 5,000 manuscripts; the City at Hamburg, 600,000 volumes, and 5,000 manuscripts; the Leipzig Municipal Library, 115,000; the Royal Library at Stuttgart, 500,000 volumes, and the largest collection of Bibles in the world (7,300); that of the Badische Albert-Ludwigs Universität at Freiburg, 271,000; Ruprecht-Karls Universität, Heidelberg, 575,000; Friedrich-Alexanders Universität, Erlangen, Bavaria, 230,000; Ludwig-Maximilians Universität, Munich, Bavaria, over 500,000 volumes, and 3,000 manuscripts and charts; Julius-Maximilians Universität, Würzburg, Bavaria, 350,000; Friedrich-Wilhelms Universität, Berlin, Prussia, 400,000; Friedrich-Wilhelms Universität, Bonn, Prussia, 347,000; University of Breslau, Breslau, Prussia, 320,000; Georg-Augusts Universität, Göttingen, Prussia, 531,000; University at Greifswald, Prussia, 181,000; Friedrichs Universität, Halle-Wittenberg, Halle, Prussia, 221,000; Christian-Albrechts Universität, Kiel, Prussia, 252,000; Albertus Universität, Königsberg, Prussia, 467,000; University at Marburg, Prussia, 350,000; University at Münster, Prussia, 281,000; Technische Hochschule, Aix-la-Chapelle (Aachen), 62,000 volumes, and 713,000 patents; Technische Hochschule, Hanover, 163,000; Sächsische Technische Hochschule, Dresden, Saxony, 47,000 volumes, and 758,000 patents; Eberhard-Karls Universität, Tübingen, Württemberg, 448,000; Ludwigs Universität, Giessen (Hesse), 291,000; Sächsische Gesamt-Universität, Jena (Thuringia), over 250,000; Landes Universität, Rostock (Mecklenburg), 318,000; Kaiser Wilhelms Universität, Strassburg (Alsace-Lorraine), 860,000; Kön. öffentliche bibliothek, Bamberg, Bavaria, 350,000; the City Library at Frankfort, Prussia, 280,000; the library at Weimar, Saxe-Weimar, 250,000; that at Schwerin, Mecklenburg, 225,000; that at Augsburg, Bavaria, 200,000; that at Mainz, Hesse, 200,000; and that at Lübeck, 100,000.

Netherlands.—The library of the University of Gröningen at Gröningen contains over 120,000 volumes; that of the University of Leyden over 200,000; of the University of Utrecht, 250,000; that of The Hague, 500,000; and that of the University of Amsterdam, 500,000.

Russia.—The Imperial Library of St. Petersburg was founded about the beginning of the 18th century. In 1795, it was largely increased by the addition of the Zaluski Library of Warsaw, seized and carried to St. Petersburg by Suwaroff. At present, the total number of volumes is estimated at 1,300,000, and about 28,000 manuscripts. The library of the Kejslerliga Alexanders Universitet at Helsingfors (Finland) contains 192,000

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volumes; the Imperatorskij Jurjevskij Universitet at Jurjew (formerly Dorpat), 224,000 volumes and 159,300 pamphlets; the Imperatorskij Kasanskij Universitet at Kazan, 227,000; the Imperatorskij Charkovskij Universitet at Kharkof, 175,000; the Imperatorskij Universitet Sv. Vladimira at Kief, 120,000; the Imperatorskij Moskovskij Universitet at Moscow, 325,000; the Imperatorskij Novorossijskij Universitet at Odessa, 249,000; Imperatorskij St. Petersburgskij Universitet at St. Petersburg, 345,000; the Imperatorskij Varsavskij Universitet at Warsaw, 534,000; Moskovskaja Duchovnaja Akademija, Moscow, 140,000; Gornyj Institut, St. Petersburg, 250,000; the public library at Moscow, 800,000; the Imperatorskaja akademija nauk, St. Petersburg, 400,000; and the public library at Vilna, 200,000.

Switzerland.—The library of the University at Basel contains 252,000 volumes; that at Berne, 200,000; that at Freiburg, 115,000; the public library at Geneva, 172,000; the library of the University at Lausanne, 280,000; that of the University at Zurich, 92,000 volumes and 150,000 pamphlets.

Other European Countries.—In *Belgium* are the library of the Université de l'Etat de Gand, at Ghent, with 337,000 volumes; and the Royal Library at Brussels, 500,000 volumes and 30,000 manuscripts.

In *Denmark* are the library of the University of Copenhagen, with 407,000 volumes; the Royal Library at Copenhagen, founded about the middle of the 16th century, 500,000 volumes and 20,000 manuscripts; the Staats Bibliothek at Aarhus, 200,000; and Classen's Library at Copenhagen, about 50,000.

In *Greece* the chief library is the national library at Athens, 253,000 volumes, which is also used by the National University there.

In *Norway* is the library of the Kongelige Frederiks Universitet, Christiania, 410,000 volumes.

In *Sweden* the largest university library is that of the University of Upsala, nearly 320,000 volumes: one of its chief treasures is the famous manuscript of the Gothic Gospels of Ulfilas, commonly known as Codex Argenteus. The Royal Library at Stockholm numbers 395,000 volumes, and the library of the Kongl. Karolinska Universitet at Lund, 180,000.

In *Roumania* are the libraries of the Universitatea din Bucaresti at Bukharest, with about 185,000 volumes, and that of the Universitatea din Jassy, at Jassy, 160,000.

In *Syria* is the library of St. Joseph's University, at Beirut, with 100,000 volumes.

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In *Australia* the principal libraries are the Melbourne Free Library, with about 300,000 volumes, and the library of the University of Melbourne, with 35,000.

In *Japan* are the library of the Imperial University

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at Tokyo, with 350,000 volumes; and the Imperial Library at Tokyo, with 210,000.

In *Siberia* the principal library is that of the Tomskij Universitet at Toursk, with 200,000 volumes.

In *India* and *China* are many libraries ranging from 1,000 to 50,000 volumes each, which are too numerous to mention.

AMERICA.

United States.—In the United States the public library has reached its most complete development and has taken an important position in the educational policy of the nation. The first libraries established in the colonies were those of the colleges; Harvard's library was begun in 1638 by the gift from John Harvard of his entire private library; Yale's library was founded in 1700; Princeton's in 1757; and that of King's College (Columbia) in 1756. These libraries were small and consisted almost entirely of works on theology and the classics. The next in order were the subscription libraries, established and maintained by private associations. The first library of this kind was that of the Philadelphia Library Company, organized in 1732. The first library established by a town was founded in 1833 in New Hampshire. About the same time an attempt was made to establish school district libraries through the assistance of the state governments. In this movement New York took the lead by passing a law (1835) providing for such libraries, and in 1838 appropriating \$55,000 toward their maintenance. Within the next 10 years several states passed similar laws, though without such large appropriations, but the libraries were nowhere successful and the plan was generally abandoned. In 1849, New Hampshire passed the first general law providing for the establishment and maintenance of free public libraries by towns and cities. Massachusetts followed in 1851, and all the New England states had similar laws before 1870. In 1867, Ohio passed a general public library law; and in 1872 laws were passed in Colorado, Illinois, Iowa, and Wisconsin. Of these the Illinois law is the most important, as it served as the model for other states. It provided for the establishment of libraries in towns by popular vote, in cities on the initiative of the common council; prescribed the number of library trustees and the method of their election on appointment; and limited the rate of taxation for library purposes on a sliding scale according to the size of the towns and cities. Since 1872, the majority of the states have passed public library laws on similar lines; some states do not limit the tax rate, but limitation is the rule, though the tendency of recent years has been to make the rate more generous. In 1891, New York passed a statute placing the control and supervision of all libraries in the hands of the regents, but the regulations for the establishment of libraries are much the same as

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for Illinois. With the encouragement of liberal laws the number of public libraries has increased enormously. There are about 6,900 public, society, and school libraries having over 1,000 volumes. The New England and Middle States are best provided in proportion to the population. New York has over 900 libraries, Massachusetts over 600, and Pennsylvania nearly 500; Massachusetts is the only state in which every township has a free library. On the other hand, the number of libraries is growing rapidly in the South and West; the percentage of increase being especially high in West Virginia, Arkansas, Indian Territory, Oklahoma, North Dakota, South Dakota, and New Mexico. In Ohio there are over 350 libraries; in Illinois nearly 400; in Michigan, Iowa and Wisconsin nearly 250 each; in Missouri about 190; in Kansas, 145; and in California nearly 300. Of these 6,900 libraries four contain more than 500,000 volumes, not including pamphlets; five from 300,000 to 500,000; 50 from 100,000 to 300,000; 115 from 50,000 to 100,000; 210 from 25,000 to 50,000; 650 from 10,000 to 25,000; 1,025 from 5,000 to 10,000; and the balance 5,000 or less. In number of volumes New York state ranks first with over 9,000,000 volumes and 2,375,000 pamphlets; next in order are Massachusetts, with 7,625,000 volumes and 1,400,000 pamphlets; Pennsylvania, 4,580,000 volumes and 620,000 pamphlets; Illinois, 3,170,932 volumes and 465,000 pamphlets; Ohio, 2,841,000 volumes and 358,000 pamphlets; District of Columbia, 2,715,000 volumes and 980,000 pamphlets; and California, 2,143,000 volumes and 230,000 pamphlets.

The public libraries have grown not only in number, but in breadth of policy and in the ideal of what they should be in the life of the community. The modern library is not a place merely for the collection, storing, and care of books, but an educational centre, seeking to bring the people into contact with the best in literature. The books are selected with consideration of the special needs and interests of the library's constituents, and every effort made to attract the public to the library for reading and study and to stimulate interest in books. Many important improvements have been made in classification, cataloguing, and other library methods, but these not so much for the sake of the library itself as to facilitate the use of it by the people to whose needs it ministers. The libraries, also, seek to come into close relations with the schools by giving teachers special privileges, sometimes placing small special libraries in the schools, and preparing lists of books in line with the school courses and having them easily accessible to the scholars.

That the importance of the library as an educational factor is recognized is shown by the attitude of the state governments toward library development. Besides the very general provision of liberal laws already mentioned,



1. Carnegie Library, Atlanta, Ga.
2. Carnegie Library, Montgomery, Ala.

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many states have adopted the policy of carefully fostering and directing the growth of libraries. Twenty-two states have library commissions, whose duty it is to encourage the establishment of new libraries, and to aid and advise those already organized. Many of these commissions have in their charge travelling library systems, sending out small, well-selected libraries to the public libraries of the state whose supply of books is limited and to responsible persons, clubs, etc., in communities where there are no free libraries. In the New England states where direct aid is given to public libraries in the shape of money grants or gifts of books, the distribution of this aid is also in the hands of the commission. In most of the states the commissions employ a paid secretary, and in many cases, as in Wisconsin, they have a considerable appropriation, and carry on an active work through the distribution of their publications and by personal visits to libraries needing assistance or to towns having no library. In other states the appropriation is small and the work correspondingly limited, though animated by the same spirit of helpfulness. In New York state all the functions of a commission are carried on by the Educational Extension Division of the Department of Education. In some states which have no commission the state library is gradually extending its functions to do a large part of the work; New Hampshire and Washington, both of which had previously organized a commission apart from the state library, have recently consolidated the two under the direction of one body. This is an indication of the general tendency to escape from the former narrow conception of the state library as an institution for the use of the state legislators and officers at the capitol, and to make it literally the library of the state for the benefit of all. The state libraries are generally open to the public for reference, and in some states—e.g., New York, California, and Virginia—books are loaned to other libraries and to individuals on proper security.

Corresponding to this growth of the state libraries is the recent rapid advance of the Library of Congress at Washington. Founded, as its name indicates, for the use of the members of congress, it has become truly a national library; while the loaning of books is restricted mainly to members of congress, of the judiciary, and of the executive departments, it is open to all for general reference work, and special effort is made to assist scholars and investigators. Books have also been loaned to other libraries for the use of such individuals as were making important researches. The law provides that two copies of every book copyrighted shall be deposited with the Librarian of Congress, so that the library in this way acquires a copy of practically every book printed in the country; there is also a system of exchange with foreign governments by which their publications are

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obtained, and an annual appropriation for the purchase of books not obtained in either of these ways. Since the completion of the new building and the appointment of Mr. Herbert Putnam as librarian in 1899, the Library of Congress has undertaken a most important work for the benefit of other libraries; this is the printing and circulation of its catalogue cards. These cards are furnished to all libraries at cost, five copies of a card costing four cents. Libraries may subscribe for all cards issued, for cards covering any particular classes or subjects, or for cards for individual books. In this way by a slight alteration of the cards for the particular needs of each library, the great part of the cost of cataloguing may be saved to the individual libraries.

Side by side with the development of the public library has gone the growth of the college and university libraries. The first college libraries were small, narrow in their selection of books, and intended for the use of the professors rather than for the students. Now the libraries of the great universities are among the largest of the country, Harvard ranking first with more than 700,000 volumes, and there is no college so small that it does not have a library as an important part of its equipment. As with the public libraries, growth in numbers and size has been accompanied by a corresponding growth in ideals. The narrow selection of books has been broadened to include as far as possible the best in every department of learning represented in the curriculum; the matter of selection is usually entrusted to the professors of the several departments, each being limited by the resources of the library and the needs of the others.

The advance of the libraries of the United States is due most of all to one thing—the hard work, perseverance, and hearty co-operation of the librarians of the country. The American Library Association, which was organized in 1876 and includes in its membership representatives of libraries from all parts of the country, is the organized expression of this spirit of co-operation. This association has encouraged the discussion of all problems from the most technical questions of method to the broadest questions of general policy; and it is largely through the work of this association and its members that libraries have grown consistently and steadily, and that the library movement has become ‘perhaps the most characteristic educational movement of the past 50 years.’

The Library of Congress is the largest in the Western Hemisphere and now contains 1,344,618 books, 250,000 pamphlets, 26,500 manuscripts, 82,744 maps and charts, 410,352 pieces of sheet music, and 183,724 photographs, prints, engravings and lithographs. Of the books probably one-sixth are duplicates. The law library of about 111,000 volumes is not included in the above. The New York Public Library, consisting of the Astor, Lenox, and Tilden Foundations, in 1907 contained 998,099 vol-

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umes in the reference department and 621,392 volumes in the circulation department, a total of 1,619,489 pieces. In New York there are also the Mercantile Library of 250,000 volumes; the Society Library, 100,000; the Arthur W. Tams Musical Library, 500,000; the New York Historical Society Library, 125,000; the library of the General Society of Mechanics and Tradesmen, 120,000; the Aguilar Free Library, 80,000; New York University, 85,000; the New York Academy of Medicine, 85,000; Union Theological Seminary, 86,000; the Brooklyn Library, 328,000; Pratt Institute, Brooklyn, 86,000; Columbia University, 390,000 volumes and 100,000 pamphlets; and St. Francis Xavier College, 106,000. The Chicago, Ill., Public Library contains over 328,000 volumes; the Newberry Library, Chicago, 221,500 volumes and pamphlets; the John Crerar Library, Chicago, 247,500 volumes and pamphlets; and the University of Chicago, 447,175 volumes. The Boston Public Library contains 850,000 volumes; the Boston Athenæum, 215,000 volumes and pamphlets; the Massachusetts State Library at Boston, 125,000; Harvard University Library, 700,342 volumes and 400,650 pamphlets; the New York State Library, 437,756 volumes, 196,425 pamphlets, and about 265,000 manuscripts; Cornell University Library at Ithaca, N. Y., over 326,000 volumes and 50,000 pamphlets; Syracuse University, 70,000 volumes and 27,000 pamphlets; Peabody Institute, Baltimore, 150,000; Enoch Pratt Libraries, Baltimore, 220,000; Johns Hopkins University, Baltimore, 130,000 volumes and 100,000 pamphlets; the Providence, R. I., Public Library, 110,000; the Philadelphia Public Library, 250,000; the Library Company of Philadelphia, 232,000; the Mercantile Library at Philadelphia, 190,000; Lehigh University, South Bethlehem, Pa., about 87,000 volumes and 40,000 pamphlets; the University of Pennsylvania, 245,000 volumes and 50,000 pamphlets; the public library at Indianapolis, Ind., 102,000; Young People's Reading Circle Libraries of Indiana, 450,000; Sutro Library, San Francisco, Cal., 220,000; the public library at Cincinnati, O., 300,000 volumes and pamphlets; Newark, N. J., Public Library, 90,000; Amherst College, Amherst, Mass., 90,000; Bowdoin College, Brunswick, Me., 90,000; Brown University, Providence, R. I., 160,000 volumes and 52,000 pamphlets; Dartmouth College, Hanover, N. H., 100,000 volumes and 20,000 pamphlets; Drew Theological Seminary, Madison, N. J., 100,000; Georgetown University, Washington, D. C., 98,000; Leland Stanford Jr. University, California, 100,000; Northwestern University, Evanston, Ill., 65,000 volumes and 22,000 pamphlets; Oberlin College, Oberlin, O., 87,000 volumes and 40,000 pamphlets; Princeton University, Princeton, N. J., 196,000 volumes and 60,000 pamphlets; University of California, Berkeley, Cal., 210,000 volumes and 100,000 pamphlets; University of Cincinnati, 80,000 volumes and 10,000 pamphlets; Univer-

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sity of Illinois, Urbana, Ill., 94,000 volumes and 30,000 pamphlets; University of Michigan, Ann Arbor, Mich., 206,600 volumes and 4,600 pamphlets; University of Minnesota, Minneapolis, 105,000 volumes and 24,000 pamphlets; University of Wisconsin, Madison, Wis., 113,000 volumes and 33,000 pamphlets; Yale University, 500,000; Western Reserve University, Cleveland, O., 75,000 volumes and 10,000 pamphlets; Massachusetts Institute of Technology, Boston, 72,000 volumes and 21,000 pamphlets; University of Vermont, 74,000 volumes and 33,000 pamphlets; Hartford Theological Seminary, 86,000; the Smithsonian Institute at Washington, D. C., in connection with the Library of Congress, maintains a library of 250,000 volumes, consisting mainly of the transactions of learned societies and scientific periodicals. The Worcester, Mass., Public Library contains 142,000 volumes; that of Springfield, Mass., 130,000; the library of the American Antiquarian Society at Worcester, Mass., 120,000; the Essex Institute at Salem, Mass., 100,000; the Forbes Library at Northampton, 100,000; the St. Louis Public Library, 170,000; the Mercantile Library of St. Louis, 127,000; the California State Library, Sacramento, 123,000; the Carnegie Library at Pittsburg, Pa., 160,000; Kansas City, Mo., Public Library, 100,000; Jersey City, N. J., Public Library, 110,000; Pennsylvania State Library, Harrisburg, 116,000; Detroit, Mich., Public Library, 200,000; Cleveland, O., Public Library, 200,000; the Buffalo, N. Y., Public Library, 205,000; Arkansas State Library, Little Rock, about 100,000; Los Angeles, Cal., Public Library, 100,000; Public Library 155,000, Mechanics Institute 125,000, and Merchants Library 100,000, all at San Francisco, Cal.; Denver, Col., Public Library, 100,000; Iowa State Library, Des Moines, 100,000; Kentucky State Library, Frankfort, 100,000; Michigan State Library, Lansing, 125,000; Minneapolis Public Library, 130,000; Wisconsin State Historical Society, Madison, 125,000; Milwaukee, Wis., Public Library, 145,000.

The number of libraries in the United States that contain less than 100,000 volumes is so vast as to preclude the possibility of naming them, but nearly every village, town and city in the land and every educational institution of importance has a well appointed library. For a list of these the reader is referred to the publications of the United States Commission of Education, in which will also be found, besides the university libraries of the United States, a list of the most important university libraries in foreign countries.

Other Countries.—In *Canada* the principal library is that of parliament at Ottawa, with 200,000 volumes; other valuable libraries are those of Laval University, Quebec, 120,000; McGill University, Montreal, 104,000, and a medical library of 25,000; University of Toronto, 78,000; Laval University, Montreal, 50,000; Dalhousie

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University, Halifax, 40,000; the Fraser Public Library, Montreal, 30,000; the Winnipeg Free Library, 20,000.

In *Argentina* the largest library is that of the National University, at Buenos Ayres, with 140,000 volumes.

In *Brazil* the Bibliotheca Nacional, at Rio de Janeiro, is the principal library, containing over 260,000 volumes.

In *Mexico* the National Library is the largest, containing 225,000 volumes.

In *Chile* the National Library, at Santiago, is the most important, containing over 100,000 volumes.

LIBRARY, n. *lī-brā-rī* [F. *librairie*, a library—from mid. L. *librāriā*, a library: L. *librāriūm*, a place to keep books in—from *liber*, a book: It. *libreria*, a library]: collection of books arranged in order; room or building containing them (see LIBRARIES). LIBRA'RIAN, n. *-brā-rī-ān*, one who has the care of a library or collection of books. LIBRA'RIANSHIP, n. the office. LIBRARIES ACTS, acts of a legislative body (1850-71) empowering rate-payers of any burgh, district, parish, town or city, by a majority vote to establish libraries and tax the inhabitants for that purpose. MILITARY LIBRARIES, either garrison or regimental: the garrison libraries are large collections of books, with newspapers, games, lectures, etc., in commodious rooms, intended to win soldiers from vicious haunts. Regimental libraries are smaller, and accompany regiments in their various movements.

LIBRATE, v. *lī-brāt* [L. *librātus*, levelled, balanced—from *libra*, a balance: It. *librare*, to balance]: to poise; to balance; to move, as a balance. LI'BRATING, imp. LI'BRATED, pp. LIBRA'TION, n. *-brā'shūn* [L. *librātiōnem*]: the act of balancing or state of being balanced, as a balance before coming to rest; in *astron.*, the balancing motion or trepidation in the firmament whereby the declination of the sun and the latitude of the stars change from time to time. It is also a term applied to an apparent irregularity in the moon's motion. The moon's librations (properly, *apparent* librations) are of three kinds—libration in longitude, in latitude, and the diurnal libration. If the moon's revolution in her orbit were uniform, as her rotation on her axis is, we should always see exactly the same portion of her surface, but as this is not the case, there are two narrow strips of surface extending from pole to pole, on the e. and w. sides, which become alternately visible; this is called the moon's *longitudinal libration*. The *libration in latitude* arises from the moon's axis not being perpendicular to her orbit, in consequence of which, a portion of her surface round the n. pole is visible during one half, and a corresponding portion round the s. pole during the other half of her revolution in her orbit. The *diurnal libration* hardly deserves the name, and is simply a consequence of the observer's position on the surface of the earth, and not at the centre: it consists in the gradual disappearance of certain points on one edge of the moon's disk as she

LIBRETTO—LIBRI-CARRUCCI.

approaches her culmination, and the appearance of new points on the opposite border as she descends. The first and third of these librations were discovered by Galileo, the second by Hevelius. LIBRATORY, a. *lĭbră-tĕr-ĭ*, moving like a balance, as it tends to an equipoise or level.

LIBRETTO, n. *lĭ-brĕt'tō* [It. *libretto*, a little book—from *libro*, a book]: a book having the words of an opera or other extensive piece of music; the words themselves.

LIBRI-CARRUCCI, *lĕ'brĕ-kâr-rôt'ehĕ*, GUILLAUME BRUTUS ICILIUS TIMOLEON, Count: French mathematician and bibliographer: 1803, Jan. 2—1869, Sep. 28; b. Florence; son of an Italian refugee condemned at Lyon 1816 for forgery. Libri-Carrucci became prof. of math. in the Univ. of Pisa, where he contributed to the Transactions of scientific societies a number of remarkable papers on *The Theory of Numbers* (1820); *Some Points of Analysis* (1823); *The General Resolution of Indeterminate Equations of the First Degree* (1826); etc.

After 1830, having been compromised in the political movements, he left Tuscany and went to France as refugee. He there found a patron in Arago (whom he afterward attacked in the most spiteful manner); was naturalized, and in a short time elected member of the Acad. of Sciences, prof. of analytics at the Sorbonne, chief inspector of public instruction, and supt. of the state libraries. He was decorated with the Legion of Honor, and appointed editor of the *Journal des Savants*, etc. His works at this period are varied and numerous. In particular may be mentioned *History of Mathematical Science in Italy from the Renaissance to the End of the 17th Century* (1838-41, 4 vols. 8vo), in which he displayed much acuteness and erudition. He was, besides, a most determined bibliomaniac, and found means of collecting a library for himself, which contained such a rich stock of *ineunabula* of all kinds, and of the greatest typographical curiosities, that several public sales, which he arranged for his own benefit, and of which each realized \$20,000 to \$25,000, did not in the least diminish his collection. The remarkable phenomenon of a library remaining complete in spite of repeated sales, caused Libri-Carrucci to be suspected of making use of his special position to abstract books and valuable MSS. from the public libraries. A report had even been secretly prepared on the subject by the public procurator, and communicated to M. Guizot to await his decision. The objects abstracted 1842-47 were approximately valued at \$100,000. This document, dated 1848, Feb. 4, was found in the Foreign Office when the revolution broke out in that month. The case was immediately taken up by the courts, and after a long and careful examination, the accused, who had fled to England, was condemned, 1850, June, to ten years' imprisonment, to degradation, and the loss of his employments. This proceeding made a

LIBURNIA—LICATA.

sensation, and gave rise to an immense deal of writing for and against the condemned. The most important was an article by Prosper Mérimée, *Le Procès Libri*, in *Revue des Deux Mondes* (1852), for which the writer was imprisoned, as having, in defense of a 'book-stealer,' slandered and insulted the French judicature. Libri-Carrucci continued for two or three years to address letters and pamphlets to persons in France exclaiming against his condemnation in the highest tones of injured innocence. The efforts of Mérimée in behalf of Libri-Carrucci and a petition in his favor, addressed to the senate 1861, had the effect only of bringing out still more damnatory facts regarding both himself and his family.

LIBURNIA, *lī-bēr'nī-a*: in anc. *geog.*, a barren, rocky country along the n.e. coast of the Adriatic, also the islands adjacent. The people, doubtless of Illyrian origin, were a piratical race, whose ships were light and swift. The Romans adopted these vessels instead of the heavy and lofty Greek galleys, and by these Augustus is said to have gained the battle of Actium. In later times Liburnia was incorporated with Dalmatia.

LIBYA, *līb'ī-a*: name given by the oldest geographers to Africa. In Homer and Hesiod, it denoted the whole of this quarter of the globe, except Egypt; in Herodotus, occasionally, the entire continent; but it is also applied by others in a more restricted sense, to the n. part of the country, from Egypt and the Arabian Gulf westward to Mount Atlas. The great sandy tract, abt. 1,000 m. long, and 500 or 600 m. broad, of which the Sahara forms forms the principal part, was called the *Libyan Desert*.

The *Libyan Sea* was the portion of the Mediterranean between the island of Crete and the coast of Africa. See AFRICA.

LIBYAN, a. *līb'ī-an* [L. *Libyus*]: applied to a group of languages, spoken by tribes inhabiting the mountainous parts of Barbary.

LIBYANS, *līb'ī-anz*: people of Libya, the anc. Gr. name for Africa, originating perhaps from the people who were found bordering Egypt on the w., and are now supposed to have been the *Lubim* or *Lehabim* of II. Chron. xii. 3; xvi. 8; Nah. xii. 9. The Libyans appear as wandering tribes allied sometimes with Egypt, sometimes with Ethiopia, and under Cambyses included in the Persian empire. Herodotus classed all n. Africans as Libyans; but the Romans limited the term to the inhabitants of the region along the Mediterranean, w. of Egypt to the Greater Syrtis: this was the Libya of Acts ii. 10. In remote antiquity the Libyans were civilized and powerful. See AFRICA; EGYPT; CARTHAGE; CYRENE.

LICA'TA. See ALICATA.

LICE—LICENSE.

LICE, *līs*: the plu. of LOUSE, which see. See also PARASITES.

LICENSE, n. *līsēns* [F. *licence*—from L. *licen'tiā*, freedom, liberty—from *licet*, it is permitted]: leave; permission; authority; excess; contempt of law or of necessary restraint; permission to sell excisable articles, or to keep a house for the sale of malt liquors or of wines and spirits, etc.; in England, permission to marry without publication of banns. License in *music*, liberty taken by a composer in deviating from the rules of musical art, for production of some unusual effect: it is indicated sometimes by the word *con licenza*, though often the great composers omit these words. The license is used in many cases to strengthen the harmony. **LICENSE**, v. to permit by authority; to authorize to act in a particular character. **LI' CENSING**, imp.: **ADJ.** granting a license to; that gives power or authority to sell alcoholic liquors. **LI' CENSED**, pp. *-sēnst*: **ADJ.** applied to an occupation which requires legal authority for its exercise, as a *licensed* hawker. **LI' CENSER**, n. *-ēr*, one who grants permission. **LI' CENSABLE**, a. *-ā-bl*, that may be permitted or authorized legally. **LICENTiate**, n. *līsēn'-shī-āt* [mid. L. *licentiātus*, licensed]: one who holds a license to exercise a profession: among Presbyterians and some other denominations, person authorized by a presbytery or similar body to preach, and who is thus made eligible to a pastoral charge: in England, a medical man licensed by the College of Physicians. Licentiate is one of the four ancient university degrees. It is no longer in use in England, except at Cambridge, which confers the degree of licentiate of medicine. In France and Germany, however, where it is more general, a licentiate is a person who, having undergone the prescribed examination, has received permission to deliver lectures. The degree, as an honor, is intermediate between *Bachelor of Arts* and *Doctor*. **LICENSED VICTUALLER**, one who holds a license to sell wines and spirits by retail. **LI' CENSING COURT**, court where the magistrates sit to grant licenses to publicans, grocers, etc. **POETIC LICENSE**, the liberty taken by poets to disregard facts, grammatical rules, etc.

LI' CENSE, FOR SALE OF INTOXICATING DRINK: certificate issued by a competent state, co., municipal, or other civil authority for the sale of intoxicating beverages under the provisions of existing excise laws. The object of a license is not primarily for revenue, but for prevention of a free and indiscriminate traffic; and the act of licensing is the law's attempt to regulate and restrict the traffic which it has conditionally sanctioned. Within a few years the restriction of the liquor traffic has taken a powerful hold on the social and political life of the country. One of its first measures was the establishment of the National Prohibition Party, which 1872 received a popular vote for its presidential candi-

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dates of 5,608, and 1904 an aggregate of 258,536. The party declares that any form of license, taxation, or regulation of the liquor traffic is contrary to good government; that prohibition is the only remedy for the sin and crime of the traffic; and that no grade of compromise should be entertained. Against this extreme declaration, a large number of people belonging to both of the leading political parties, declining to favor the unrestricted sale of intoxicating liquors on the one hand and prohibition on the other, prefer a middle course, and urge that the traffic be restrained and regulated by just and equitable excise laws, rigidly enforced. This conservative class has sought to carry out its views by attempting to secure the adoption of more stringent excise laws, which would accomplish a greater restriction of the traffic by raising the license tax to such high rates that but few dealers, in comparison with the present number, could afford to pay for a license. One of the most beneficent objects to be gained by such a law, the wiping out of low cheap groggeries and the closing of combined liquor saloons and corner grocery stores, was used by the opponents of the measure in New York, and other states to defeat it. Against the adoption of a high license law, was urged its unconstitutionality, in that it discriminated between the rich and the poor dealer, and tended to give a few rich dealers a monopoly of the business, 'a clear violation of individual rights.' Another conservative class has sought a solution of the problem through legislative aid by having the residents of a state, city, or other community decide by special vote whether the traffic should be prohibited, licensed at ordinary rates, or licensed at high rates within their corporate limits. Thus, three forms of legislation to promote temperance have been provided in the United States, prohibitory, restrictive, and optional. The prohibition movement has recently—and particularly in 1907—made remarkable strides. There are now six prohibition states—Maine, Georgia, North Dakota, Kansas, Oklahoma, and Alabama. In Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico, saloons are licensed with virtually no restrictions, though there are a few Sunday-closing laws. In Kentucky 97 of 119 counties are wholly 'dry,' and of the balance only four are wholly 'wet.' Georgia became a prohibition state 1908, Jan. 1; Alabama 1907, Nov.; Tennessee allows public sale of liquor only in Memphis, Nashville, and Chattanooga; in Mississippi 68 of the 75 counties are 'dry'; and in Florida 34 of the 47 counties. In South Carolina local option is in force and 17 of the 41 counties have voted for no saloons; in North Carolina 95 per cent of the territory is dry; in Virginia 72 of the 118 counties; in West Virginia 30 of the 55; in Maryland 14 of the 23; and in Delaware 2 of the 3; Louisiana has 18 'dry' parishes and many others partly 'dry'; in

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Arkansas 60 out of 75 counties are 'dry'; in Missouri 44 out of 115; in Texas 147 counties are absolutely 'dry,' 53 partly so, and 47 totally 'wet'; Nebraska has local option by villages and cities and 400 are 'dry' and 600 'wet'; South Dakota is about one-quarter 'dry'; Minnesota has 123 'dry' towns and rigid Sunday closing; in Iowa 65 out of 99 counties are 'dry' and 11 other counties have only one saloon each; Wisconsin has 650 'dry' towns; Michigan has only one 'dry' county; in Indiana 680 out of 1,016 townships are 'dry'; in Ohio 1,140 out of 1,376 townships are 'dry' and 60 per cent of the municipalities; in Pennsylvania there is one 'dry' county; in New York 602 towns have no saloons; in Vermont only 24 towns allow the sale of liquor; New Hampshire is nominally prohibition but only about one-half is 'dry'; Massachusetts has 250 'dry' towns; Connecticut 96 'dry' towns; Rhode Island is only one-half 'dry'; Colorado has recently passed a local option law; in California there are four 'dry' counties; in Oregon 12 counties are 'dry' and 170 municipalities in the 'wet' counties; and Washington has 50 'dry' towns. See also PROHIBITION; TEMPERANCE; TOTAL ABSTINENCE.

LICENTIOUS, a. *lī-sĕn'shŭs* [L. *licen'tiōsus*, unrestrained—from *licen'tiā*, freedom: F. *licencieux*]: immoral; profligate; unrestrained by law or decency. LICENTIOUSLY, ad. *-lī*. LICENTIOUSNESS, n. *-shŭs-nĕs*, the state of being licentious; dissoluteness.—SYN. of 'licentious': dissolute; abandoned; reprobate; unprincipled; depraved; unrestrained; uncurbed; uncontrolled; riotous; unruly; wanton; ungovernable; loose; lax; sensual; lascivious; unchaste; impure.

LICHEN, n. *lī'kĕn* or *lĭch'ĕn* [L. *lichen*; Gr. *leichĕn*, the lichen: connected with Gr. *leichein*, to lick, to lick up—so named from its encroachment]: one of the order of flowerless or cryptogamic plants found upon rocks and various bodies, commonly called rock or tree moss—but really consisting of a fungus parasitic on the green cells of an alga (see below); a disease of the skin. LICHENIC, a. *lī-kĕn'ĭk*, of or pertaining to lichens. LICHENIN, n. *lī'kĕn-ĭn*, peculiar starch-like body, found in Iceland moss and other lichens, from which it is extracted by digesting the moss in a cold, weak solution of carbonate of soda for some time, and then boiling. By this process, the lichenin is dissolved, and on cooling, separates as a colorless jelly. According to Gorup-Besanez (*Lehrbuch der organischen Chemie*, 1860, p. 514), it sometimes assumes a blue, and sometimes a greenish tint, when treated with iodine. In most of its relations it corresponds with ordinary starch. LICHENOUS, a. *lī'kĕn-ŭs*, of or belonging to the skin eruption called *lichen* (q.v. below).

LICHEN: a papular disease of the skin. There are two varieties, *L. planus* and *L. ruber*. The former con-

LICHENOGRAPHY—LICHENS.

sists in an eruption of minute papules of red color, which never contain a fluid, and are distributed irregularly over the body. They have a curiously flattened top and appear first on the flexor surfaces of the forearms, then extend to the trunk and lower extremities, and are accompanied with a sense of heat, itching, and tingling. The disease is chronic in its nature and resistant to treatment, but usually disappears at the end of about a year. *L. ruber* is a more serious affection, sometimes fatal. In it the papules are pointed at the summit, and are of a bright-red color, with more or less redness extending round them. In this form of the disease, the general health is usually affected, in consequence of loss of sleep and general irritation, but the disease is seldom fatal in this country. The treatment, which is not very satisfactory, consists in the use of arsenic and tonics internally, and a tar ointment externally.

LICHENOGRAPHY, n. *lī'kĕn-ōg'ră-fĭ* [Gr. *leichĕn*, the lichen; *graphō*, I write]: a description of lichens. LI'CHENOGR'APHER, n. *-ră-fĭst*, one who writes on the natural history of lichens; also LI'CHENOL'OGY, n. *-ōl'ō-jĭ*, and LI'CHENOL'OGIST, n. *-jĭst* [Gr. *logos*, discourse]: with the same meanings.

LICHENS: natural order of acotyledonous plants, allied to Fungi and to Algæ. They are *thallogenous*, consisting mainly of a *Thallus* (q.v.), and without stem and leaves; wholly cellular, and nourished through their whole surface by the medium in which they live, which is air, and not water, though a certain amount of moisture in the air is always necessary to their active growth; and when the air becomes very dry, they become dormant, ready to resume their growth on return of favorable weather. The thallus of some is pulverulent; that of others crustaceous; of others, leaf-like; of others, fibrous. Reproduction takes place by spores, usually contained in sacs (*asci*, *thecæ*), embodied in repositories of various form, often shield-like or disk-like, called *apothecia* (or shields), which arise from the outer layer of the thallus, and are generally very different in color from the thallus. There is also another mode of propagation by gonidia, separated cells of the inner or medullary layer of the thallus, usually spherical or nearly so, and always of a green color. This seems a provision for the propagation of lichens, even in circumstances—as of the absence of light—unfavorable to the formation of thecae and spores. Lichens are plants of long life, differing in this very widely from fungi. They are most widely diffused, growing equally in the warmest and the coldest regions. On the utmost limits of vegetation, in very high latitudes, or on the very highest mountains, they cover the soil in great masses. Some grow on earth, others on stones, others on the bark of trees, and some of the tropical species on evergreen leaves. In the great economy of nature, they serve for the commencement

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of vegetation, especially to prepare the soil for plants of nigher organization. The gray, yellow, and brown stains on old walls are produced by minute lichens, which have begun to vegetate where nothing else could. The curiously scattered apothecia of some present the appearance of written characters often seen on the bark of trees. Some hang as tufts or shaggy beards from old trees, some grow amid heaths and mosses to cover the soil of the most frigid regions. Lichens contain a peculiar gelatinous substance resembling starch, and called *Lichenin* or *Lichén Starch*; generally also a bitter substance called *Cetrarine*; resin; a red, bright yellow, or brown coloring matter; oxalate and phosphate of lime, etc.; and are therefore adapted to purposes of domestic economy, medicine, and the arts. Some are used for food, as Iceland Moss (q.v.) and *Tripe de Roche* (q.v.); some afford food for cattle, as Reindeer Moss (q.v.); some are medicinal, as Iceland Moss; some afford dye-stuffs, as Archil (q.v.), Cudbear (q.v.), etc.

LICH-GATE, n. *lich-gāt* [Goth. *leik*; Ger. *leiche*; AS. *lice*, a corpse: Icel. *lik*, a living body; and Eng. *gate*—*lit.*, corpse-gate]: the covered gate at the entrance to a churchyard, where the corpse is set down to await the arrival of the officiating clergyman.

LICK, n. *lik* [Ger. *lecken*; Dut. *likken*; Gr. *leichein*; It. *leccare*, to lick or lap]: a passing or drawing of the tongue over; a taste by drawing the tongue over; in U. S., a salt-marsh or salt-spring to which wild animals resort: V. to pass the tongue over; to sup up liquids with the tongue; to take in with the tongue. LICK'ING, imp.: N. a drawing the tongue over the surface. LICKED, pp. *likt*. LICK'SPITTLE, n. *-spit'l*, an abject flatterer or parasite. TO LICK THE DUST, to fall in battle; to be completely prostrated. TO LICK INTO SHAPE OR FORM, to impart shape or method to—which expression is supposed to have arisen from the belief that the bear licks its young into shape. TO LICK UP, to devour entirely.

LICK, v. *lik* [W. *llach*, a slap; *llachio*, to slap]: in familiar language, to beat; to flog; to conquer in a fight: N. a blow; a buffet. LICK'ING, imp.: N. a beating. LICKED, pp. *likt*.

LICK, *lik*, JAMES: 1796, Aug. 25—1876, Oct. 1; b. Fredericksburg, Pa.; philanthropist. He received a common-school education; was apprenticed to the piano and organ making trade; established himself as a manufacturer in Philadelphia 1819, and New York 1820; went to Buenos Ayres 1820, and excepting a brief visit to Philadelphia 1832 carried on the manufacture of musical instruments there and in other S. Amer. cities till 1847; then settled permanently in San Francisco. He invested his entire fortune—about \$30,000—in real estate there, and its advance in value made him very wealthy. Though generally regarded as a man of solitary and

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avaricious habits, in 1874 he assigned real and personal property valued at about \$3,000,000 to seven trustees to be applied to various public and charitable enterprises. Before his death he made several changes in his deed of trust and designated new trustees; but the provisions finally set apart \$60,000 for the erection of a bronze monument to Francis Scott Key, author of the *Star Spangled Banner*, in Golden Gate Park, San Francisco; \$100,000 for the erection of a group of bronze statuary in front of the City Hall, San Francisco, representing the history of California; \$150,000 for the erection and support of free public baths in San Francisco; \$25,000 for the San Francisco Prot. Orphan Home; \$25,000 to build a non-sectarian orphan asylum in San José, Cal.; \$25,000 to the Ladies' Protection and Relief Soc. in San Francisco; \$10,000 to the Mechanics' Institute, San Francisco; \$100,000 to found an Old Ladies' Home in San Francisco; \$540,000 to found and endow the California School of Mechanical Arts; and \$700,000 for constructing an observatory and erecting therein a more powerful telescope than had ever been made, the observatory to become a part of the equipment of the Univ. of Cal. (See LICK OBSERVATORY.) He retained \$500,000 for his own use, left \$20,000 for family monuments, and divided the remainder among his relatives, giving from \$2,000 to \$150,000 each. In 1887, Jan., his remains were placed in a vault at the base of the 30 ft. pier supporting the great telescope.

LICKERISH, a. *lĭk'ēr-ĭsh* [F. *lécher*, to lick, to lap; Ger. *lecker*, a dainty-mouthed man (see LICK 1)]: in *OE.*, nice in the choice of food; greedy to swallow; tempting the appetite; having a keen relish. LICK'ERISHLY, ad. *-lĭ*. LICK'ERISHNESS, n. *-nĕs*, daintiness of taste; niceness of taste. *Note.*—Another form in *OE.* was *lickorous*, sometimes used in the sense of lecherous or voluptuous.

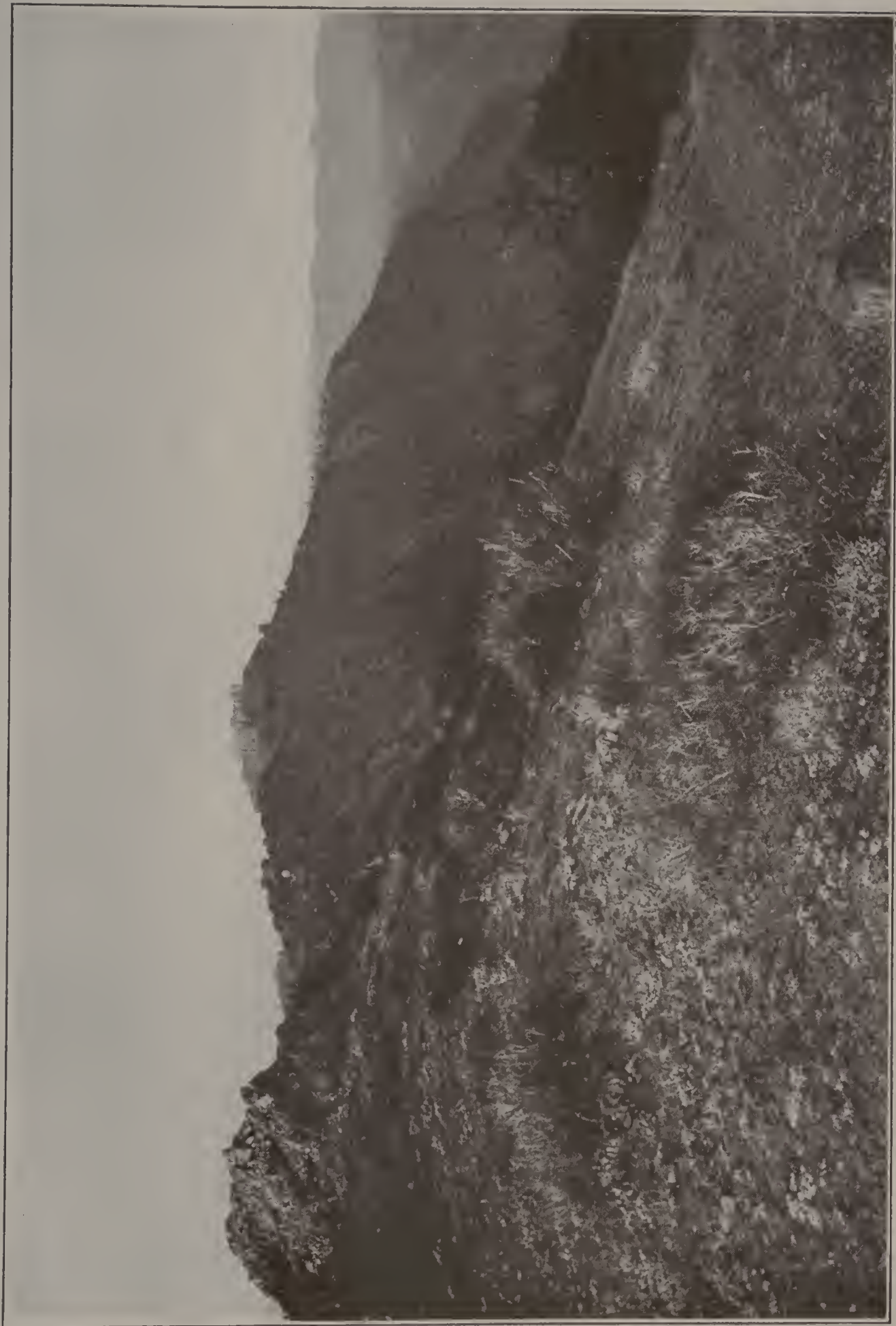
LICKING RIVER: rises in the Cumberland Mountains in Floyd co., Ky., flows n.w. about 200 m., and empties into the Ohio river at Newport, opposite Cincinnati; navigable for small steamboats to Falmouth, 60 m. Another Licking river, also known as Pataskala, rises in the centre of Ohio, flows s.e. 75 m., and empties into the Muskingum at Zanesville.

LICK OBSERVATORY: on the summit of Mount Hamilton, 13 m. e. of San José, Santa Clara co., Cal.; 4,343 ft. above sea-level; founded by James Lick (q.v.). After considering several sites, the founder agreed to have the observatory erected on Mount Hamilton if Santa Clara co. would build a suitable road connecting San José with the top of the mountain. The agreement was ratified by the co. authorities, a grant of land was obtained from the federal government, and a road 26 m. long, with a rise of 4,000 ft. in 22 m., was completed

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1876 at a cost of \$78,000. The third of the three peaks of Mount Hamilton was chosen for the observatory, and was cut down to a level surface just large enough to contain the necessary buildings for the instruments. The whole of the s. end of the plateau of the summit is occupied by the great telescope. At the n.w. corner stands a dome completed 1881, Nov., which contains a Clark 12-inch telescope; a few feet e. of this is the house for the photo-heliograph; the great and smaller domes are connected by a one-story building containing a clock-room, workshops, library, offices, and bed-rooms for observers; and near the photo-heliograph is the building for the 6-in. meridian circle. A Clark comet-seeker and a 4-in. transit complete the list of meridian instruments. The great telescope with object-glass of 36-inch aperture was for a long time the largest refractor in the world. The objective has two lenses, a crown and a flint, for bringing the rays to a focus, and a third crown lens which can be placed in front of the other two for photographic purposes. The disk of flint glass was made by Grubb in Dublin and that of crown by Feil in Paris. Alvan Clark & Sons, of Cambridge, Mass., completed the objective, which cost \$60,000. The great dome, which has a diameter of 75 ft., is turned and raised by hydraulic power, and the floor is similarly elevated and lowered to accommodate the observer. The instruments in the observatory alone cost more than \$200,000, and \$590,000 were expended in erecting and equipping the observatory. The sum of \$20,000 per annum has been set apart by the regents of the Univ. of Cal. for the maintenance of the observatory, which was officially turned over to them by the Lick trustees 1888, June 1.

LICORICE, or LIQUORICE, n. *lĭk'er-ĭs* [OF. *licorice*—from mid. L. *liquirit'ia*—from L. *glycyrrhi'za*, licorice-root—from Gr. *glukus*, sweet; *rhiza*, a root: It. *legorizia*], (*Glycyrrhiza*): genus of perennial herbaceous plants of nat. ord. *Leguminosæ*: having long, pliant, sweet roots, and generally creeping root-stocks; pinnate leaves of many leaflets, and terminating in an odd one; flowers in spikes, racemes, or heads; a 5-cleft, 2-lipped calyx, and a 2-leaved keel. The ancient Greek name, now the botanical name, signifies *sweet root*, and from it, by corruption, licorice and other modern names are derived. The roots (also commonly known as licorice) depend for their valuable properties on a substance called *Glycyrrhizine*, allied to sugar, yellow, transparent, uncrystallizable, soluble both in water and in alcohol, and forming compounds both with acids and with bases. They are a well-known article of materia medica, and were used by the ancients as in modern times, being emollient, demulcent, very useful in catarrh and irritations of the mucous membrane.—The roots of the COMMON LICORICE (*G. glabra*) are chiefly in use in Europe. The plant has stems 3-4 ft. high, and racemes of whitish violet-colored



THE LICK OBSERVATORY.

LICTOR—LIDDON.

flowers. It is a native of s. Europe and of many parts of Asia, as far as China. It is cultivated in many countries of Europe, chiefly in Spain, and to some extent in s. England, where its cultivation is at least as old as the times of Elizabeth. The roots are extensively used by porter-brewers. They are not imported largely into Britain and the United States, but the black inspissated extract of them (*Black Sugar* or *Stick Licorice*, or *Spanish Juice*), is largely imported from s. Europe, in semi-vitreous rolls or *sticks*, packed in bay-leaves, or in boxes of about two cwts., into which it has been run.—Licorice is propagated by slips; and after a plantation has been made, almost three years must elapse before the roots can be dugged up for use. The whole roots are then taken up. Licorice requires a deep, rich, loose soil, well trenched and manured; the roots penetrating to the depth of more than 3 ft., and straight tap-roots being most esteemed. The old stems are cleared off at the end of each season, and the root-stocks so cut away as to prevent overgrowth above ground next year. The plant is propagated by cuttings of the root-stocks.—The roots of the PRICKLY LICORICE (*G. echinata*) are used in the same way, chiefly in Italy and Sicily, Russia, and the East.—The only American species is *G. lepidota*, which grows in the plains of the Missouri.

LICTOR, n. *lik'tér* [L. *lictor*, from *ligārē*, to bind; according to Aulus Gellius, because the lictors had to bind the hands and feet of criminals before punishing them]: among the anc. Romans, an official attendant of magistrates of the highest rank. Lictors carried the *Fasces* (q.v.) before the consuls, clearing the way, and enforcing the appropriate marks of public respect. It was their duty to execute the punishments ordered by the magistrates, such as scourging with rods, and beheading. They were originally free men of the plebeian order, and not till the time of Tacitus could the office be held by freedmen. Slaves were never appointed lictors.

LID, n. *lid* [AS. and Icel. *hlid*; O.H.G. *hlit*, a lid, a cover: Icel. *hlid*, an opening, a gap]: a movable cover, as of a box; the cover of the eye.

LID'DON, HENRY PARRY, D.D.: 1829, Aug. 20—1890, Sep. 9; b. Stoneham, England. He graduated from Christ-Church College 1851; was ordained deacon next year, and priest 1853; was vice-principal of the theological school, Cuddesdon 1854-59; and 1864 became prebendary in Salisbury Cathedral. He was Bampton lecturer 1866; and select university preacher at Oxford, 1863,70,77,84, and at Cambridge 1884. Oxford made him D.D. and Hon. D.C.L. 1870; the same year he became canon resident of St. Paul's, London, and Ireland prof. of exegesis at Oxford, which chair he held till 1882. He belongs to the strictly conservative ecclesiastical party

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in the Anglican Church, has a spirit of singular devoutness and fervor, is profoundly learned as a theologian, and as a preacher holds foremost rank. Of his many published works, the best known are *Lenten Sermons*; *Bampton Lectures on The Divinity of Christ* (1866); *Thoughts of the Present Church Troubles* (1881); and *Easter in St. Paul's: Sermons on the Resurrection* (1885, 2 vols.).

LIE, n. *lī* [Goth, *liugan*; Icel. *ljúga*; Ger. *lügen*, to lie: AS. *lygnian*, to deny; *lyge*, a lie]: a statement not true; a falsehood: see LIE, in Law: V. to state that which is not the truth, with the intention to deceive; to tell a falsehood to one who has a right to hear the truth. LYING, imp. *lī'ing*: ADJ. telling falsehoods: N. the practice of telling falsehoods. LIED, pp. *līd*. LIAR, n. *lī'ér*, one who habitually tells falsehoods. TO GIVE THE LIE TO, to charge with falsehood. FATHER OF LIES, Satan.—SYN. of 'lie, n.': fiction; deception; untruth; fib; falsity; misrepresentation.

LIE, v. *lī* [AS. *licgan*, to lie down; *lecgan* to put or set down: Goth. *ligan*, to lie; *lagjan*, to lay: Icel. *liggia*, to lie; *leggia*, to lay: Dut. *liggen*; Ger. *liegen*, to lie (see LAY)]: to rest lengthwise on or against; to press upon; to rest; to remain; to be situated, as a county or town; to sleep; in *law*, to be sustainable; to be recorded for trial: N. in *geol.*, the manner in which strata are disposed. LY'ING, imp. LAY, pt. *lā*, did lie. LAIN, pp. *lān*, or OE. LIEN, pp. *līn*. LI'ER, n. *-ér*, one who rests or remains. TO LIE AT ANY ONE'S MERCY, to depend upon. TO LIE AT ANY ONE'S DOOR, to be imputable to any one. TO LIE AT THE HEART, to be fixed in the mind, as an object of affection or of deep anxiety or concern. TO LIE BY, to be remaining with, to rest. TO LIE DOWN, to dispose one's self for rest. TO LIE IN, to be in child-bed. TO LIE IN ONE, to be in the power of. TO LIE IN THE WAY, to be an impediment; to be in one's power, as, if it *lies in my way*. TO LIE IN WAIT, to watch for an opportunity to attack or seize. TO LIE ON or UPON, to be a matter of obligation or duty. TO LIE ON HAND, to remain in the possession without occasion for use. TO LIE ON THE HANDS, to remain unoccupied or unemployed. TO LIE ON ANY ONE'S HEAD, to be imputable to any one. TO LIE OVER, to remain unpaid; to be deferred to some future occasion. TO LIE TO, to retard or check a ship in its progress. TO LIE UNDER, to suffer; to be oppressed by. TO LIE UNDER ARMS, in *mil.*, to be in a state prepared for immediate action. TO LIE WITH, to sleep with; to have carnal knowledge of; to belong to. *Note.*—LIE and LAY—there is a constant tendency to confound these two verbs in their present and past tenses even among very careful writers. LIE is *intransitive*—that is, it cannot, as a rule, admit of an object after it without the intervention of a preposition. We say LIE, v., LAY, pt., LAIN, pp., LIEN, pp. in *OE*. On

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the other hand, LAY is *transitive*—that is, it can admit of an object after it. We say LAY, v., LAID, pt., LAID, pp. He told me to *lie* down, and I *lay* down; he told me to *lay* it down, and I *laid* it down, are correct expressions. He told me to *lay* down, he *lays* in his bed too long, here *lays* the body, are incorrect expressions. They should be—he told me to *lie* down; he *lies* in his bed too long; here *lies* the body.—SYN. of 'lie, v.': to abide; belong; pertain; consist; lodge; sleep.

LIE, n. *lī*: a spelling of LYE 1 and 2, which see.

LIE, in Law: not a ground of action, unless in peculiar circumstances. If, e.g., it is material, and is uttered by a witness or deponent, it is the criminal offense of perjury. Sometimes, also, if a person, knowing that another will act upon his information, tell a lie, which lie is believed to be true, and acted on, and damage follows, the party telling the lie may be sued for damages. But in other cases, lying *per se* is not punishable by law, civilly or criminally.

LIE, *lē*, JONAS LAURITZ EDEMIL: Norwegian novelist: b. Eker, Norway 1833, Nov. 6. He was educated at the University of Christiania and in 1859 settled as a lawyer at Kongsvinger, to the n.e. of Christiania. He went to Christiania in 1868 to support himself by journalism and literary work, and in 1870 became famous with his novel, *The Visionary*. The profits from its publication enabled him to spend some time in northern Norway, and to visit Holland, Belgium, France, and Italy. Returning in 1874, he received the poet's pension from the Storting, resided in Dresden 1877-81, and from 1882 till 1891 lived in Paris in comparative retirement writing his most notable works, and in the latter year he went to Rome, from which he returned in 1892 to Norway. The following are his chief novels and stories: *The Visionary* (1870); *Stories and Sketches of Norway* (1872), containing the story entitled *The Horse of Nordfjord*; *The Three-Master Future*, or *Life in the North* (1873), a series of loosely connected stories or sketches dealing with the life of Norwegian seamen; *The Pilot and his Wife* (1874), showing a considerable advance on his earlier works; *Thomas Ross* (1878); *Adam Schrader* (1879); *Rutland* (1880); *Forward! Scenes of the Sea* (1882); *Life's Slaves* (1883), a powerfully realistic study of a soul involved in the net of circumstances; *The Family of Gilie* (1884), a lighter story of Norwegian life; *The Gulf* (1885), treating of the gradual decline of an old Norwegian family; *Eight Stories* (1885); *The Commandant's Daughters* (1886), by many regarded as his masterpiece; *Two Lives* (1887), a penetrating study in the psychology of marriage; *Maisa Jons* (1888); *Mischievous Powers* (1889); *Trold* (1891-2); *Niobe* (1893), in which his subject is family troubles arising out of differing social, political, or religious views held by parents and

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children; and *Grandfather* (1895). He published a volume of poems in 1867, and he has written several dramas, *Faustina Strozzi* (1875), *Grabow's Cat* (1880), and *Merry Wives* (1894). In 1894 he published an important critical work, *Honoré de Balzac, The Man and the Artist*. Lie's chief works have been translated into German, English, and other languages. He is a realist with a fine sense of humor and profound sympathy with the humble and the unfortunate, and is a master in psychological analysis.

LIEBER, *lĕ'bĕr*, FRANCIS, LL.D.: 1800, Mar. 18—1872, Oct. 2; b. Berlin, Prussia. At the age of only 15 years he enlisted in the Waterloo campaign, and was wounded at Namur. He resumed his studies; became a liberal in politics; was accused of plotting against the government, and imprisoned. He was never brought to trial, was released, but not permitted to re-enter the Berlin gymnasium. 1820 he took his degree at Jena. From Dresden he went to aid the Greeks in their struggle for independence, an account of which he published in his *Journal in Greece* (1823). In 1822 he entered the family of Niebuhr at Rome, with whom he returned to Berlin, was rearrested on the old charges, and imprisoned at Köpnick, but soon released through the influence of Niebuhr, whereupon he left Prussia forever, and went first to London, and, 1827, to America. 1827-32 he lived at Boston editing the *Encyclopedia Americana*; the next two years he spent at Philadelphia; 1835, he went to Columbia, S. C., as professor of political economy in the South Carolina University. His great works were produced there: *A Manual of Political Ethics* (1838); *Legal and Political Hermeneutics* (1839); and *Civil Liberty and Self-Government* (1853). Profound, logical, exhaustive, these works are recognized authorities. In 1856 he went as professor of political economy to Columbia College, New York; the more willingly as his political ideas differed radically from those then prevalent in the south. He occupied the chair of political science in the Columbia law school until his death, his teachings going out far beyond the class-room through his numerous publications. In 1879 he was agreed upon by Mexico and the United States as arbitrator in an affair then pending between the two countries. Besides frequent contributions to European and American periodicals, and the works already mentioned, his most noteworthy publications were: *Reminiscences of Niebuhr*; *Essays on Property and Labor*; *Laws of Property*; *Penal Laws and the Penitentiary System*; *Prison Discipline*; *Origin and Development of the First Constituents of Civilization*, and *Great Events Described by Great Historians*. His miscellaneous writings were published, 2 vols. 1880; the first containing reminiscences, addresses, and essays; the second his contributions to political science, and other papers.

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LIEBER, OSCAR MONTGOMERY: American mineralogist and chemist: b. Boston, Mass., 1830, Sep. 8; d. Richmond, Va., 1862, June 27. He was a son of Franz Lieber (q.v.) and was educated at the Universities of Berlin and Göttingen and the School of Mines at Freiberg, Saxony. In 1850 he became state geologist of Mississippi and afterward engaged in the survey of Alabama and South Carolina. In 1860 he went to Labrador as geologist of the American astronomical expedition. During the early part of the civil war he served in the Confederate army and was fatally wounded at the battle of Williamsburg. He published *The Assayer's Guide* (1852); *The Analytical Chemist's Assistant* (1852); *Geology of Mississippi* (1854).

LIEBERKUHN, n. *lĕ'bĕr-kôn* [after the inventor, *Lieberkühn*]: a metallic mirror attached to the object-glass end of a microscope for the purpose of throwing down light on opaque objects, a reflector.

LIEB'HARD, JOACHIM. See CAMERARIUS, JOACHIM.

LIEBIG, *lĕ'bĭch*, JUSTUS, Baron von: one of the greatest chemists of the 19th c.; 1803, May 12—1873, Apr. 18; b. Darmstadt. He early showed strong predilection for nat. science. He studied at Bonn and Erlangen, and afterward in Paris, where he attracted the attention of Alexander von Humboldt by a paper on Fulminic Acid. This led to his appointment, 1824, as extraordinary professor, and 1826, as ordinary professor of chemistry at Giessen, where he labored with great activity for more than a quarter of a century, making that small univ. a centre of attraction to students of chemistry from all parts of Germany and from foreign countries. Many honors were conferred on him. The Duke of Hesse raised him to the rank of baron. In 1852 he accepted a professorship in the Univ. of Munich, and the charge of the chemical laboratory there; and 1860 was appointed president of the Munich Acad. of Sciences, as the successor of Thiersch.

Liebig labored with success in all departments of chemistry, but particularly in organic chemistry, in which he made many discoveries, and greatly improved the methods of analysis. He investigated with great care the relations of organic chemistry to physiology, pathology, agriculture, etc.; and though many of his views have been combated, and several were abandoned by the author himself, it is, nevertheless, universally admitted that his researches have greatly advanced the science of agriculture in particular. Many of his papers are in *Annalen der Chemie und Pharmacie*. He published the *Wörterbuch der Chemie* (Brunsw. 1837-51) in conjunction with Poggendorf, also a Supplement to this work (1850-52), but the discoveries of more recent years are in the later volumes. He wrote the part relative to Organic Chemistry in the new ed. of Geiger's

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Handbuch der Pharmacie (Heidelb. 1839), published afterward as *Die Organische Chemie in ihrer Anwendung auf Physiologie und Pathologie*, translated into French and English (1842). *Organic Chemistry in its Application to Agriculture* (Brunsw. 1840; English translation by Dr. Lyon Playfair 1840; French translation by Gerhardt 1840), and *Chemical Letters* (Paris 1852), all of which have gone through numerous editions, and have been translated into different languages, are among the most valuable contributions to chemical literature in our times. In private life, Liebig was courteous and hospitable; and though the recipient of high honors from many lands, retained his natural modest simplicity to the last. Consult: Liebig, *The Natural Law of Husbandry* (1863); *Animal Chemistry in its Application to Physiology and Pathology* (1846); *Handbook of Organic Analysis* (1853); Hoffmann, *The Life-Work of Liebig in Experimental and Philosophical Chemistry* (1876).

LIEBKNECHT, *lĕp'knĕcht*, WILHELM: German Socialist: b. Giessen 1826, Mar. 29; d. Berlin 1890, Aug. 6. He studied at the University of Giessen and later at Marburg and Berlin. He was early interested in the writings of St. Simon, and in 1848 went to Paris to take part in the revolution there; then joined in the unsuccessful attempt to make Germany a republic, and was imprisoned nine months without trial. When released he went to Switzerland, where he tried to unite the trade unions on a socialistic basis, was again arrested, handed over to the French authorities, and banished to England. While there he became an intimate friend of Marx and Engels' (q.v.) and was a member of the Communist League. In 1862 he returned to Germany, continued his socialistic agitation, and in 1865 was banished from Prussia. He went to Leipsic, where he met Bebel (q.v.), was active in trade union organization, and was one of the founders of the Saxony Volkspartei soon absorbed by the German Social Democratic party (1868), of which he was from the first a leading member. In 1867 he was candidate for the North German Parliament, but was under arrest and lost the election; he was later elected. In 1868 he was made editor of the *Demokratisches Wochenblatt*, the next year enlarged and published under the name of *Volkstatt*. In 1870 he denounced the Franco-Prussian war, for which he was imprisoned three months, and later so bitterly attacked Bismarck that he was again imprisoned. In 1874 he was elected to the Reichstag, of which he was a member almost constantly till his death. He was one of the strongest leaders of his party in that body, and very popular and highly respected among German workingmen. In 1890 the name of the *Volkstatt* was changed to *Vorwärts*, and Liebknecht was retained as editor. He wrote *Die Grundund Bodenfrage* (1874), a discussion of

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the land question from the Socialist standpoint; *Ein Blick in die Neue Welt* (1887), an account of his visit to the United States; *Robert Blum und seine Zeit* (1890); *Robert Owen* (1892); and *Socialism, what it is and what it seeks to accomplish* (translated and published in the United States). Consult: Aveling, *Wilhelm Liebknecht and the Social Democratic Movement* (1896).

LIECHTENSTEIN, *lēch'ten-stīn*: sovereign and independent principality, smallest in the former German Confederation; 60 sq.m. It is a mountainous district, on the Upper Rhine, between Switzerland and the Tyrol, the latter bounding it n.e., while the Rhine forms its w., and the Canton of the Grisons its s. boundary. It is divided into the districts of Vadutz and Schellenberg, and the principal town is Liechtenstein, formerly known as the Vadutz. The products are wheat, flax, and good wines and fruit. Considerable numbers of cattle are raised. Liechtenstein, with several other small states, formed the 15th member of the German Confederation, but in the *Plenum*, or full Council of the Diet, it had a separate vote. It furnished a contingent of 70 men to the federal army. The government of Liechtenstein is administered by the aid of a chamber of representatives, who meet annually to hold a diet, but whose acts are under the control of a Council of State, which has its seat at Vienna, where the prince usually resides. Now, it is not formally united with the German Empire, but joins in the Customs-union of Austria; and it has no army. Pop. (1901) 9,477.

LIEF, a. *lēf* [AS. *leofa*; Dut. *lief*; Icel. *ljufur*, dear, pleasing]: in *OE.*, dear; beloved: AD. willingly. As LIEF, as soon; as readily.

LIEGE, a. *lēj* [mid. L. *ligñs*, or OF. *lige*, liege, loyal, a term of the feudal law signifying the absolute nature of the duty of a tenant to his lord—from mid. L. *litus*, a man between a serf and a freeman, bound to the soil]: obliged to be faithful and loyal to a superior, as a vassal to his lord: N. a vassal; and by an old but false application of the word, a superior or sovereign. LIEGE-LORD, the lord of *liegemen*; the lord entitled to claim fidelity and certain duties from his tenants. LIEGEMAN, a vassal; a subject.

LIÈGE, *lē-āzh'* [so called in French, but by the Germans *Lüttich*, and by the Flemings *Luyk*]: most easterly province of Belgium; 1,106 sq.m. The s. part of the province is hilly, rocky, healthy, and much covered with wood, in some places yielding great quantities of coal and iron; but the part called the *Herveland* (n. of the Weeze) is extraordinarily fertile and well cultivated, and has excellent pasturage for cattle. The valley of the Weeze is very beautiful, with endless diversity of scenery. The railway from Aix-la-Chapelle to Liège,

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through this valley, met immense difficulties in the nature of the ground, and is regarded as a *chef-d'œuvre* of the kind: nearly a sixth of the whole road had to be artificially constructed. The inhabitants of Liége are Walloons. Pop. (1900) 826,175.

LIÉGE: city of Belgium, cap. of the province of Liége; on the Meuse, immediately below its confluence with the Ourthe, in a magnificent plain. A hill rises on each side of the city, and one of these hills is occupied by the citadel. The river, which divides Liége into two parts, the old and the new town, is crossed by 17 bridges. Liége is said to be the most picturesque city in Belgium. Many of the public buildings are fine, especially the churches, of which the principal are the Church of St. Jacques (founded 1016, finished 1538), the cathedral (finished 1557), the Church of St. Martin's, the Church of the Holy Cross (consecrated 979), and St. Barthelemy (which has 5 naves). The Palace of Justice, with its paintings and 60 rooms, and the University, noted for its mining-school, also are very notable. The general interior of the city, however is not pleasant; everything is blackened by the smoke of the coal-pits, which have been worked for 300 years; the streets are narrow, the houses high, badly aired, and uncleanly. The manufacture of arms is the great staple of industry. Everywhere the hammer is heard; countless forges flash out their sudden sparks, and whole streets are red with the reflection of fires. All kinds of steam-machinery, locomotives, steamboats, etc., are made here for Germany. In the immediate neighborhood are important zinc-foundries. Liége is connected by railways with Brussels, Antwerp, Namur, etc. Pop. (1900) 173,708. Liége became the seat of a bishop in the 8th c., and continued so till 1794; and its bishops were reckoned among the princes of the German empire; but as it early acquired importance, its inhabitants maintained a struggle for their own independence against their bishops, in which frequent appeals were made to arms. During the wars of Louis XIV., it was several times taken and retaken.

LIEGE POUSTIE, *lěj pows'tī*. See DEATH-BED.

LIEGER, or LEIGER, n. *l'jér*: in *OE.*, a resident ambassador. See LEDGER.

LIEGNITZ, *lĕg'nīts*: town of Prussia, govt. of Silesia, at the conference of the Schwarzwasser and the Katzbach, 40 m. w.n.w. of Breslau. It has numerous educational and benevolent institutions, art-collections, and industrial museums. Cloth, leather, and tobacco are largely manufactured, and vegetables are extensively cultivated in the gardens of the suburbs. This town was, 1164-1675, the residence of the Dukes of Liegnitz. Here, 1813, Blücher defeated the French. Pop. (1900) 54,882.

LIEN, n. *lĕn* or *l'ĕn* [F. *lien*, a band, a ligament—from L. *ligāmen*, a band, a tie—from *ligārĕ*, to tie]: ob-

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ligation, tie, or claim annexed to, or attaching upon, any property, without satisfying which such property cannot be demanded by its owner; a security over goods or land for a debt. A *particular lien* is one in which the goods claimed are actually in the creditor's possession and are in some manner concerned with the debt incurred: such is the lien of the workman on the articles delivered to him to be operated upon, for his pay; of the carrier on the goods conveyed by him, for the fare; of the farrier on the horse which he has cured, for his fee; likewise with artificers generally. A *general lien* is a right of detainer over property for a debt not concerned with the article detained: it requires a special contract either in terms or plainly inferable from usage of trade. Parting with the article (under particular lien) or agreement to give up the right even while detaining the property, is a waiver of the lien. Generally, a lien gives only a right of detention, not the power of sale; but in some special cases statutes have added the power of sale; e.g., lien of an innkeeper over chattels in his charge. A special development in several states is the 'mechanics' lien' created by statute, giving laborers on a building a lien over it for their wages unpaid; on proper notice they can get their wages out of the property even though it must be sold for that purpose. This, and similar preferential charges in favor of unpaid vendors, are sometimes called equitable liens.

LIENAL, a. *lī-ē'nāl* [L. *lien* or *liēnem*, the milt or spleen]: of or pertaining to the spleen. LIENCULUS, n. *lī-ēng'kū-lūs* [L. dim. of *lien*]: a small or supplementary spleen.

LIENTERY, n. *lī-ēn-tēr-ī* [Gr. *leios*, smooth, soft; *enteron*, an intestine]: a disease in which the food is discharged undigested from the bowels. LIENTERIC, a. *lī-ēn-tēr'īk*, having the nature or displaying the symptoms of lientery.

LIERNE, n. *lī-ēr-n* [etym. doubtful; perhaps from F. *lier*, to bind]: in *arch.*, a branch rib introduced between the principal ribs of a groined arch, to form an ornamental pattern.

LIEU, n. *lū* [F. *lieu*, place—from L. *locus*, a place]: place; room; stead; used only in the phrase, *in lieu of*.

LIEUTENANT, n. *lū-tēn'ānt* or *lēf-* [F. *lieutenant*—from *lieu*, a place; *tenant*, a supporter—from *tenir*, to hold: L. *locum-tenen'tem*, one who holds another's place]: a deputy: term applied to a variety of offices of a representative kind. Thus, in military matters, a *lieutenant-general* personates with each corps of an army the general-in-chief. A *lieutenant-colonel* commands a battalion for a colonel, in the latter's absence. But the title lieutenant, without qualification, denotes the second officer and deputy, or locum-tenens, of the captain in each company of cavalry or infantry.—*Captain-lieutenant*, an ob-

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solete rank, with the subaltern who commanded the 'colonel's company' in each regiment.—A lieutenant in the U. S. army and marine service holds rank next below captain. A *second-lieutenant* is the lowest commissioned officer of a company, and corresponds to an Ensign (q.v.).

In the British and in the U. S. navy, lieutenant is a misnomer in the case of the officer bearing that title. His functions in all respects correspond to those of a captain in the army, with whom he ranks, and with whom he also nearly matches in regard to pay. As leaders in all minor enterprises--boat expeditions, cutting out, etc.—lieutenants in war-time carry off most of the laurels awarded to actions of singular personal daring. LIEUTEN'ANCY, n. -tĕn'ăn-sĭ, the office or commission of a lieutenant; the body of lieutenants. LIEUTEN'ANTSHIP, n. the office of a lieutenant. LIEUTENANT-COLONEL, in the U. S. army, officer next in rank above a major and below a colonel, and corresponding to a commander in the navy. In the British army, nominally the second officer in a regt. but virtually a lieutenant-colonel commands every battalion of infantry and regt. of cavalry, the post of colonel being merely an honorable sinecure, with usually £1,000 a year attached, awarded to a general officer. The lieutenant-colonel is responsible for the discipline of his battalion, the comfort of his men, and ultimately for every detail connected with their organization. He is aided by the major and the adjutant. In the artillery and the engineers, where the rank of colonel is a substantive rank, with tangible regimental duties, the functions of lieutenant-colonel are more limited, one having charge of every two batteries of artillery, or two companies of engineers. LIEUTENANT-GENERAL, in the U. S. army, officer in rank next above a major-general, and next below the general, the last named being, under the president, general-in-chief. The rank of lieutenant-general was first authorized by congress 1798 and conferred on Gen. Washington: it was not again conferred till 1855—by brevet on Gen. Winfield Scott. It was conferred on Gen. Ulysses S. Grant 1864. When the highest grade, general, was created for Gen. Grant, Gen. William T. Sherman became lieutenant-general; and when he succeeded to the rank of general, Gen. Philip H. Sheridan became lieutenant-general. Finally, 1888, May, congress passed a bill to discontinue the grade of lieutenant-general and to merge it into the highest grade of 'General of the Army of the United States,' with the provision that that grade should continue only during the lifetime of Gen. Sheridan. With his death, 1888, the grade expired. In 1895 congress revived the grade of lieutenant-general for John M. Schofield, senior major-general in command of the army since the death of Gen. Sheridan; and again in 1901, when Nelson A. Miles was appointed to it. In 1903 the rank was again

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abolished, an act of congress providing for a general staff, the chief of staff to take the place of the lieutenant-general.

LIEUTENANT (LORD-), OF A COUNTY: in England, permanent provincial governor appointed by the sovereign by patent under the great seal. The office in England arose from the occasional commissions of array issued by the crown in times of danger or disturbance, requiring experienced persons to muster the inhabitants of the counties to which the commissioners were sent, and set them in military order. The right of the crown to issue such commissions was denied by the Long Parliament, this question proving the immediate cause of the breach between Charles I. and his subjects. Their legality was established at the Restoration by a declaratory act. At present the main function of the lord-lieutenant is to recommend qualified persons for the office of justice of peace, his militia jurisdiction having been taken from him, and revested in the crown, 1871. The history of the office seems to have been similar in Scotland. In Act 1438, c. 3, the 'lieutenant' is commanded to 'raise the county' whenever it may be necessary to bring the rebellious and unruly possessors of castles and fortalices into subjection: and though his powers were executive rather than judicial, he seems sometimes to have exercised the functions of the sheriff, or overruled his decisions. The lord-lieutenant, who is usually a peer, or other large landowner, is usually also the *Custos Rotulorum* (q.v.). He is at the head of the magistracy, and is the chief executive authority, forming the settled channel of communication between the government and the magistracy, and considered as responsible in cases of emergency for the preservation of public tranquillity. Under him, and of his appointing, are permanent deputy-lieutenants.

LIEUTENANT (LORD-), OF IRELAND: viceroy or deputy of the sovereign to whom the govt. of Ireland is committed. The office has existed from a remote period, under different designations. The powers were in early times very extensive, almost regal. For the last half century following the revolution, the lord-lieutenant resided little in Ireland, visiting it only once in two years, to hold the sessions of parliament. Some lords-lieutenant never went to Ireland at all, and occasionally, instead of a viceroy, lords-justices (see JUSTICES, LORDS) were appointed.

The lord-lieutenant has the assistance of a privy-council of 58 members, appointed by the sovereign, and of officers of state. He is commissioned to keep the peace, and the laws and customs of Ireland, and to see that justice is impartially administered. He has the control of the police, and may issue orders to the general commanding the troops for the support of the civil authority, the protection of the public, the defense of the king-

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dom, and the suppression of insurrection. He may confer knighthood, and, previous to disestablishment of the church, had the disposal of church preferment, as well as all the other patronage of the country. The granting of money, and lands, and pensions, of all titles of honor except simple knighthood, the appointment of privy-councilors, judges, law officers, and governors of forts, and the appointment to military commissions, are reserved to the sovereign, acting, however, on the lord-lieutenant's advice and recommendation. No complaint of injustice or oppression in Ireland will be entertained by the sovereign until first made to the lord-lieutenant, who is in no case required to execute the royal instructions in a matter of which he may disapprove until he can communicate with the sovereign and receive further orders. Yet, notwithstanding the dignity and responsibility of his office, the lord-lieutenant acts in every matter of importance under the direct control of the cabinet of Great Britain. The views and opinions of the cabinet on all the more important questions connected with his government are communicated to him by the home sec., who is held responsible for the government of Ireland, and with whom it is the duty of the lord-lieutenant to be in close correspondence; on matters of revenue, he must be in constant communication with the treasury. His salary is £20,000, with a residence in Dublin Castle, as well as one in Phoenix Park. His tenure of office depends on that of the ministry of which he is a member. A Rom. Catholic is ineligible for the lieutenancy of Ireland.

LIEVE, ad. *lēv*, also LEVER, ad. compar. *lēv'ēr*: in *OE.* for LIEF, soon as; willingly. See LIEF.

LIEVRITE, n. *lēv'rīt* [after the discoverer, *Le Lievre*]: a brownish-black mineral, a silicate of iron and lime, occurring in long, vertically striated, prismatic crystals.

LIEZEN-MAYER, *l'ētsēn-m'ēr*, ALEXANDER: Hungarian painter: b. Raab, Hungary, 1839, Jan. 24; d. 1898. He studied at Vienna and Munich, attending the art academies in those places, and afterward entered the studio of Piloty (1862) in the latter city. Under this master he painted his *Queen Maria and Elizabeth of Hungary at the Grave of Louis le Grand* and *The Coronation of Charles of Durazzo in the Cathedral of Stuhlweissenburg*. Three years later he carried off the first prize at the Munich Academy exhibition. In 1867 he painted *Maria Theresa; The Child of a Poor and Sickly Mother*; and as drop-scene for the Munich theatre, *Poesy Surrounded by the Muses*. In 1867 he began to paint portraits, and also furnished illustrations for the works of Goethe and Schiller. During a residence in Vienna (1870-2) he executed portraits of the emperor and many of the nobility. On his return to Munich he painted some ideal figures from Shakespeare's *Cymbeline*,

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and some scenes from Goethe's *Faust*; and in 1873 *Elizabeth Signing the Death Warrant of Mary Stuart* (in the Museum at Cologne), and one of his masterpieces, although its principal merit lies in the perfection of the technique. He produced also many cartoons for woodcut reproduction as illustrations of the poets. For three years he was director of the Art School at Stuttgart (1880-3), when he was appointed professor of historical painting in the Munich Academy.

LIF, or LIEF, n. *lif*, or LOOF, n. *lôf* [unascertained]: the fibre by which the petioles of the date-palm are bound together, from which all sorts of cordage are made.

LIFE, n. *lif*, LIVES, n. plu. *lívz* [Icel. *líf*; Dan. *liv*, life: Goth. *liban*, to live: Ger. *leben*, to live; *leib*, body: Dut. *lijf*, body, life]: the vital force or state of an organized body; manner of living; human affairs; course of things; conduct; period of existence; a person, as a lease is held for three lives; time between birth and death; spirit or animation; living form, as opposed to a copy; general state of man in his ways or social habits; a narrative or history of a person; animated existence; eternal happiness in heaven; position or rank in society. LIFELIKE, a. like a living person. LIFELESS, a. *lif'lës*, devoid of vital force; without activity or vigor; spiritless; dead. LIFE'LESSLY, ad. *-lǐ*. LIFE'LESSNESS, n. *-nës*, destitution of life or vigor. TO THE LIFE, with exact resemblance. LIFE'LONG, a. lasting or continuing through life—spelled LIVELONG in Shak. LIFE-ANNUITY, a sum of money paid yearly to a person during life (see ANNUITY). LIFE-ASSURANCE, a certain amount of money payable after death to representatives, secured by a yearly premium paid during the life of the assured (see INSURANCE). LIFE-BELT, a belt filled with cork or capable of being inflated with air to keep a person from sinking in the water. LIFE-BLOOD, vital blood; anything absolutely essential. LIFE-BUOY, an article for keeping a person floating in water (see LIFE-PRESERVER; LIFE-RAFT; LIFE-MORTAR AND ROCKET). LIFE-ESTATE, in *law*, estate or interest in real property for a life. LIFE-GIVING, having the power to give life. LIFE-GUARD, company of soldiers that attend a prince or a person of eminence for honor or safety (see LIFE-GUARDS). LIFE INSURANCE (see INSURANCE). LIFE-INTEREST, an interest during life in an estate or money. LIFE-LINES, ropes carried along yards, booms, etc., or any part of a vessel for the men to hold on by. LIFE-PRESERVER, a life-belt; also short flexible weapon, loaded at both ends with lead, used for defense or attack. LIFERENT, in *law*, right to use a heritable estate for life. (See LIFE-ESTATE.) SYN. of 'lifeless': inanimate; soulless; torpid; inactive; dull; heavy; inert; unanimated; pointless; frigid; tasteless; flat; vapid.

LIFE.

LIFE: term which, in philosophy, still awaits a strict and adequate definition. It is difficult to find for it a definition that does not include more than is necessary, or exclude something that should be taken in. Richerand's definition of life, that it is 'a collection of phenomena which succeed each other during a limited time in an organized body,' is applicable equally to the decay which goes on after death. According to De Blainville, 'life is the twofold internal movement of composition and decomposition, at once general and continuous.' As Herbert Spencer in *Principles of Biology* well observes, this conception is in some respects too narrow, and in other respects too wide. Thus, it excludes those nervous and muscular functions which form the most conspicuous and distinctive classes of vital phenomena, while it applies equally to the processes going on in a living body and in a galvanic battery. Spencer (1852) proposed to define life as the co-ordination of actions,' but, as he observes, 'like the others, this definition includes too much, for it may be said of the solar system, with its regularly recurring movements and its self-balancing perturbations, that it also exhibits co-ordination of actions.' His amended conception of life was: 'The definite combination of heterogeneous changes, both simultaneous and successive, in correspondence with external co-existences and sequences.' A late definition of life is that suggested by George H. Lewes: 'Life is a series of definite and successive changes, both of structure and composition, which take place within an individual without destroying its identity.' This is perhaps as good a definition as has yet been given; but neither it, nor the one last quoted (from Spencer), is of the least value as real definition, since neither gives any clearer idea of what *life* is than is given by the word *life* itself. Indeed, some definitions darken their subject: one makes life 'a series,' the other a 'combination;' whereas we know it to be a *force*, and a force that *uses other forces* for production of a series of definite and successive changes. It is 'the force of forces'—a mystery.

Life, entering into the physical sphere, is developed as a force active on and through matter. The following is, in part, Prof. Huxley's statement of the distinctive properties of living matter: '1. Its *chemical composition*—containing, as it invariably does, one or more forms of a complex compound of carbon, hydrogen, oxygen, and nitrogen, the so-called protein (which has never yet been obtained, except as a product of living bodies) united with a large proportion of water, and forming the chief constituent of a substance which, in its primary unmodified state, is known as protoplasm. 2. Its *universal disintegration and waste by oxidation; and its concomitant reintegration by the intus-susception of new matter*. A process of waste resulting from the decomposition of the

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molecules of the protoplasm, in virtue of which they break up into more highly oxidated products, which cease to form any part of the living body, is a constant concomitant of life. There is reason to believe that carbonic acid is always one of these waste products. 3. Its *tendency to undergo cyclical changes*. In the ordinary course of nature, all living matter proceeds from pre-existing living matter, a portion of the latter being detached and acquiring an independent existence. The new form takes on the characters of that from which it arose; exhibits the same power of propagating itself by means of an offshoot; and, sooner or later, like its predecessor, ceases to live, and is resolved into more highly oxidated compounds of its elements. See BIOLOGY.

LIFE-BOAT: boat adapted to 'live' in a stormy sea, with a view to the saving of life from shipwreck. Its qualities must be buoyancy, to avoid foundering when a sea is shipped; strength, to escape destruction from the violence of waves, from a rocky beach, or from collision with the wreck; facility in turning; and a power of righting if capsized.

A melancholy wreck at Tynemouth, England, 1789, Sep., suggested to the subscribers to the South Shields News-room, who had witnessed the destruction of the crew one by one, that some special construction of boat might be devised for saving life from stranded vessels. They immediately offered a premium for the best form of life-boat; and one was built by Henry Greathead. It was of great strength, having the form of the quarter of a spheroid, with sides protected and rendered buoyant within and without by superposition of layers of cork. So useful was it in the first 21 years after its introduction, that 300 lives were saved through its instrumentality in the mouth of the Tyne alone; and its builder received the gold medals of the Soc. of Arts and Royal Humane Soc., £1,200 from parliament 1802, and a purse of 100 guineas from Lloyd's, the members of which society also voted £2,000 to encourage the building of life-boats on different parts of the coast. Although various other life-boats were invented, Greathead's remained the general favorite until about 1851, and many of his constructions are still seen on different points of the coast. They failed, however, occasionally; and several sad mishaps befell the crews of life-boats, especially in the case of one at South Shields, in which 20 pilots perished. Upon this the Duke of Northumberland offered a prize for an improved construction, and numerous designs were submitted, a hundred of the best of which were exhibited 1851. James Beeching of Yarmouth obtained the award; but his boat was not entirely satisfactory, and R. Peake, of Her Majesty's Dockyard at Woolwich, was intrusted with the task of producing a life-boat which should combine the best qualities of the different inventions. His efforts were very successful, and the

LIFE-BOAT.

National Life-boat Institution adopted his model as the standard for the boats they should thereafter establish on the coasts. His design, though changed from time to time, became a recognized model and has been adopted as the standard for boats in all countries.

Sections of Mr. Peake's life-boat are shown below, one lengthwise through the keel, the other crosswise in the middle. A, A, are the thwarts on which the rowers sit; B, B, a water-tight deck, raised sufficiently above the bottom of the boat to be above the level of the sea when the boat is loaded; C, C, are air-tight chambers running

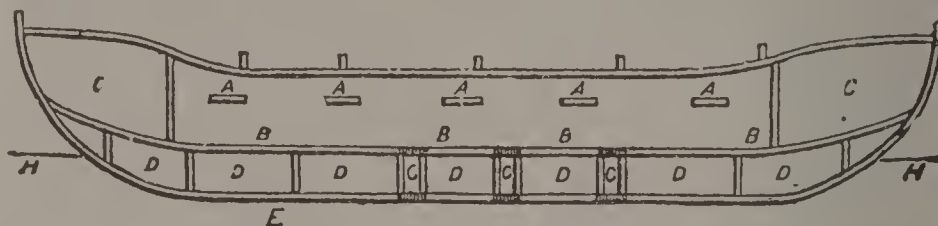


Fig. 1.—Section lengthwise.

along each side, and occupying 3 to 4 ft. at each end; the buoyancy afforded by these more than suffices to sustain the boat when fully laden, even if filled with water. To diminish the liability to capsize in a heavy sea, the life-boat has great beam (breadth) in proportion to her length, viz., 8 ft. beam to 30 length. In addition, the bottom is almost flat. As in her build it has been found convenient to dispense with cross-pieces, some means are required to preserve the rigidity of the whole structure amid the buffetings of a tempest. To achieve this, and also to serve the purposes of light ballast, Mr. Peake fills the space between the boat's bottom and the water-tight deck (B, B) with blocks, tightly wedged together, of cork and light hard wood, D, D. These would form a false bottom, were a rent made in the outer covering, and, by their comparative weight, counteract in some degree the top-heaviness induced by the air-vessels, which are entirely above the water-line (H). This arrangement would be insufficient to main-

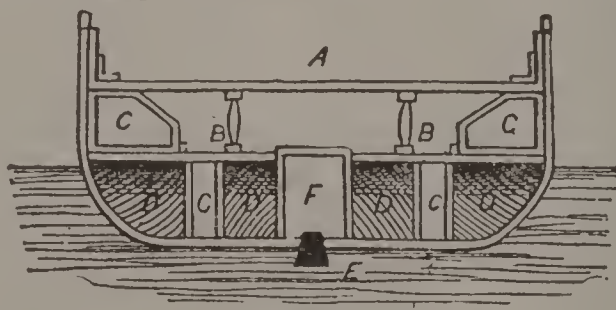


Fig. 2.—Section crosswise.

tain the equilibrium of the boat, however, and especially under sail, so Mr. Peake added a heavy iron keel (E) of 4 to 8 cwt., which effectually keeps the boat straight. Some builders object to this iron ballast; some boats take out their plugs, and preferably admit water until steadiness is secured; but Mr. Peake had an additional

LIFE-ESTATE.

object in view—that of causing the boat to immediately right itself if turned upside down, as the best boats sometimes will be in heavy gales. It will be noticed that the ends of the boat rise above the centre $1\frac{1}{2}$ to 2 ft. This, for one thing, facilitates turning, as the pivot on which her weight rests is shortened; for another, if she capsizes and is thrown bottom up, these raised caissons are sufficient to sustain her by their buoyancy. So long, then, as she floats precisely in an inverted state, she will be steady; but the slightest motion to either side—which, of course, in practice ensues instantly—throws the heavy keel off the perpendicular in which its centre of gravity was exactly over the line between bow and stern, and the boat must immediately right itself. F is a covered trough, to contain the tackle, sails, etc., when not in use; in service, it is also useful to receive any water that may penetrate among the cork and wooden chocks beneath the water-tight deck: this leakage is at times considerable when the outer skin of the boat has sustained damage. The trough may be fitted with a small hand-pump, to enable one of the sitters to clear it out when necessary.

Perhaps the most beautiful contrivance in the life-boat is that for discharging the water which she ships. This consists of six relieving tubes, G, each six inches in diameter, passing through the deck, B, the ballast, D, and the bottom. The tubes, which are near the centre of the boat, three on each side, have at the bottom a valve opening outward. As the deck, B, is always above the water-level, any water in the boat necessarily flows out through these tubes, so that if a wave bursts over her, and completely fills the boat, the relieving tubes free her, and she is empty again in a few minutes. The greater the height of water within, the faster will it run out. The advantages of the life-boat may be thus summed up. The air-chambers and the light ballast render sinking impossible; the keel nearly prevents capsizing, and rectifies it, if it does happen; while the relieving tubes effectually clear off any water that finds its way within. With such precautions, the safety of the crew appears almost assured, and, in fact, loss of life in a life-boat is a very rare occurrence.

The boat is kept on a truck—of considerable strength, as the life-boat weighs two tons—close to the beach, and is drawn to the water's edge when required; the crew are trained to their work, and are among the hardiest of seamen. Ordinary life-boats are rowed by 8 or 12 oars (of the best fir) double banked; but for small stations, where it would be difficult to collect so many men at short notice, smaller boats are made, rowing 6 oars single banked.

LIFE-ESTATE: in the common law, as applied in England and the United States, a freehold not of inheritance; an estate or interest in real property for a

LIFE-MORTAR.

life, and which is either conventional or legal. A conventional life-estate is expressly created by the act of the parties, and is for the life of the owner, or for the life of another, in which case it is called an estate *pour autre vie*. A legal life-estate is either tenancy-in-tail after possibility of issue extinct; or what in the older country is technically designated courtesy of England, that is, the life-interest held by a husband in his wife's fee-simple or fee-tail estates, general or special, after her death; or dower, that is, the right which a wife has for her life in the third part of the lands and tenements held in fee-simple, fee-tail-general, or as heir in special tail by her husband at the time of his decease. The tenant for life may cut wood to repair fences and for household fuel. If there is an open mine on the estate he may work it for his own profit, but he cannot open one.

LIFE-MORTAR AND ROCKET: apparatus for rescuing persons from a wrecked ship by casting ropes out to them, when a life-boat is not at hand, or when a raging sea and a shoal coast render its use impracticable. A small rope may draw a thicker, and that a hawser, and a

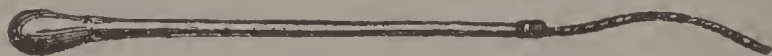


Fig. 1.—Captain Ward's Heaving-stick.

hawser may sustain a slinging apparatus for bringing the crew on shore. For short distances, Capt. Ward's *heaving-stick* (fig. 1) has been found useful; it is a piece of stout cane two ft. long, loaded at one end with 2 lbs. of lead, and at the other attached to a thin line. It is whirled round vertically two or three times, and then let go; but it cannot be relied on for more than 50 yards. Kites of various kinds have been employed, but are not certain in action. The firing by gunpowder of some kind of missile, with a line or rope attached to it, is the method most successful. In 1791, Sergeant Bell, of the Royal Artillery, England, devised a mode of firing a shot and line from a distressed ship to the shore. It was afterward found to be more practically useful to fire from the shore to the ship. In 1807, Capt. Manby invented his *life-mortar*. His mortar was an ordinary 5½-inch 24-pounder cohorn, fixed at a certain angle in a thick block of wood. The missile discharged from it was a shot with curved barbs (fig. 2), something like the



Fig. 2.—Captain Manby's Life-shot.

flukes of an anchor, to catch hold of the rigging or bulwarks of a ship. How to fasten the shoe to the rope was at first a difficulty: chains were not found to answer; but at length

LIFE-MORTAR.

strips of raw hide were found suitable. To assist in descrying the exact position of a distressed ship on a dark night, in order to aim the mortar-rope correctly, Manby used a chemical composition as a firework, which would shine out in brilliant stars when it had risen to a certain height. A third contrivance of his, for replacing the shot by a shell filled with combustibles, in order to produce a light which would render the rope visible to the crew, was not so successful.

Many variations have been made in the line-throwing apparatus. Col. Boxer has recently substituted a *bolt* (fig 3), for the shot, with four holes at the end; fuses thrust into these holes shed a light which marks the passage of the bolt through the air. Trengrove's rocket-apparatus, invented 1821, consisted of an ordinary 8-oz. sky-rocket (see ROCKET). Certain practical difficulties, however, affected it and limited its use.

In 1832, Dennett's apparatus was invented. It nearly resembled the old sky-rocket, but with an iron case instead of a paper one, and a pole eight ft. long instead of a mere stick; it weighed 23 lbs., was propelled by 9 lbs. of composition, and had a range of 250 yards. A ship's crew having been saved by the aid of this rocket at Bembridge in the Isle of Wight, the Board of Customs caused many of the coastguard stations to be supplied with the apparatus 1834. Carte's apparatus, 1842, depended on the use of a Congreve rocket (see ROCKET) instead of an ordinary sky-rocket. It does not appear that this apparatus was ever adopted by the authorities. Dennett next sought to improve the power of his apparatus, by placing two rockets side by side, attached to the same stick; and it certainly did increase the range to 400 yards; but as the simultaneous and equal action of the rockets could not be always insured, the scheme was abandoned. Col. Delvigne, of the French army, invented



Fig. 3.—Colonel Boxer's Life-bolt.



Fig. 4.—Colonel Delvigne's Life-arrow.

a *life-arrow* (fig. 4), to be fired from an ordinary musket. It is a stick of mahogany, shaped something like a billiard cue; the thicker end presses on the powder; while the thinner end, loaded with lead, is fitted with loops of string; a line or thin rope is attached to the loops, and the thin end of the stick projects beyond the barrel. The jerk, when the arrow or stick is fired, causes the loops to run down the stick to the thick end: this action has an effect like that of a spring, preventing the stick from darting forward so suddenly as to snap the line.

LIFE-MORTAR.

The apparatus will send an arrow of 18 oz. to a distance of 80 yards, with a mackerel line attached. Another French contrivance, Tremblay's rocket with a barbed head, was soon adopted for the emperor's yacht; but as it is to be fired from the ship to the shore, it partakes of the same defects as Sergeant Bell's original invention.

The most effective apparatus yet invented is Col. Boxer's. Finding that Dennett's parallel rockets on one stick do not work well, he succeeded after many trials in a mode of placing two rockets in one tube, one behind



Fig. 5.—Colonel Boxer's Double-Rocket (section).

the other (fig. 5). The head is of hard wood; there is a wrought-iron case, with a partition between the two rockets. When fired, the foremost rocket carries the case and the attached line to its maximum distance, and the rearmost rocket then gives these a further impetus. The effect is found to be greater than if the two rockets were placed side by side, and also greater than if the quantity of composition for the two rockets were made up into one of larger size. The rocket is fired from a triangular stand, and is lighted by fuse, port-fire, or percussion-tube: the elevation is determined by a quadrant or some similar instrument.

The lines used with these several projectiles have varied greatly; but the best is found to be Italian hemp, spun loosely. It is very elastic, and when thick enough for the purpose, 500 yards weigh 46 lbs. In Boxer's rocket, the line passes through the tail of the stick, then through the head, where it is tied in a knot, with india-rubber washers or buffers to lessen the jerk. The line is carefully wound on a reel, or coiled in a tub, or faked in a box provided with pins ranged round the interior—to enable the line to run out quickly without kinking or entangling. Dennett's faking-box for this purpose is the one now generally adopted.

Life belts, jackets, and buoys of numerous kinds are used, made of cork, inflated india-rubber, etc.; but one apparatus now employed in conjunction with the life-rockets is known by the curious name of *petticoat-breeches*, or more simply, *sling life-buoy*. It is not strictly either a belt or a buoy, but a garment in which a man may be slung clear out of the water. When a rocket has been fired and a line has reached the distressed ship, signals are exchanged between the ship and the shore; a thicker rope is pulled over to the ship by means of the line, and a hawser by means of the rope. When all is stretched taut, by fastening to the masts, etc., articles can be slung on the hawser and drawn to and fro. The petticoat-breeches invented by Lieut. Kisbee, consists of a circular cork life-buoy forming the top ring of a pair

LIFE-PRESERVER.

of canvas breeches; one of these is hauled over from the shore to the ship; a man gets into it, his legs protruding below the breeches, and his arm-pits resting on the buoy; and he is hauled ashore by block-tackle. The



Fig. 6.—Lieutenant Kisbee's Sling Life-Buoy, or Petticoat-breeches.

crew of a wrecked ship can thus one by one be rescued. To prevent losing the hawser and other apparatus, when the last man has left the ship, an apparatus called a hawser-cutter is used, working *in* the ship, but worked *from* the shore.—For other apparatus, see LIFE PRESERVER; LIFE-SAVING SERVICE.

LIFE'-PRESERVER: invention for the preservation of life in cases of fire or shipwreck. For fire life-preservers, see FIRE-ESCAPES. The other class, to which the name Life-preserver is now nearly limited, includes the various contrivances for preserving the buoyancy of the human body, and for reaching the shore. Of these, the readiest and most effective are empty water-casks, well bunged-up, and with ropes attached to them to hold on by. It has been found that a 36-gallon cask so prepared can support 10 men conveniently, in moderately smooth water. Cook's and Rodger's patent life-rafts consist of square frames buoyed up by a cask at each corner. Among foreign nations, frames of bamboo, and inflated goat and seal skins, have been long employed as life-preservers; and in China, it is customary for those living on the banks of the canals to tie gourds to their children, to buoy them up in case of their falling into the water. Since the introduction of cork, jackets and belts of that material in immense variety have been patented. It has been calculated that one pound of cork is amply sufficient to support a man of ordinary size. A few years ago, on the invention of india-rubber cloth, inflated belts of this material were made, and found to be superior in buoyancy to the cork belt, besides, when

LIFE-RAFT.

emptied of air, being very portable. They are, however, much more liable to damage by being punctured or torn, or to decay by being put away while damp. Some of these defects are remedied by having the interior of the belt divided into several compartments; so that, when one is damaged, the remainder may still suffice. Various forms of inflated mattresses, pillows, etc., have been made on the same principle, and been found very effective; one shown in London at the Great Exhibition of 1851 having sustained 96 lbs. for five days without injury. A favorite life-buoy among sailors is composed of slices of cork neatly and compactly arranged, so as to form a buoyant zone of about 30 or 32 inches in diameter, 6 in width and 4 in thickness. It consequently contains about 12 lbs. of cork, and is generally covered with painted canvas to add to its strength and protect it from the injurious action of the water. A buoy so constructed can sustain 6 persons, and it is generally furnished with a *life-line* (a cord running round the outside of the buoy and fastened to it at 4 points) to afford a more convenient hold. This life-preserver is found on very many vessels. A very frequent and probably the best form of individual life-preserver is a jacket of slices of cork enclosed in stout canvas, with cords for tying it around beneath the arms: this form is common on steamboats for inland navigation in the United States. See LIFE-MORTAR AND ROCKET; LIFE-RAFT.

LIFE'-RAFT: structure to serve the purpose of a life-boat when the life-boat is lacking. After the destruction of the *Northfleet*, 1873, off Dungeness, England, an exhibition was organized at the London Tavern, to which the inventors of new life-saving appliances were invited to contribute. Among the apparatus were Hurst's *life-raft*, consisting of a double pontoon, bridged over, stowed outside a ship, and lowered by simply cutting the lashings; Christie's *life-raft*, a large rectangular framework, rendered buoyant by numerous air-tight spaces, some of which are available for stowing water and provisions; and Parratt's *tubular life-raft*, composed of cylindrical air-bags made of painted canvas, supporting a flooring of sail-cloth and netting, and rendered rigid by poles fixed in various directions. Many other novelties were displayed at the London Tavern, and also at a similar collection in the annual International Exhibition, in the forms of life-boats, rafts, garments, belts, buoys, etc. Other patent life-rafts are merely square frames buoyed up by a cask at each corner. Empty water-casks well bunged up are very ready and effective instruments of safety in shipwreck, and should have ropes attached to them to hold on by. Frames of bamboo and inflated skins have long been in use as life-preservers among different nations, and contrivances more or less ingenious to preserve the buoyancy of the body in case of accidental immersion in water, are resorted to

LIFE-SAVING SERVICE.

in all countries. Whatever is lighter than water, if used on account of its buoyancy as a means of personal safety, may be considered a life-raft. See LIFE-BOAT; LIFE-PRESERVERS.

LIFE-SAVING SERVICE: organization for the preservation of life from shipwrecked vessels, such as exists in Great Britain, France, Germany, Russia, the United States, and most civilized maritime countries. The first combined public organization of the kind was founded in England, 1824, as the Royal National Assoc. for Preservation of Life from Shipwreck. The subject had attracted attention there as early as 1785, when the first patent for a life-boat was granted. Now the service in Great Britain, with its more than 2,500 life-boats, saves an average of 452 lives every year. In the United States the origin of the present efficient service may be traced to 1786, when the Mass. Humane Soc. applied its machinery to life-saving. This organization for general benevolent purposes turned its attention to lessening the dangers of the coast of Massachusetts, and the succor of shipwrecked persons, by erecting huts for their shelter at exposed points, the first having been set up on Lovell's Island, near Boston. In 1807 the soc. established a life-boat station at Cohasset, and, soon after, a number of others. Its work, which proved of incalculable benefit, was supported wholly by voluntary contributions until 1847, when the national government appropriated \$5,000 for furnishing the light-houses on the Atlantic coast with means for assisting shipwrecked mariners. This initiated the establishment of the present life-saving service of the United States. It was followed by an appropriation by congress of \$10,000 in 1855, the same amount in 1857, and \$15,000 in 1870. Meantime similar associations were organized in other localities, though none of them proved very effective. The U. S. government took the first step toward a national service 1807 by its unsuccessful attempt to organize a coast survey; but it was not until 1832 that this department was finally established, followed by the organization of the lake survey. In 1848 an appropriation of \$10,000 was made, with which 8 buildings were erected on the coast of N. J., with surf boats, rockets, etc.; and soon afterward congress authorized the regular organization of the life-saving service, and the establishment of 6 more stations on the N. J. coast, and 8 on that of Long Island. Frequent appropriations thereafter led to the establishment of stations at various points along the Atlantic coast and the Gulf, fully equipped with life-boats, etc. The service was extended to the lakes, and its efficiency steadily increased. It was in 1871, however, on the reorganization of the entire service, that the present system was established. An appropriation of \$200,000 was made, with which the number of stations was increased and the apparatus improved. Other grants followed; the service

LIFT

was steadily extended and perfected. In 1874 the storm-signal department of the signal service was connected with the life-saving stations. In 1878 the telegraph and later the telephone were put to use in connection with the life-saving service; and congress organized it into a distinct dept., increased the salaries of station-masters and crews, and authorized compensation of the volunteer life-boat service on the lakes. The coast, sea and lake, is divided into 13 districts, each under a superintendent; with 278 stations, of which 200 are on the Atlantic, 60 on the lakes, 17 on the Pacific, and 1 station is at Louisville, Ky., on the falls of the Ohio river. The whole service is under one general superintendent. On the Atlantic coast the beach between stations is patrolled during the winter by surfmen, provided with signals, flags by day and lights by night, with which to summon help from the nearest stations. From 1871 to 1907 the Service has attended to 17,317 disasters, involving 121,627 lives, of which only 1,172 have been lost. More than \$200,000,000 worth of property has been saved.

LIFT, v. *líft* [Icel. *lyfta*; Dan. *løfte*, to lift—from *loft*, the air: AS. *hlifian*, to rise, to raise or lift: Low Ger. *luften*, to raise into the *lift* or air—from Low Ger. *lucht*, the sky, the air—*lit.*, to exalt into the air]: to raise from the ground; to elevate; to raise in dignity, intellect, or spirit; to strive to raise by strength; N. the act of lifting; assistance, as in lifting; that which is to be raised; anything that lifts; in hotels and high buildings, the frame or apparatus which raises persons or things to the various floors in the United States called an elevator. LIFT'ING, imp. LIFT'ED, pp. LIFT'ER, n. one who or that which lifts or raises. LIFTS, n. plu. in *nav.*, the ropes at the yard-arms used to make the yards hang higher or lower, or to maintain them in position, as required: the lift bears the designation of the yard to which it is attached; e.g., *fore-lift*, *main-top-gallant-lift*. DEAD LIFT, a heavy body lifted or raised at the utmost disadvantage. LIFTING, the drawing out of a pattern from a mold. Also applied to the raising up or springing up of the cope or top-part of the mold caused by the pressure due to the heat of the molten metal. This tendency is counteracted by the use of screw-bolts, clamps, and dead-weights. LIFTING-GEAR, the apparatus for lifting the safety-valves from within a boiler. LIFT-VALVE, a disc valve fitting on an annular seating, and guided in its lift by three or more feathers which project into the body of the seating. It has a full water-way when the amount of lift equals one-fourth the diameter of the valve. See MUSHROOM VALVE AND POPPET VALVE. TO LIFT A DEBT, in *Scot.*, to collect an account. TO LIFT UP THE HAND, to confirm by oath, lifting up the hand forming its visible sign; to pray; to rebel. TO LIFT UP THE HEEL AGAINST, to treat insolently. TO LIFT UP THE HORN, to assume an arrogant and scornful demeanor, in

LIFT—LIGATURE.

allusion to the anc. practice of wearing horns or horn-like ornaments projecting from the forehead. To LIFT UP THE VOICE, to cry aloud, as an expression of grief or joy, usually the former.—SYN. of 'lift, v.': to heave; upheave; raise; erect; hoist; exalt; heighten; elate; rise.

LIFT, v. *lift* [Goth. *hlifan*, to steal]: in *OE.*, to steal. LIFTER, n. a thief. SHOP-LIFTER, a thief. SHOP-LIFTING, removing goods clandestinely from a shop. *Note.*—This verb was early confused with preceding entry, though distinct from it.

LIFT, n. *lift* [Low Ger. *lucht*, the sky]: in *Scot.*, the sky.

LIG, n, *lig*: in *prov.* and *old Eng.*, a lie. See LIE.

LIGAMENT, n. *lig'ă-mĕnt* [F. *ligament*—from L. *ligamen'tum*, a band, a tie—from *ligo*, I bind: It. *ligamento*]: anything which ties or unites; the strong fibrous substance which connects the ends of the movable bones. LIG'AMENT'AL, a. -*mĕnt'ăl*, or LIG'AMENT'OUS, a. -*ŭs*, binding; composing or resembling a ligament.

LIG'AMENTS, in Anatomy: cords, bands, or membranous expansions of white fibrous tissue; they bear an extremely important part in the mechanism of joints, for they pass in fixed directions from one bone to another, and serve to limit some movements of a joint, while they freely allow others.

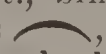
Ligaments have been divided into three classes: 1. *Funicular*, rounded cords such as the external lateral ligament of the knee-joint, the perpendicular ligament of the ankle-point, etc.; 2. *Fascicular*, flattened bands, more or less expanded, such as the lateral ligaments of the elbow-joint, and the greater majority of ligaments in the body; 3. *Capsular*, which are barrel-shaped expansions attached by their two ends to the two bones entering into the formation of the joint, which they completely but loosely invest; they constitute one of the chief characters of the ball-and-socket joint, and occur in the shoulder and hip joints. See JOINTS; SKELETON.

LIGAN, n. *lĭgăn* [AS. *licgan*; Scot. *lig*; Icel. *liggja*, to lie, to lodge: comp. L. *ligans*, binding or tying]: goods sunk in the sea, but tied to a buoy with the view of being recovered again. See LAGAN; FLOTSAM under FLOTAGE; JETSAM.

LIGATION, n. *lĭ-gă'shŭn* [L. *ligatus*, bound, tied]: the act of binding; the state of being bound.

LIGATURE, n. *lĭg'ă-tŭr* [F. *ligature*—from L. *ligatŭra*—from *ligārĕ*, to tie]: anything that ties or binds; a bandage. In Surgery, the thread tied round a blood-vessel to stop bleeding or for removal of tumors. The ligatures most commonly used consist of strong silk or catgut, but other materials have been employed. A ligature should not be tied around an artery with sufficient tightness to cause a tearing of its middle and internal

LIGHT.

coats. (See ARTERY; ANEURYSM.) Although the operation of tying arteries was clearly known to Rufus of Ephesus, who lived in the time of Trajan, it subsequently fell into desuetude, till rediscovered by Ambrose Paré 16th century. **LIGATU'RA** [It., binding]: in *music*, frequently marked by a slur, thus , placed over certain notes to show that they are to be blended together; if in vocal music, that they are to be sung with one breath; used also in instrumental music, to mark the phrasing.

LIGHT, n. *līt* [Goth. *liuhath*; Ger. *licht*, light: AS. *liht*, bright: L. *lucēre*; F. *luire*, to shine: Gr. *luchnos*, a light, a lamp]: the agent or medium by which objects are rendered visible to the eye; day; anything which gives light; a candle; a lamp: a figured compartment of a stained-glass window; a pane; knowledge; means of knowing; explanation; aspect; point to which the view is directed; situation; existence; time of prosperity; gladness; in *painting*, the illuminated part of a picture, as opposed to shade: **ADJ.** not dark or obscure; bright; clear: **V.** to set on fire; to give light to; to guide by light; to kindle or ignite. **LIGHT'ING**, imp.: **N.** the act of that which lights. **LIGHT'ED**, pt. and pp. did light. **LIGHTER**, n. *līt'ēr*, one who or that which lights. **LIGHTS**, n. plu. in *arch.*, the opening, or group of three narrow windows, between the stone mullions of a large window; in *eccles.* (See **LIGHTS**, USE OF, IN PUBLIC WORSHIP.) **LIGHT-BALL**, a hollow ball of paper filled with a composition which, when set fire to, throws out a bright light. **LIGHT-DUES**, tolls levied on ships for the maintenance of lighthouses. **LIGHTSHIP**, a vessel bearing a light at night, anchored on a bank or near shoals, to guide vessels. **NORTHERN LIGHTS**, the aurora borealis. **ZODIACAL LIGHT**, see that title. **TO BRING TO LIGHT**, to reveal; to discover. **TO COME TO LIGHT**, to be discovered. **THE LIGHT OF THE COUNTENANCE**, favor; smiles. **TO SEE THE LIGHT**, to be born; to come into existence. **TO STAND IN ONE'S OWN LIGHT**, to be the means of hindering one's own advancement or one's own good.

LIGHT, a. *līt* [Ger. *leicht*; Dut. *licht*; Icel. *léttr*; Goth. *leihts*; OH. G. *léht*; L. *lēvis*, light, of small weight]: easy to be raised or carried; not difficult; easy to be borne or performed; active; nimble; swift; unencumbered; not dense or heavy; not of standard weight, as a coin; not laden, as a ship; not violent, as a wind; not grave, serious, or steady; loose and irregular, as conduct; loose and open, as a soil; not chaste; under the influence of liquor. **LIGHT'LY**, ad. *-lī*, with but little weight, as to tread lightly; easily; readily; without reason; cheerfully; not chastely; without due consideration; with levity. **LIGHT'NESS**, n. *-nēs*, want of weight; nimbleness; agility; levity; inconstancy; giddiness; wantonness. **LIGHTS**, n. plu. *līts*, the lungs in animals, as being the lightest part of the body. **LIGHT-ARMED**,

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not heavily armed. LIGHT-FINGERED, nimble at lifting or conveying with the fingers; in a bad sense, applied to a pickpocket. LIGHT-FOOTED, nimble with the feet. LIGHT-HEADED, giddy; thoughtless; wandering, as in a fever. LIGHT-HEARTED, free from anxiety; gay. LIGHT INFANTRY, troops lightly armed. LIGHT-MINDED, unsettled; unsteady. To MAKE LIGHT OF, to treat as of little consequence. To SET LIGHT BY, to under-value; to slight.—SYN. of 'light': active; unencumbered; unembarrassed; slight; unsteady; unsettled; sandy; gay; airy; trifling; wanton; unchaste; unimportant; inconsiderable; small; inconsiderate; volatile;—of 'lightness': volatility; flightiness; instability; unsteadiness; airiness; gayety; sprightliness; ease; facility; briskness; swiftness.

LIGHT, v. *līt* [from Eng. *alight*: OE. *lift*; Ger. *luft*; Low Ger. *lucht*, the sky, the air (see LIGHT 2 and LIFT 1)]: to descend from a horse or carriage; to settle; to stoop from flight; to fall in a particular direction; to fall; to strike on. LIGHT'ING, imp. LIGHTED, pp. *līt'ēd*. To LIGHT ON A THING, to fall in with it—that is, to have *light* on it.

LIGHT: the subject of the science of Optics (q.v.). Its principal phenomena are here adverted to, with the hypotheses advanced to explain them. Everyone knows that light diverges from a luminous centre in all directions, and that its transmission in any direction is *straight*. It travels with great velocity, which has been ascertained, by observations on the eclipses of Jupiter's satellites and other means, to be about 186,772 m. per second. Shadows (q.v.) are a result of its straight transmission; and it follows from its diverging in all directions from a luminous centre, that its intensity diminishes inversely as the square of the distance from the centre. When it falls on the surfaces of bodies, it is reflected from them, regularly or irregularly, totally or partially, or is partly or wholly transmitted or refracted through them. For the phenomena of the reflection and of the refraction of light, see respectively CATOPTRICS; DIOPTRIC. The facts of observation on which catoptrics is founded are two: 1. In the reflection of light, the incident ray, the normal to the surface, and the reflected ray are in one plane: 2. The angle of reflection is equal to the angle of incidence. Similar to these are the physical laws on which dioptrics is founded. When a ray of homogeneous light is incident on a refracting surface, 1. The incident and refracted ray lie in the same plane as the normal at the point of incidence and on opposite sides of it; 2. The sine of the angle of incidence, whatever that angle may be, bears, to the angle of refraction, a ratio dependent only on the nature of the media between which the refraction takes place, and on the nature of the light. In stating these laws, we have hinted at light being of different kinds. Formerly it was not supposed that color had anything to do

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with light; now, there is no serious dispute but that there are lights of different colors (see CHROMATIC and SPECTRUM), with different properties, though obeying the same general laws. Among the most striking phenomena of light are those treated under the head POLARIZATION (q.v.). Next to these in interest are the phenomena of double refraction: see REFRACTION, DOUBLE. For an account of the chief chemical properties of light, see PHOTOGRAPHY; SPECTRUM. See also, for phenomena not noticed above, ABERRATION; DIFFRACTION; DISPERSION; INTERFERENCE.

Two hypotheses have been advanced to explain the different phenomena of light, viz., the theory of *emission*, or the corpuscular theory, and the theory of *vibration*, or the UNDULATORY THEORY (q.v.). There is also a recent earnest advocacy, though not by men eminent in science, of a theory that light is an 'immaterial substance' (see SUBSTANTIALISM). This theory, however, makes its strongest attack on the accepted modern science in reference to sound. According to the corpuscular theory, light is an attenuated imponderable substance, whose colors depend on the velocity of its transmission. It regards reflection as analogous to the rebounding of elastic bodies; while, to explain refraction, it assumes that there are interstices in transparent bodies, to allow of the passage of the particles of light, and that these particles are attracted by the molecules of bodies—their attraction combining with the velocity of the particles of light to cause them to deviate in their course. THE UNDULATORY THEORY (q.v.) assumes that light is propagated by the vibrations of an imponderable matter termed Ether (q.v.). On this view, light is somewhat similar to sound (see INTERFERENCE). Newton was the author of the former theory, and Huyghens may be regarded as the author of the latter. The theories were long rivals, but now the theory of undulations has triumphed over the other. Its soundness is claimed to rest on similar evidence to that which we have for the theory of gravitation: it had not only satisfactorily accounted for all the phenomena of light, but it has been the means of discovering *new* phenomena. In fact, it has supplied the philosopher with the power of prescience in regard to its subject. Those who wish to study the theory may advantageously consult its popular exposition by Young (*Lectures on Natural Philosophy*, London, 1845), and Lloyd's *Wave Theory of Light* (Dublin 1856). The mathematical theory is very fully investigated in Airy's *Mathematical Tracts*.

LIGHT, in Law: involving the question of legal right to light. This is one of the rights incident to the ownership of land and houses. When it is claimed in such a way as to interfere with a neighbor's absolute rights, it is called, in England and the United States, an Easement (q.v.), and in Scotland a Servitude (q.v.). In England

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and the United States, the right to light, as between neighbors, is qualified in this way, and forms a subject of frequent dispute in towns and populous places. If A build a house on the edge of his ground with windows looking into B's field or garden which is adjacent, B may next day, or any time within 20 years, put up a house or screen close to A's windows, and darken them all, for one has as good a right to build on his own land as the other on his. But if B allows A's house to stand 20 years without building, B is for ever after prevented from building on his own land so as to darken A's lights, for A then acquires a prescriptive right to an easement over B's lands. In the Roman law, a person was entitled not only to a servitude of light, but also of prospect; but in this country the right of prospect, or of having a fine view, is not recognized by the law, except so far that the lights, after 20 years, must not be sensibly darkened.—In Scotland, a servitude of light may exist in like manner, but it cannot be constituted except by special grant; also a neighbor, B, may after 20 years, or any time, build on his own land, and darken A's windows, provided he do not act wantonly, emulously, or so as to cause a nuisance.

LIGHT, ELECTRIC. See ELECTRICAL ILLUMINATION.

LIGHT, THERAPEUTICS OF: in medicine light has been used from the earliest times, and the therapeutic application of sunlight is an empirical mode of treatment, in many diseases, which has been handed down through generations. Only in recent years, however, have more definite forms of light-therapeutics been applied, but with the discovery of the X-ray by Röntgen began a new era. The reaction of the human body to different forms of light is very striking, and however various the sources of light, the mode of reaction is often marvelously similar. Thus, the surface capillaries of the skin are dilated, there is exudation of serum into the subcutaneous tissues, and the nerve-endings are stimulated. The results of the application of light widely vary, the variation depending upon the area exposed and the part affected. There is one form of sunburn resulting from direct action of the rays of the sun, and similar burnings have been produced by X-rays and by means of radio-active substances.

At the present time sunlight is used as a general tonic, and as a special tonic to the skin, while as a disinfectant its powers are systematically applied. Modified electric light, X-rays, and radio-active substances are now extensively employed in the treatment of certain forms of new growths of the skin and of the interior body. Lupus is readily cured by means of the Finsen light, and superficial forms of cancer of the skin, and even cancers of internal organs have been cured by means of the X-ray. The X-ray, moreover, produces marked stimulation of the skin, with sweating and at times loss of hair, so that it may be used as a depilatory agent.

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It is not unlikely that the applications of the X-ray and of radio-active bodies, such as radium, polonium, uranium, etc., will within a few years undergo profound modifications. The study of scientific radiotherapy is only in its infancy. See RADIUM; X-RAY.

LIGHTEN, v. *līt'n* [Goth. *liuhath*, light: Ger. *licht*, light; *leuchten*, to lighten (see LIGHT 1)]: to fill with light; to shine like lightning; to flash, as lightning; to illuminate. LIGHTENING, imp. *līt'n-īng*. LIGHTENED, pp. *līt'nd*. LIGHTNING, n. *līt'nīng*, the electric flash which produces the report called thunder, and is seen before the thunder is heard.

LIGHTEN, v. *līt'n* [Low Ger. *lichten*; AS. *lihtan*, to lift, to lighten]: to make lighter or less heavy; to make less burdensome or afflictive; to cheer; to alleviate. LIGHTENING, imp. *līt'n-īng*, making lighter; cheering. LIGHTNING, n. *līt'nīng*, in OE., a mitigation or apparent abatement of symptoms, as before death. LIGHTENED, pp. *līt'nd*.

LIGHTER, n. *līt'ēr* [Dut. *ligter*, a lighter; *ligter-man*, a lighter-man—from *ligt*, not heavy: Eng. *light*, of small weight, which see]: a large flat-bottomed boat used in loading and unloading vessels whose draught prevents their coming close to the landing-place. LIGHT'ERAGE, n. *-āj*, the price paid for the use of a lighter. LIGHT'ER-MAN, n. *-mān*, one who assists to manage a lighter, and the loading and unloading of ships.

LIGHTFOOT, *līt'fūt*, JOHN, D.D.: one of the earlier Hebrew scholars of England: 1602, Mar. 29—1675, Dec. 6; b. Stoke-upon-Trent, Staffordshire; son of Thomas Lightfoot, vicar of Uttoxeter. He studied at Christ's College, Cambridge, and, after entering into orders, became chaplain to Sir Rowland Cotton, who, being himself a good Hebrew scholar, inspired Lightfoot with a desire to become one also. In 1627, appeared his *Erubhim, or Miscellanies Christian and Judaical*, dedicated to Sir Rowland, who, 1631, presented him to the rectory of Ashley in Staffordshire. Subsequently, he removed to London, that he might have better opportunities for the prosecution of his favorite study; and in 1642 he was chosen minister of St. Bartholomew's, to the parishioners of which he dedicated *Handful of Gleanings out of the Book of Exodus* (London 1643). His most important work is *Hore Hebraicæ et Talmudicæ*, etc. (Cambridge 1648), re-edited by R. Gandell (4 vols. Oxford 1859). Lightfoot was one of the Assembly of Divines who met at Westminster 1643, and in the debates that took place there showed decided predilection for Pres. church government. In the same year he was chosen master of Catharine Hall, Cambridge, and 1655 vice-chancellor of the university. At the Restoration, he complied with the terms of the Act of Uniformity. He died at Ely. He

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was the greatest Hebraist in the England of his day, and his fame as a scholar remains.

LIGHTFOOT, JOSEPH BARBER, D.D.: Bishop of Durham, England: 1828, Apr.—1889, Dec. 21; b. Liverpool: distinguished scholar and theologian. He graduated at Trinity College, Cambridge, 1851; was elected fellow 1852; gained the Norris Univ. prize 1853; was ordained 1854; and became tutor in Trinity College 1857, Hulsean prof. of divinity at Cambridge 1861, canon of St. Paul's Cathedral, London, 1871, and Lady Margaret prof. of divinity at Cambridge 1875. In 1864, he received the degree D.D.; 1866 was Whitehall preacher; 1868 became examining chaplain to the abp. of Canterbury; 1874-5 was select preacher at Oxford; and 1879 reluctantly accepted the bishopric of Durham. He was considered the most learned New Test. scholar in the Church of England. He had notable breadth of mind, and modesty and gentleness of disposition. His publications included commentaries on the epistles of Paul to the *Galatians* (1865), *Philippians* (1868), *Colossians* and *Philemon* (1875); incomplete work on the Apostolic Fathers—epistles ascribed to *Clement of Rome* (1869, new ed. 1890), and *Ignatius and Polycarp* (1885, 2d ed. 1889); *On a Fresh Revision of the English New Testament* (1871); an edition of Dean Mansel's treatise on *The Gnostic Heresies of the First and Second Centuries* (1875); and four volumes of sermons, posthumous (1890).

LIGHTHALL, WILLIAM DOUW: Canadian author: b. Hamilton, Ont., 1857; graduated from McGill University and was called to the bar in 1881. Chief publications are: *An Analysis of Altruistic Act; Thoughts, Moods and Ideals* (1887); *Sketch of a New Utilitarianism* (1887); *The Young Seigneur: or Nation-making* (1888); *An Account of the Battle of Chateauguay* (1889); (Edited) *Songs of the Great Dominion* (1889); (Edited) *Canadian Poems and Lays* (1889); *Montreal after 250 Years* (1892); *Sights and Shrines of Montreal* (1892); *The False Chevalier* (1898); *A New Hochelagan Burying-ground* (1898); *The History of our National Monopolies* (1901); *The Glorious Enterprise* (1902); *Westmount, a Municipal Illustration* (1902); *To the Boers—An Appeal from Canada* (1902); *Canada: a Modern Nation* (1904); *Thomas Pownall—His Part in the Conquest of Canada* (1904).

LIGHTHOUSE: a building on some conspicuous point of the sea-shore, island or rock, from which a light is exhibited at night as a guide to mariners. Lighthouses are generally placed on salient points, each requiring structures specially designed to meet the exigencies of varied sites. When placed on headlands or large islands lighthouses are very much alike in general features, the differences being mainly in the height of the towers,

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depending on the distance at which the light requires to be seen, and the lighting apparatus. Towers erected on isolated wave-swept rocks in the open sea, such as the Eddystone (now superseded by Sir James Douglass' tower), the Bell Rock, Skerryvore, and Chickens Rock lighthouses, in Great Britain; the Minot's Ledge and Spectacle Reef in the United States, and Bréhat in France, are triumphs of engineering.

The early history of lighthouses is obscure. Those referred to in early Greek literature were nothing more than beacon fires kindled on headlands, though as early as B.C. 280 there was built the famous lighthouse on the island of Pharos off Alexandria in Egypt, connected with the city by an artificial roadway. It was a massive stone structure, about 400 ft. high, whose light is said to have been visible more than 40 m. It stood about 1,600 years until destroyed by an earthquake. More modern is the remarkable lighthouse of the tower of Cordouan, at the mouth of the Garonne, in the Bay of Biscay, on a dangerous ledge of rocks. Twenty-six years were spent in building it, and it was finished 1610. Its base, built solid of cut stone, is 135 ft. in diameter at the bottom, 125 ft. at the top, and 16 ft. high. On this is reared the tower, in the form of a frustum of a cone 50 ft. in diameter at its base, and 115 ft. high, surmounted by a lantern dome. For the first 100 years a fire of oak wood furnished the light; then coal was used; in 1823, the first Fresnel lens ever made was placed in it.

The lighthouses of the United Kingdom now number, with harbor-lights, more than 880 stations, and include some of the finest specimens of engineering, such as Douglass's Eddystone (successor to Smeaton's), R. Stevenson's Bell Rock, A. Stevenson's Skerryvore, and Walker's Bishop Rock. Somewhat similar structures have been erected on the Wolf Rock in the English Channel by Douglass, and on the Duheartach Rock, Argyleshire, and on the Chickens, off the Isle of Man, by D. & T. Stevenson.

The first lighthouses in the United States were generally rough towers of stone or wood surmounted by large iron lanterns. Such structures were in use before 1789 at the ports of Portland, Portsmouth, Newburyport, at Cape Ann, Boston, Plymouth, Nantucket, Newport, New London, New York, the capes of the Delaware and the Chesapeake, the port of Charleston, and the mouth of the Savannah river. These all were ceded to the U. S. govt. about the time of the adoption of the federal constitution. They were generally very imperfectly constructed and equipped, and have nearly all been rebuilt. There are many fine lighthouses in the United States. Among those worthy of note is the one on Minot's Ledge off the town of Cohasset, about 20 m. e.s.e. of Boston, at a point very dangerous to incoming vessels. It is about $1\frac{1}{2}$ m. from the nearest land, and as the rock on

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which it is built is out of water only a few minutes at a time, the work of building it was extremely difficult. In 1847, congress made an appropriation for the erection of an octagonal iron-pile lighthouse, which was completed 1849, but was destroyed in a storm 1851, Apr. Next year congress made an appropriation for a new lighthouse, on which work was begun 1855; the foundation was finished 1857, and 4 stones were laid the same year; next year 6 courses of stone were laid; 1859 the stone-work was completed, and 1860 the entire structure. It is of granite, the lower 40 ft. solid, on a base 30 ft. in diameter; whole height of the stone-work, 88 ft. The stones are dove-tailed, and the courses fastened together by wrought-iron dowels. In the n. part of Lake Huron, on Spectacle reef, is a lighthouse built to resist masses of floating ice as well as the waves. It is in the form of the frustum of a cone, 32 ft. in diameter at the base, 18 ft. near the top, its stone-work 93 ft. high, of which the lower 34 ft. are solid, on a base 11 ft. below the surface. It was finished 1874, June 1, and cost \$375,000. Cast-iron lighthouses are built of tiers of cast-iron plates, held together by bolts and flanges on the inside, and then filled in solid with masonry and concrete. The first one was built 1842, at Point Morant, Jamaica. The 'screw-pile' system of light-house building was invented by Alex. Mitchell, of England, and has been used in different parts of Great Britain. The main feature of it is that the piles on which the structure rests are in the form of screws, and are driven into the sand or soil in the manner of a corkscrew. The first erected in the United States is at the mouth of Delaware Bay, 8 m. from the ocean, on a spot very much exposed to waves and ice. It was finished 1850, and is protected by an ice-breaker composed of screw-piles around it driven independently of it. One at Sand Key, Florida Reefs, is built on 16 piles with one additional in the centre: they are 8 in. thick, with a screw 2 ft. in diameter at the lower ends, which penetrate 12 ft. into the reef. Its foundation is 50 ft. in diameter, and it rises 120 ft. above the level of the sea. The tower frame-work consists of tubular cast-iron columns framed together with wrought-iron ties at the joints, and braced diagonally on the faces of each tier. There are more than 50 such lighthouses in the United States. The principle has been adopted of building all first-class lighthouses of fire-proof material. Early towers—though they burned 400 tons of coal yearly—were uncertain in their appearance, varying with the ever-changing character of the atmosphere. Such coal-lights survived in Scotland till 1816, in England till 1822, and on the Baltic till 1846.

Construction.—The difficulties of building are very great, as may be judged from the following facts: Winstanley's Eddystone took four years to erect, and was finally swept away; Rudyerd's and also Smeaton's Eddy-

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stones took each three years, the Bell Rock took four years, the Skerryvore five, and Dhuheartach three and a half, the great difficulty being to effect a landing of men and material. At Minot's Ledge, off the Massachusetts coast, General Alexander got only 30 hours of work in the first year, and 157 in the second, and the histories of the Bell Rock, Skerryvore, Dhuheartach, Chickens, Eddystone, and some others tell the same tale. The cost of lighthouses may vary much; for instance, the Bell Rock cost \$310,000; Skerryvore, \$430,000; Spectacle Reef, on Lake Huron, \$300,000; and it will be easily seen that an ordinary land station, fully equipped, will cost much less—as a matter of fact, about \$25,000 to \$50,000. Light-vessels cost about \$45,000.

These towers are constructed of steel, or hard stone, such as granite, or cement-concrete faced with hard stone, and of such a mass and strength as to prevent their being overturned or destroyed by the waves. A typical stone lighthouse is built of granite, say 140 feet in height, with a diameter at the base of 42 feet and at the top of 16 feet, and contains 58,580 cubic feet, or about 4,308 tons of masonry. A staff of four light-keepers is attached to such rock lighthouses, three residing in the lighthouse and one on shore, the reliefs being fortnightly, so that each man has six weeks on the rock and two weeks ashore. At land lighthouse-stations, where women and children can be stationed, the keepers' families reside with them, and the staff consists of three men when there is a fog-signal, and two men when there is only the light to attend to. It is considered essential that a constant watch be kept in the light-room during darkness to ensure the proper exhibition of light.

Optical Apparatus.—The object of using optical apparatus in a lighthouse is to direct, as far as possible, all the rays of light that proceed from the *radiant*, or source of light, so as to be visible only on the sea between the near sea and the sea horizon. In the Eddystone lighthouse, up to the commencement of the 19th century, the lighting apparatus consisted of a chandelier of tallow candles, though parabolic reflectors made of facets of silvered glass mirror, set in a mould of plaster of paris, were introduced in 1768 and used in several lighthouses, the effect of these reflectors being to concentrate and throw seaward the rays of light from a flat-wick lamp placed in the focus. At a later date reflectors composed of sheet copper, plated with silver and formed into a parabolic curve, were largely introduced and are still in use. These reflectors, where a fixed light was desired, were arranged in two tiers on a frame, as many as 26 being necessary to show a light of equal power all around the horizon, and in the case of flashing lights seven were grouped on each of four faces of a frame that was rotated by clockwork. This mode of lighting is termed *catoptric* or reflecting system. The method of

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building lenses of separate rings or prisms of glass, so as to form a larger lens than could be obtained from a mere bull's-eye formed of one piece of glass, was first adopted for lighthouses in 1822. For a fixed light the built-up lens was so arranged as to form a polygon with one burner in the focus, and for a flashing light annular lens panels were grouped round the one central burner and revolved by clockwork. In 1892, Charles A. Stevenson made the lenses spherical in form in the vertical plane, and in 1895, with great advantage to the power of the light, abolished the old section of the elements and gave them an equiangular section. This equiangular profile also permits of the refracting elements being extended to 80° of focal opening, and indeed farther, without loss of efficiency. The setting of lenses eccentrically has rendered possible a diminution in the diameter, and consequent saving in cost of lantern and tower. Besides the fixed-light apparatus and the lens panels many other forms of prisms for various purposes have been introduced. Thomas Stevenson's catadioptric mirror, formed of totally-reflecting prisms, and subsequently improved by James I. Chance, is largely used; and vertical straight prisms, placed in front of either fixed light or holophotal panels, are used to deviate the light azimuthally over particular arcs where the light is required. The desire to increase the power of the lights induced some lighthouse authorities to advocate the use of larger burners without increasing the focal distance of the apparatus, with the result that little advantage was gained, as most of the light was ex-focal. It was not, however, till 1885, that the first *hyper-radiant* lens was constructed, with the result that when tested it was found to produce a beam twice as intense as that from the previous lenses with the same large burners in the foci. This hyper-radiant lens is now largely used where great power is desired.

Radiants.—The radiants used in the focus of the apparatus in foreign lighthouses are generally 1-, 2-, 3-, 4-, 5-, 6-, or even 10-wick cylindrical paraffin burners, though gas burners, incandescent burners, and the electric light, both arc and incandescent, are also in use. The use of paraffin resulted in a large saving. The electric light is now generally used in the United States. The popular idea that the electric light is not so good in fog as oil or gas lights was confuted in 1885, when it was found that oil and gas were equally affected by atmospheric variations, that the electric arc light is absorbed more largely proportionately to its initial power by haze or fog than oil or gas lights, but that in all weathers and at all distances its penetrative power was found superior to the gas and oil lights, and that all three are nearly equally affected by rain. These results are confirmed by practical experience in our lighthouses.

Characteristics.—To enable the sailor to distinguish

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one lighthouse from another, lights in proximity to one another are arranged to exhibit different characters. The characters in common use are: fixed light; flashing light, showing one flash at regular intervals of a few seconds; group flashing lights, showing two or more flashes in quick succession, followed by a longer period of darkness than that which separates the flashes; occulting lights, which show a fixed light and are eclipsed for a few seconds at regular intervals. Colored lights, red and green, are also used with any of the foregoing characters to produce further distinctions, but in general only to mark danger ares, or in conjunction with a white flash, as the tinted-glass shades interposed to produce the desired color seriously cut down the power of the light, and are not, unless of a very dark shade, easily distinguishable in foggy weather from a white light.

Machines.—To produce these various characters the lenses are placed on a carriage which revolves on conical rollers, or is floated in a mercury trough, and is driven round by clock-work actuated by a falling weight. The tendency has been in recent years to drive the apparatus faster, so as to make the period of phase of the light as short as possible. While this is a desirable object it involves at the same time shortening the duration of the flash on the eye of the sailor, to which there is obviously a limit, if distinct vision is to be obtained under practical conditions. A flash of about half a second in length is regarded as what should be aimed at. The light at Sandy Hook, N. J., is an example of the modern flash-light.

Lanterns.—The apparatus is placed in a glazed lantern erected on the top of the lighthouse tower. With the view of intercepting as little light as possible, the framing or sashes are made of as small sectional dimensions as is consistent with strength, and are made either diagonal, with diamond-shaped flat panes, or helical with curved panes. The upper part of the lantern is made dome-shaped with a ventilator to carry off the fumes from the lamp. The size of the lantern varies with that of the apparatus, the usual size for a first-class light being 12 feet in diameter and 10 feet height of glazing.

Lightships.—In certain situations, such as on rocks where there is not sufficient room to get a large enough base for a tower, or on sandbanks where the sand is liable to shift, it is impossible, except at a prohibitive cost, to erect towers to carry the light. In such situations recourse is had to mooring in the vicinity a vessel which carries the light on a mast. The light is generally shown from a lantern formed round the mast, and the apparatus consists of parabolic reflectors or small dioptric apparatus. These light-vessels have a crew consisting of a master, mate, and nine men.

Beacons and Buoys are used in situations where pow-

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erful lights, such as can be shown from lighthouses and lightships, are not necessary, and where the extinction of the light would cause inconvenience and not disaster, but where some guidance is desirable, as, for example, in narrow sounds, rivers, and estuaries. Beacons are now frequently lighted with small dioptric apparatus, the illuminant being either compressed oil-gas stored in a receiver, in which case they need no attention for six weeks, or with oil-burners, in which case they must be trimmed every three days. Buoys are made of various shapes to denote on which side of them the safe channel lies. Thus, can-shaped buoys, those with a flat top, are to be passed on the port hand, and conical shaped buoys on the starboard hand when the ship is going up an estuary or with the flood-tide, and vice versa. Spherical buoys denote a middle danger which may be passed on either hand. Buoys for particular places are further differentiated by color and top marks.

Fog-signals.—During the prevalence of fog and snow-storms the most powerful lights are obscured, and it becomes necessary to guide the mariner by sound signals. Hence a fog-signal has become a necessary adjunct of a fully-equipped lighthouse station. Various instruments, such as bells, gongs, guns, steam-whistles, explosive charges of tonite, reed trumpets, and sirens sounded by steam, electricity, or compressed air, are used. The most efficient and powerful fog-signal is the siren sounded by compressed air. In spite of the recent improvements in fog-signals they are undoubtedly the weak point in coast protection, as the exact direction from which a sound is coming is not easy to locate, and owing to the capricious and uncertain range at which sound can be heard.

Administration.—In Great Britain, the Trinity House of London, the Irish Lighthouse Board, and the Northern Lighthouse Board are the lighthouse authorities. The two last named were not constituted till 1786, but the Trinity House may be said to have originated in 1514. The French Commission des Phares was constituted in 1792, and remodeled in 1811; the United States Lighthouse Board was formed in 1789, and reconstructed in 1852. In Sweden, Norway, Holland, Denmark, Russia, and Austria the lighthouse administration is under the Admiralty or Minister of Marine. In Spain, the system of administration is similar to that of France. The Lighthouse Board of the United States was organized in 1852 by act of congress, and has the management of all lighthouses, beacons, buoys, lights, etc. The board is composed of two naval officers, two engineers, and two civilians of scientific attainment. The secretary of the treasury is *ex-officio* president, while a chairman is annually elected from the board. Standing committees are appointed on 'experiments,' 'lighting,' 'engineering,' 'finance,' and 'floating aids to navigation.'

Progress in America.—From one of the poorest-lighted

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coasts, the American Atlantic seaboard has, within a quarter of a century, become one of the best in the world, and the new system of lighthouses and signal lights is far more comprehensive than anything heretofore attempted. The Cape Hatteras region, and the scarcely less important Cape Cod district, early received special attention. Both of these capes were in the direct route of commerce, and the storms and shoals that made them dangerous to navigators had to be offset by adequate lights which would warn mariners of their proximity. The first attempts at lighthouse construction were consequently made at a few such dangerous points along the coast, and from these in either direction new lights were gradually erected. They formed the beginning of the new system which seeks to make all of our coast so well protected that navigators need have little apprehension in approaching the land from any direction at any point. But the rapidly increasing commerce on both the Atlantic and Pacific seaboard has made in recent years a more comprehensive system of lighthouses imperative. Likewise the shipping interests of the Great Lakes, the Gulf of Mexico, and the great inland rivers, have multiplied in importance and the need for better protection from dangers to navigation has been general. For a quarter of a century now the American lighthouse system has expanded and developed, until it has reached a point in its evolution where it is without question one of the best in the world.

The full extent of the lighthouse service can best be appreciated by simply stating that there are some 9,000 warning lights and signals stretched along the American coasts, forming a perfect link so that the navigator need never be beyond the sight of one of the beacons. Of this grand total—including lighthouses of different classes, buoys, beacons, and danger signals—over 3,000 are lighted, giving forth their signals at night time. One thousand of these lights are located on the Atlantic coast, 1,500 are scattered along the rivers and inland waterways, 500 on the Great Lakes, and 200 on the Pacific coast. These so-called lighted 'aids' include a great variety of modern inventions, from the tall flashlight lighthouse, with its base of steel and stone, and costly lamp operated by electric power, to the modern gas and electric-lighted buoys, beacons and lightships. The advances made in lighthouse and buoy construction represent some of the marvels of modern engineering science.

In 1903, the most important light in the United States, the great tower of Barnegat, N. J., was completed with a light equipment equal to 30,000,000 candle-power. Steam and power are generated for local use, for the heart of the light is a 6,000 candle-power arc light. This is intensified by a great lens built up of rims of prismatic glass, with a bull's-eye in the centre 18 inches in diameter. This monster light can be seen at a dis-

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tance of 100 miles; but, taking the curvature of the globe into consideration, sailors can make it out while still over 20 miles away. The Barnegat station is a most important one, being located on the most easterly point of the dangerous low-lying Jersey coast. See PLATE.

In the matter of lightships the United States leads the world. More than 40 of these are stationed at points along our coast where beacons are necessary, but where the building of lighthouses is impracticable. The Diamond Shoal lightship warns the navigator of his approach to dreaded Cape Hatteras. For years the lighthouse board tried to build a lighthouse on Diamond Shoal, but at last, after more than \$250,000 had been spent and several lives lost, the attempt was given up.

The Fire Island lightship is one of the line of ocean lampposts which mark the entrance to New York harbor. It is equipped with a steam engine, electric lights, a steam whistle and many other improvements. The new South Shoal lightship, which is anchored 26 miles off Nantucket, is farther from shore than any other lightship in the world. It is the first American outpost and guards a shoal which in times past was a veritable graveyard for ships.

Steel Tubular Structures.—One of the most noted advances in modern times has been the abandonment of the old towers of stone or brick and the adoption of the steel tubular structures in their places. The latter are built more easily on a solid, rocky foundation than the old huge piles of masonry. The steel skeleton is bolted into the solid rock or anchored there by means of long spindle-like legs, which sink many feet down into the firm foundation. These huge cylindrical towers of steel withstand the pressure of wind far better than the stone and brick structures, and their strength is so great that there is practically no danger of their ever being seriously injured by the elements. Even where the lighthouses are built in the water to mark shoals or dangerous reefs, the steel tubular style of structure is adopted. The foundation work of the structure is built up above the water with stone or concrete, and to this the steel tower is bolted. The latter looks more like a giant smokestack than anything else, and it stands as a permanent beacon of the sea to warn mariners of their danger. Not only is additional strength and security obtained through the adoption of the steel tubular lighthouses, but the cost of construction is greatly reduced. Modern lighthouses cost far more than they did in former days, but that is due to the fact that they are built on a larger and more enduring scale, and the lights are of far greater power and intensity. A modern American lighthouse frequently costs \$125,000, and often one-third of this is spent in the electric light and apparatus alone. In the old system the lights represented a comparatively small proportion of the expense.

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Bibliography.—Edwards, *Our Seamarks* (1886); Elliott, *European Lighthouse System* (1875); Heap, *Ancient and Modern Lighthouses* (1889); Stevenson, *Lighthouse Construction and Illumination* (1881); and United States Lighthouse Board's Annual Reports.

LIGHTNING [see LIGHTEN 1]: the line or core of incandescent air due to an electric discharge from cloud to cloud, or cloud to earth, or cloud to cloud and earth. It is essentially the same, on a grander scale, as the spark from an electric machine. Trowbridge (1907) has shown that the discharges from a large number of condensers charged in multiple and discharged in series are probably more nearly identical with lightning discharges than any other forms within our experimental means. The photographs of such discharges reveal details which do not appear in the discharges from Ruhm Korff coils or Tesla coils. Trowbridge, at the Jefferson Physical Laboratory, experimented with a 20,000-cell storage battery with an electromotive force of 40,000 volts. By charging condensers in multiple and discharging in series, an apparatus has been constructed capable of giving sparks seven feet in length in air at atmospheric pressure. Up to 1,500,000 volts the length of the discharge is proportional to the voltage. Under a difference of potential of 3,000,000 volts the spark passed through five centimeters of air in preference to a resistance of 1,000 ohms. The high voltage combined with large amperage gives results tending to confirm the recent view that earlier studies by means of Holtz machines and other forms of glass inductors lead to under estimates of the amount of energy in lightning flashes. 'Meteorological observations and other reasons lead to the conclusion,' says Trowbridge, 'that lightning is not produced like the discharge from a number of storage cells in series—that is, from one charged water vapor vesicle to another—but from the accumulation in series of such charges—the cloud thus acting like a charged condenser. According to Poekel, W. Kohlrausch and L. Weber, the current in a lightning discharge is on the average 10,000 amperes, with a maximum value of 20,000 amperes. Clouds charged with electricity (thunder-clouds) have a peculiarly dark and dense appearance. The height of thunder-clouds is very various: sometimes they have been seen as high as 25,700 ft., and a thunder-cloud is recorded whose height was only 89 ft. above the ground. According to Arago, there are three kinds of lightning, which he names lightning of the first, second, and third classes. Lightning of the first class is familiarly known as forked-lightning (Fr. *éclair en zig-zag*): it appears as a broken line of light, dense, thin, and well-defined at the edges; sometimes it is called chain-lightning. Occasionally, when darting between the clouds and the earth, it breaks up near the latter into one or two forks, and is then called bifurcate or trifurcate. The terminations

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of these branches are sometimes several thousand feet from each other. On several occasions, it has been attempted to measure trigonometrically the length of forked-lightning, and the result gave a length of several miles. Lightning of the second class, commonly called sheet-lightning (Ger. *Flächenblitz*), has no definite form, but seems a great mass of light. It has not the intensity of lightning of the first class. Sometimes it is tinged decidedly red, at other times, blue or violet. When it occurs behind a cloud, it lights up its outline only. Occasionally, it illumines the world of clouds, and appears to come forth from the heart of them. Sheet-lightning is very much more frequent than forked-lightning. Lightning of the third kind, called ball-lightning (Fr. *globes de feu*, Ger. *Kugelblitz*), describes, perhaps, rather a meteor, which, on rare occasions, accompanies electric discharge, or lightning proper, than a phenomenon in itself electrical. It is said to occur in this way: After a violent explosion of lightning a ball is seen to proceed from the region of the explosion, and to make its way to the earth in a curved line like a bomb. When it reaches the ground, it either splits up at once, and disappears, or it rebounds like an elastic ball several times before doing so. It is described as being very dangerous, readily setting fire to the building on which it alights; and a lightning-conductor is no protection against it. Ball-lightning lasts for several seconds and, in this respect, differs very widely from lightning of the first and second classes, which are, in the strictest sense, instantaneous.

The above are old definitions. Physicists, now following the lead of Lodge, classify lightning as (1) slow discharge, (2) multiple flash, (3) disruptive discharge, (4) distant discharge.

Lightning Conductor.—Recent experiments have to some degree modified the empirical rules laid down by the Lightning Rod Conference. These experiments have been misunderstood and for a while the idea was prevalent that lightning conductors were useless if not dangerous. On the contrary, probably any conductor is better than none, but few if any conductors constitute an absolute and complete safeguard against lightning. We now understand why there are certain curious vagaries or freaks in the action of lightning. The nature of high potential oscillations is no longer unknown and much that was mystifying in connection with lightning is now perfectly plain. The rules for the erection of lightning conductors, as issued by the Lightning Rod Conference in 1882 with observations thereon by the Lightning Research Committee 1905, follow:

[*Note.*—Paragraphs beginning with odd numbers refer to lightning rod rules 1882; those with even numbers to Lightning Research Committee's observations 1905.]

1. *Points.*—The point of the upper terminal should

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not be sharp, not sharper than a cone of which the height is equal to the radius of its base. But a foot lower down a copper ring should be screwed and soldered on to the upper terminal, in which ring should be fixed three or four sharp copper points, each about 6 inches long. It is desirable that these points be so platinized, gilded, or nickel plated as to resist oxidation.

2. It is not necessary to incur the expense of platinizing, gilding, or electro-plating. It is desirable to have three or more points beside the upper terminal, which can also be pointed; these points must not be attached by screwing alone, and the rod should be solid and not tubular.

3. *Upper Terminals.*—The number of conductors or points to be specified will depend upon the size of the building, the material of which it is constructed, and the comparative height of the several parts. No general rule can be given for this, but the architect must be guided by the directions given. He must, however, bear in mind that even ordinary chimney stacks, when exposed, should be protected by short terminals connected to the nearest rod, inasmuch as accidents often occur owing to the good conducting power of the heated air and soot in the chimney.

4. This is dealt with below in suggestion 3.

5. *Insulators.*—The rod is not to be kept from the building by glass or other insulators, but attached to it by metal fastenings.

6. This regulation stands.

7. *Fixing.*—Rods should preferentially be taken down the side of the building which is most exposed to rain. They should be held firmly, but the holdfast should not be driven in so tightly as to pinch the rod or prevent the contraction and expansion produced by changes of temperature.

8. In most cases it would be advantageous to support the rods by holdfasts (which should be of the same metal as the conductor) in such a manner as to avoid all sharp angles. The vertical rods should be carried a certain distance away from the wall to prevent dirt accumulating and also to do away with the necessity of their being run round projecting masonry or brickwork.

9. *Factory Chimneys.*—These should have a copper band around the top, and stout, sharp copper points, each about one foot long, at intervals of two or three feet throughout the circumference, and the rod should be connected with all bands and metallic masses in or near the chimney. Oxidation of the points must be carefully guarded against.

10. As an alternative, the rods above the band might with advantage be curved into an arch provided with three or four points. It is preferable that there should be two lightning rods from the band carried down to

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earth in the manner previously described. Oxidation of the points does not matter.

11. *Ornamental Ironwork.*—All vanes, finials, ridge ironwork, etc., should be connected with the conductor, and it is not absolutely necessary to use any other point than that afforded by such ornamental ironwork, provided the connection be perfect and the mass of ironwork considerable. As, however, there is a risk of derangement through repairs, it is safer to have an independent upper terminal.

12. Such ironwork should be connected as indicated below in suggestion 3. In the case of a long line of metal ridging a single main vertical rod is not sufficient, but each end of the ridging should be directly connected to earth by a rod. Where the ridge is nonmetallic a horizontal conductor (which need not be of large sectional area) should be run at a short distance above the ridge and be similarly connected to earth.

13. *Material for Rod.*—Copper, weighing not less than 6 ounces per foot run, and the conductivity of which is not less than 90 per cent. of that of pure copper, either in the form of tape or rope of stout wires—no individual wire being less than No. 12 B. W. G. Iron may be used, but should not weigh less than $2\frac{1}{4}$ pounds per foot run.

14. The dimensions given still hold good for main conductors. Subsidiary conductors for connecting metal ridging, etc., to earth may with advantage be of iron and of a smaller gage, such as No. 4 S. W. G. galvanized iron. The conductivity of the copper used is absolutely unimportant, except that high conductivity increases the surges and side flashes, and, therefore, is positively objectionable. It is for that reason that iron is so much better.

15. *Joints.*—Although electricity of high tension will jump across bad joints, they diminish the efficacy of the conductor; therefore every joint, besides being well cleaned, screwed, scarfed, or riveted, should be thoroughly soldered.

16. Joints should be held together mechanically as well as connected electrically, and should be protected from the action of the air, especially in cities.

17. *Protection.*—Copper rods to the height of 10 feet above the ground should be protected from injury and theft by being inclosed in an iron pipe reaching some distance into the ground.

18. This regulation stands.

19. *Painting.*—Iron rods, whether galvanized or not, should be painted; copper ones may be painted or not according to architectural requirements.

20. This regulation stands.

21. *Curvature.*—The rod should not be bent abruptly round sharp corners. In no case should the length of the rod between two points be more than half as long again as the straight line joining them. Where a string course

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or other projecting stonework will admit of it, the rod may be carried straight through, instead of round the projection. In such a case the hole should be large enough to allow the conductor to pass freely, and allow for expansion, etc.

22. The straighter the run the better. Although in some cases it may be necessary to take the rod through the projection, it is better to run outside, keeping it away from the structure by means of holdfasts, as described above.

23. *Extensive Masses of Metal.*—As far as practicable it is desired that the conductor be connected to extensive masses of metal, such as hot-water pipes, etc., both internal and external; but it should be kept away from all soft metal pipes, and from internal gas pipes of every kind. Church bells inside well-protected spires need not be connected.

24. It is advisable to connect church bells and turret clocks with the conductors.

25. *Earth Connections.*—It is essential that the lower extremity of the conductor be buried in permanently damp soil; hence proximity to rain-water pipes, and to drains, is desirable. It is a very good plan to make the conductor bifurcate close below the surface of the ground, and adopt two of the following methods for securing the escape of the lightning into the earth. A strip of copper tape may be led from the bottom of the rod to the nearest gas or water *main*—not merely to a lead pipe—and be soldered to it; or a tape may be soldered to a sheet of copper 3 feet by 3 feet and $\frac{1}{16}$ -inch thick, buried in permanently wet earth, and surrounded by cinders or coke; or many yards of the tape may be laid in a trench filled with coke, taking care that the surfaces of copper are, as in previous cases, not less than 18 square feet. Where iron is used for the rod, a galvanized-iron plate of similar dimensions should be employed.

26. The use of cinders or coke appears to be questionable owing to the chemical or electrolytic effect on copper or iron. Charcoal or pulverized carbon (such as ends of arc-light rods) is better. A tubular earth consisting of a perforated steel spike driven tightly into moist ground and lengthened up to the surface, the conductor reaching to the bottom and being packed with granulated charcoal, gives as much effective area as a plate of larger surface, and can easily be kept moist by connecting it to the nearest rain-water pipe. The resistance of a tubular earth on this plan should be very low and practically constant.

27. *Inspection.*—Before giving his final certificate the architect should have the conductor satisfactorily examined and tested by a qualified person, as injury to it often occurs up to the latest period of the work from accidental causes and often from carelessness of work-

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men. Joints in a series of conductors should be as few as possible.

The committee further suggests: (1) Two main lightning rods, one on each side, should be provided, extending from the 'top of each tower,' spire or high chimney stack, by the most direct route to earth. (2) Horizontal conductors should connect all the vertical rods along the ridge, or any suitable position on the roof and at or near the ground. (3) The upper horizontal conductor should be fitted with aigrettes or points at intervals of 20 or 30 feet. (4) Short vertical rods should be erected along minor pinnacles and connected with the upper horizontal conductor. (5) All roof metals, such as finials, ridging, rain water, and ventilating pipes, metal cowls, lead flashings, gutters, etc., should be connected to the horizontal conductors. (6) All large masses of metal in the building should be connected to earth, either directly or by means of the lower horizontal conductor. (7) Where roofs are partially or wholly metal lined, they should be connected to earth by means of vertical rods at several points. (8) Gas pipes should be kept as far away as possible from the positions occupied by lightning conductors, and as an additional protection the service mains to the gas meter should be metallically connected with house services leading from the meter.

In the *Bulletin upon Protection from Lightning*, issued by the United States Weather Bureau, McAdie points out that lightning does not follow the path of least resistance, *i.e.*, least ohmic resistance. In nearly all treatises upon lightning, this has been assumed to be the case. The path will be determined largely by the character of the discharge.

Any part of a building may be struck, whether there is a rod on it or not. However, the great majority of flashes in temperate latitudes are not so intense but that a good lightning rod, well earthed, will make the most natural path.

Lightning does sometimes strike twice in the same place. Whoever studies the effects of lightning's action, especially severe cases, is almost tempted to remark that there is often but little left for the lightning to strike. No good reason is known why a place that has once been struck may not be struck again. There are many cases on record supporting the assertion.

As lightning often falls indiscriminately upon tree, rock, or building, it will make but little difference sometimes whether trees are higher than adjoining buildings.

It is not judicious to stand under trees during thunderstorms, in the doorway of barns, close to cattle, or near chimneys and fireplaces. On the other hand, there is not much sense in going to bed or trying to insulate one's self in feather beds. Small articles of steel also do not have the power to *attract* lightning, as it is popularly put, or determine the path of discharge.

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Unnecessary alarm. Just in advance of thunderstorms, whether because of the varying electrical potential of the air or of the changing conditions of temperature, humidity, and pressure, and failure of the nervous organization to respond quickly, or to whatever cause it may be due, it cannot be denied that there is much suffering from depression, etc., at these times. It is, perhaps, possible that these sufferings may be alleviated. Apart from this, many people suffer greatly from alarm during the prevalence of thunderstorms, somewhat unnecessarily, we think. Grant even that the lightning is going to strike close in your vicinity. There are many flashes that are of less intensity than we imagine, discharges that the human body could withstand without permanent serious effects. Voltaire's caustic witticism that 'there are some great lords which it does not do to approach too closely, and lightning is one of these,' needs a little revision in these days of high potential oscillatory currents. Indeed, the other saying, 'Heaven has more thunders to alarm than thunders to punish,' has just so much more point to it, as it is nearer the truth. One who lives to see the lightning flash need not concern himself much about the possibility of personal injury from that flash.

Finally, if you should be in the vicinity of a person who has just been struck by lightning, no matter if the person struck appears to be dead, go to work at once and try to restore consciousness. There are many cases on record proving the wisdom of this course; and there is reason for believing that *lightning often brings about suspended animation rather than somatic death. Try to stimulate the respiration and circulation. Do not cease in the effort to restore animation in less than one hour's time.* For an excellent illustration of a case of severe lightning shock and recovery, due, it would seem, to prompt action by the medical gentlemen present, all who are interested may consult the *Medical News*, 1888, Aug. 11. A number of cases corroborative of this view are on record in various medical journals.

No matter what method for respiration you use, it is important to maintain the warmth of the body by the application of hot flannels, bottles of hot water, hot bricks, warm clothing taken from bystanders, etc.

Firmly and energetically rub the limbs upward, so as to force the blood to the heart and brain. If an assistant is present let him attend to this. Remember above all things that nothing must interrupt your efforts to restore breathing.

When swallowing is established a teaspoonful of warm water, wine, diluted whisky, or warm coffee should be given. Sleep should be encouraged. In brief:

1. Make the subject breathe by artificially imitating the respiratory movements of the chest.
2. Keep body warm.

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3. Send for a physician.

Of the visible effects of lightning stroke upon the human body little more can be said than that sometimes burns, usually superficial, have been noticed, frequently red lines and markings, which are localized congestions of the small blood vessels of the skin. These, from their irregularities and branchings, have led to the fanciful idea of photographs of trees, etc.

In conclusion it may be said that lightning frequently causes a temporary paralysis of the respiration and heart beat which, if left alone, will deepen into death, but, intelligently treated, will generally result in recovery.

Lightning Arresters.—Extensive light and power plants must be guarded with great thoroughness. Cables and telegraph lines have for years been provided with various forms of lightning arresters, but only in the past few years has the action of lightning been studied with some degree of success. The chief function of all of the old-style lightning arresters has been to sidetrack the flash, switching it out of the main circuit and leading it as quickly as possible to earth. Cable, telephone, and telegraph line protection have been systematically studied of late years by Prof. Oliver L. Lodge and others. In Lodge's excellent book upon lightning conductors and lightning guards the theory of lightning arresters is given at length. Satisfactory apparatus has been devised upon sound scientific principles for the protection of the delicate galvanometers and other instruments employed on cable, telephone, and telegraph lines. The principle applied may be stated in general terms to be 'a succession of air-gap paths to earth, connected up by coils of well insulated wire, across the turns of which the lightning, weakened as it is by the first air gap to earth, is not able to leap.'

In protecting electric light and power plants, there is the further and very important question of preventing the formation of an arc across the air gaps or at any point on the circuit, thus short-circuiting these heavy currents. Many devices exist for automatically rupturing the dynamo arc thus formed. Some have many points of excellence, but the ideal protector must not only give a proper spark gap and also rupture any arc that may form, but, better still, should be so designed as to prevent the formation of an arc.

LIGHTS, USE OF, IN PUBLIC WORSHIP: a practice in the Jewish religion (Ex. xxv. 31-39), and in most of the old Pagan religions, and which is retained in the Roman and the Oriental churches. The use of lights in the night-services, and in subterranean churches, such as those of the early Christians in the catacombs, is easily intelligible; but the practice, as bearing also a symbolical allusion to the 'Light of the World' and to the 'Light of Faith,' was not confined to occasions of necessity, but was from about the beginning of the 4th c.

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sometimes attached to services in honor of martyrs, and from the beginning of the 5th c. became an occasional, later a usual, accompaniment of Christian worship, especially in connection with the sacramental observance of baptism and the eucharist. The origin of the use of lights in Christian worship was doubtless in the conditions of the church for its first 300 years—exposed to persecution, compelled to secrecy, not allowed to use the light of day, but taking refuge in underground places or within the veil of night. The practice thus became hallowed to the thought of later ages. Later ages also, being times of prosperity and splendor, witnessed a reflux tide of the ancient paganism in elaborate ceremonial. This was in spite of Tertullian's ridiculing (A.D. 205) the heathen folly of 'exposing useless candles at noon-day' (*Apol.* xlvi.; see also xxxv. and *De Idolol.* xv.); and in spite of Lactantius, A.D. 303, who testifies against the practice as heathenism (*Instit.* vi. 2), and of Gregory Nazianzen to the same purport, abt. A.D. 375 (*Orat.* v. § 35). The time of the service in which lights are used has varied much in different ages. St. Jerome speaks of it only during the reading of the gospel; Amalarius, from the beginning of the mass till the end of the gospel; Isidore of Seville, from the gospel to the end of the canon; and eventually it was extended to the entire time of the mass. In other services, also, lights have been used from an early period. Lighted tapers were placed in the hand of the newly baptized, which St. Gregory Nazianzen interprets as emblems of future glory. Indeed, in the Rom. Cath. Church, the most profuse use of lights is reserved for the services connected with baptism. For the usage of blessing the Paschal Light, see HOLY WEEK. The material used for lights in churches is either oil or wax; the latter in penitential time, and in services for the dead, being of a yellow color. In the Anglican Church, candlesticks, and in some instances candles themselves, are retained in many churches, on the communion table, but they are not lighted. The retention of them is greatly favored by the 'High Church' party, and much disapproved by the 'Low Church' or 'Evangelical' party. In the Congl. and Presb. churches of Britain, America, etc., and usually in all except prelatical churches, symbolical use of lights and candlesticks is rejected as either superstitious or of dangerous tendency.

LIGHT SENSATION. See COLOR SENSATION.

LIGHTSOME, a. *līt'sŭm* [*light*, and *some* (see LIGHT 2)]: not dark; gay; cheerful; airy. LIGHT'SOMELY, ad. *-lī*. LIGHT'SOMENESS, n. *-nēs*, quality of being light; cheerfulness.

LIGHT-YEAR, in Astronomy: term used to denote the distance that light can travel in a year; taken as the unit in measuring the distances of the fixed stars. It

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amounts to about 63,500 times the distance between the earth and the sun; = in round numbers 5,894,000,000,000 miles.

LIGN-ALOES, n. *lĭn-ăl'ōz*, or *lĭg-năl'ōz* [L. *lignum*, wood, and Eng. *aloes*]: aloes-wood, an Indian tree whose wood is fragrant and yields an aromatic perfume; the *Aquilāriă ovātă*, and *Aquilāriă Agal'lochum*, ord. *Aquil-ariăcĕx*; also called eagle-wood.

LIGNEOUS, a. *lĭg'nĕ-ŭs* [L. *lĭg'nĕŭs*, of or pertaining to wood—from *lignum*, wood: It. *lignco*]: woody; made of wood; resembling wood. LIGNINE, n. *lĭg'nĭn*, pure woody fibre; in *bot.*, woody matter which thickens the cell-walls, constituting the essential part of the structure of plants. LIGNITE, n. *lĭg'nĭt*, wood-coal; or fossil wood imperfectly mineralized, and retaining its original form and structure much more completely than the truly mineral *coals*, and therefore not improperly described as intermediate between peat and coal. (See COAL). *Brown coal*, *Surturbrand*, and *Jet*, are generally regarded as varieties of lignite. It is of very variable composition, and has wide distribution. In Colorado and Wyoming its beds occupy not less than 50,000 sq. m., and are extensively mined; there are large deposits also in New Mexico, Utah, Nevada, California, Oregon, and Alaska. The fossil plants of lignite are always terrestrial; palms and coniferous trees are among them. Remains of terrestrial mammalia also are found in it. LIGNITIC, a. *lĭg-nĭt'ĭk*, containing or resembling lignite. *Note.*—The following four substances are said to be deposited in the tissues of plants in the course of their growth—viz., (1) LIGNOSE, *lĭg'nōs*, soluble in potash and soda; (2) LIGNONE, *lĭg'nōn*, soluble in ammonia, potash, and soda; (3) LIGNIREOSE, *lĭg-nĕr'ĕ-ōs*, soluble in alcohol, ether, ammonia, soda, and potash; (4) LIGNINE, *lĭg'nĭn*, the incrusting matter contained within the cellular tissue, which gives hardness to wood. Like cellulose, of which the cellular tissue is composed, it is insoluble in water, alcohol, ether, and dilute acids, and its chief chemical characteristic is, that it is more readily soluble in alkaline liquids than cellulose. Its exact composition is uncertain, but it is known to consist of carbon, hydrogen, and oxygen, and to differ in its composition from cellulose in containing a greater percentage of hydrogen than is necessary to form water with its oxygen. When submitted to destructive distillation, it yields acetic acid; and that it is the source of the pyroligneous acid (which is merely crude acetic acid) obtained by the destructive distillation of wood, is proved by the fact, that the hardest woods (those which contain the greatest proportion of lignine) yield the largest amount of acid. Lignine is identical with the *matière incrustante* of Payen and other French botanists.

LIGNIFEROUS, a. *lĭg-nĭf'ĕr-ŭs* [L. *lignum*, wood; *fero*, I bear]: yielding or producing wood.

LIGNIFORM—LIGNUM-VITÆ.

LIGNIFORM, a. *lĭg'nĭ-fawrm* [L. *lignum*, wood; *forma*, shape]: resembling wood.

LIGNIFY, v. *lĭg'nĭ-fĭ* [L. *lignum*, wood; *fĭō*, I am made]: to convert into wood; to become wood or woody. LIG'NIFYING, imp. LIG'NIFIED, pp. *-fĭd*. LIG'NIFICA'TION, n. *-kā'shŭn*, the process of converting into wood.

LIGNIPERDOUS, a. *lĭg'nĭ-pĕr'dŭs* [L. *lignum*, wood; *perdĕrĕ*, to destroy]: a name applied to insects which destroy wood.

LIGNITIFEROUS, a. *lĭg'nĭ-tĭf'ĕr-ŭs* [Eng. *lignite*, and L. *fero*, I bear or yield]: in *geol.*, applied to strata or formations which contain beds of lignite or brown coal.

LIGNUM RHODIUM, *lĭg'nŭm rō'dĭ-ŭm*: kind of wood which occurs as an article of commerce, having a pleasant smell, resembling the smell of roses. It is brought to Europe in strong, thick, and rather heavy pieces, cylindrical but knotty, and sometimes split. They are externally covered with a cracked gray bark; internally, they are yellowish, and often reddish in the heart. They have an aromatic bitterish taste, and, when rubbed, emit an agreeable rose-like smell. This wood comes from the Canary Islands, and is produced by two shrubby and erect species of *Convolvulus*, with small leaves, *C. scoparius* and *C. floridus*. It is the wood both of the root and of the stem, but the latter is rather inferior. An essential oil (*Oil of Lignum Rhodium*), having a strong smell, is obtained from it by distillation, and is used for salves, embrocations, etc., and also very frequently for adulteration of oil of roses.—Beside this Lignum Rhodium of the Canary Islands, an American Lignum Rhodium is a common article of commerce; it is produced by the *Amyris balsamifera*, native of Jamaica, and yields an essential oil, very similar to the former. The Lignum Rhodium of the Levant, now scarcely seen in commerce, is the produce of *Liquidambar Orientale*: from this the name Lignum Rhodium has been transferred to the other kinds.

LIGNUM-VITÆ, n. *lĭg'nŭm-vĭ'tĕ* [L. *lignum*, wood; *vitæ*, of life]: wood of *Guaiacum officinale* (nat. ord. *Zygophyllaceæ*), and probably of some other species, natives of Jamaica and St. Domingo. The hardness and exceeding toughness of this very useful wood was shown by Prof. Voigt to depend on a very peculiar interlacing of the fibres. The heart-wood, the part used, is very dense and heavy, of a dark, greenish-brown color, rarely more than 8 inches in diameter; the stem itself seldom reaches 18 inches in diameter, and grows to the height of about 30 ft. The wood is much valued for making the wheels of pulleys and other small articles in which hardness and toughness are required; large quantities are consumed in making the sheaves (see PULLEY) of ships' blocks. Besides these uses, the wood, reduced to fine shavings or raspings, the bark, also a greenish resin

LIGNY—LIGUORI.

which exudes from the stem, are much used in medicine, being regarded as having powerful anti-syphilitic and anti-rheumatic properties. See *GUAIAACUM*.

LIGNY, *lĕn-yĕ'*: village in Belgium, province of Namur, about 10 m. n.e. of Charleroi, famous for the battle between the French under Napoleon, and the Prussians under Blücher, 1815, June 16, the same day on which the French, under Marshal Ney, were engaged with the British under Wellington, at Quatre-Bras. Napoleon had formed a plan for overpowering his antagonists in detail ere they could concentrate their forces; and contrary to the expectations both of Wellington and of Blücher, began by assailing the Prussians. The battle took place in the afternoon. The possession of the villages of Ligny and St. Amand was hotly contested; but the Prussians were at last compelled to give way. The Prussians lost in this battle 12,000 men and 21 cannon; the French 7,000 men. A mistake prevented a corps of the French army, under Erlon, from taking the part assigned to it in the battle, and led to Ney's encountering the Belgians and British at Quatre-Bras (q.v.), instead of uniting his forces with those engaged against the Prussians at Ligny.

LIGULATE, a. *lĭg'ū-lāt*, or **LIG'ULATED**, a. *-lā-tĕd* [L. *ligūla*, a strap—from *lingua*, a tongue]: like a bandage or strap; in *bot.*, denoting a corolla of one petal split on one side, and spread out in the form of a tongue or strap, toothed at the extremity; a form of corolla very common in the *Compositæ*, appearing in all the florets of some, as the dandelion, and in the florets of only the *ray* of others, as the daisy and aster: the term, however, is of general application. **LIGULE**, *lĭg'ūl*, a tie; in *grasses*, a flat outgrowth from the leaf where the lamina or blade joins the sheath; also **LIG'ULA**. See *GRASS*.

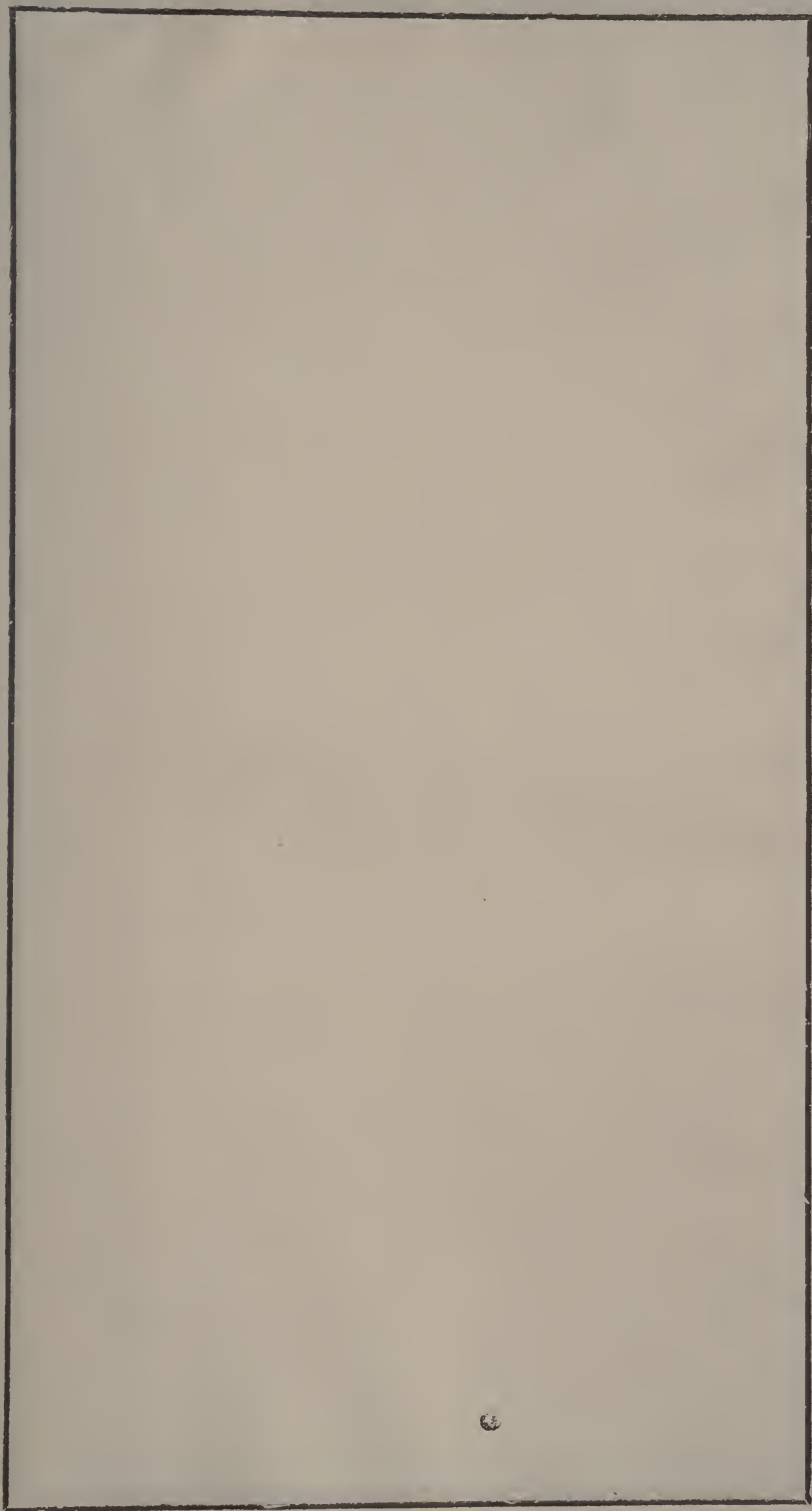
LIGUORI, *lĕ-gó-ō'rĕ* or *lĕ-gwō'rĕ*, **ALFONZO MARIA DE'**: Saint and Doctor of the Rom. Cath. Church, and founder of the order of Liguorians or Redemptorists: 1696, Sep. 27—1787, Aug. 1; b. Naples, of noble family. He entered the profession of law, which he suddenly relinquished to devote himself to a religious life. He received priest's orders 1725; and 1732, with 12 companions, founded the association called by his name: see **LIGURIANS**. In 1762, having some years before refused the archbishopric of Palermo, he was appointed bishop of the small diocese Sant' Agata dei Goti, in the kingdom of Naples, and his life as a bishop is confessed by Prot. as well as Rom. Cath. historians to have been a model of the pastoral character; but feeling the pressure of years, he resigned his see 1775, returned to his order, and lived 12 years longer in the same simple austerity which had characterized his early life. He died at Nocera dei Pagani, and was solemnly canonized 52 years later. Liguori is one of the most voluminous and most

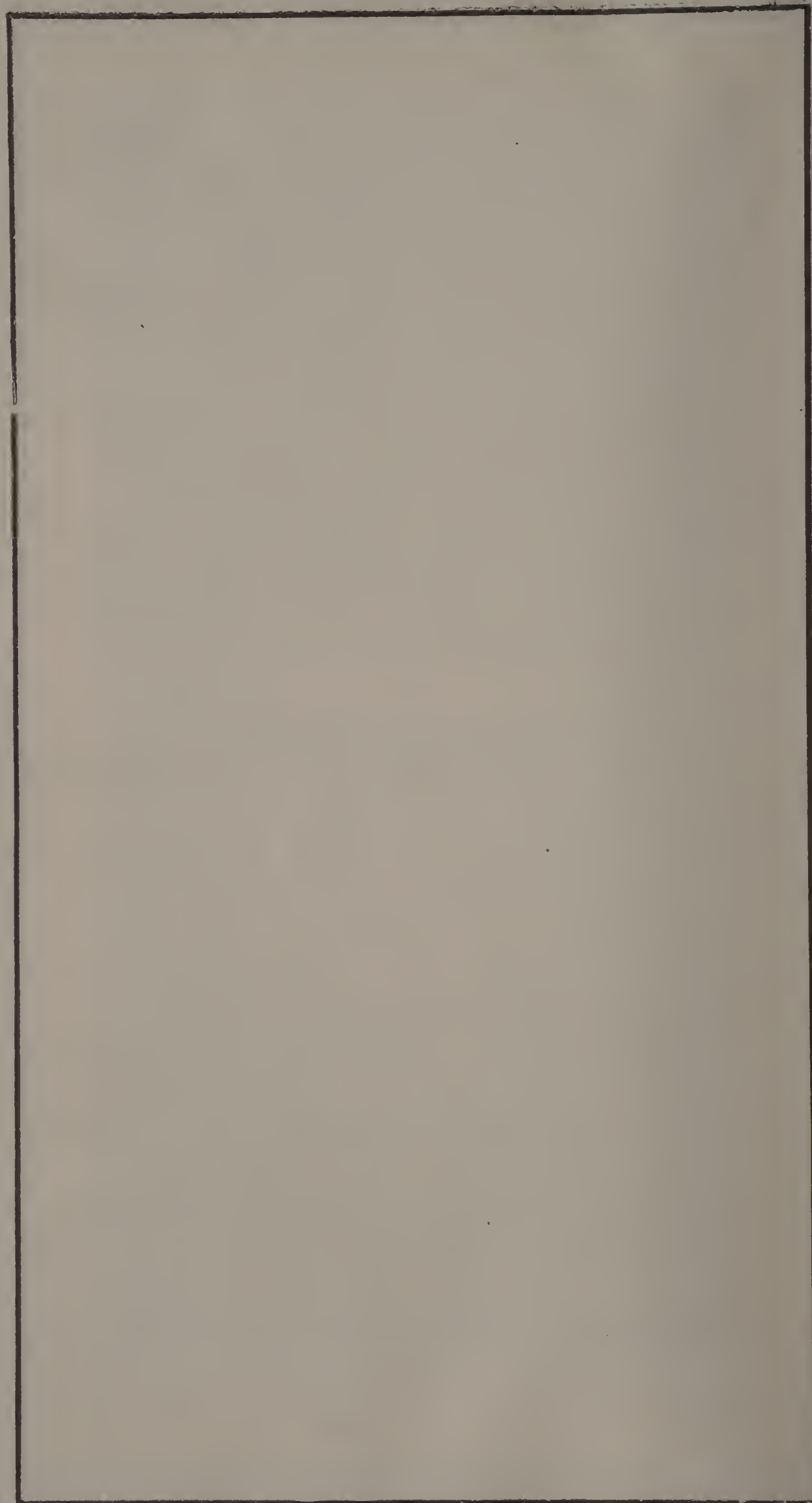
LIGUORIANS—LIGURE.

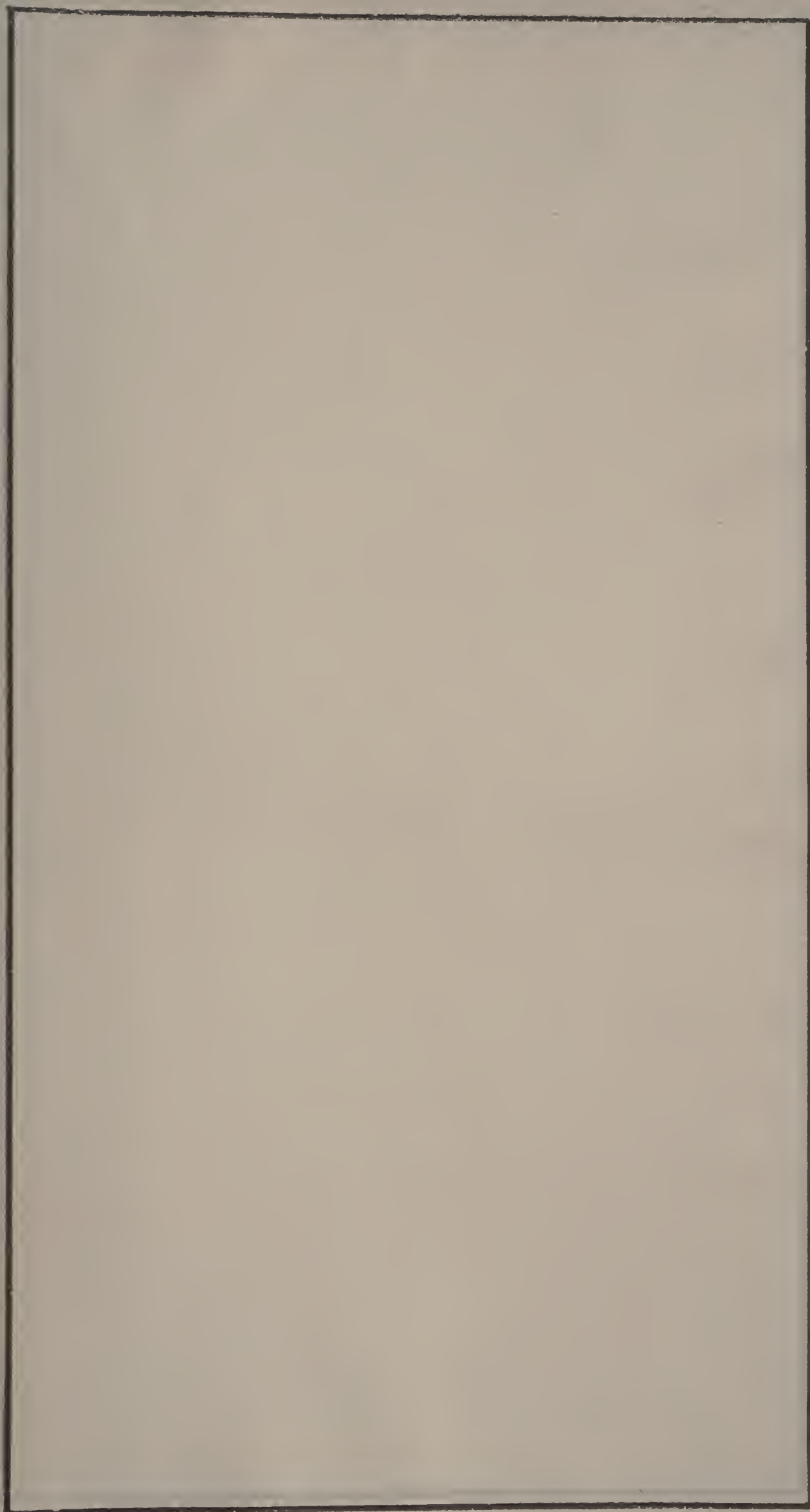
popular of modern Rom. Cath. theological writers. His works, 70 vols. 8vo., embrace almost every department of theological learning, divinity, casuistry, exegesis, history, canon law, hagiography, asceticism, and even poetry. His correspondence also is voluminous, but is almost entirely on spiritual subjects. The principles of casuistry explained by Liguori have been received with much favor in the modern Roman schools; his works have been officially sanctioned and commended; and in the Latin Church his moral theology, a modification of the so-called 'probabilistic system' of the age immediately before his own, is largely used in the direction of consciences, being indeed the accredited system: see **PROBABILISM**. Exceptions have been taken to certain portions of it on the score of morality, whether in reference to the virtue of chastity or to that of justice and of veracity. These objections apply equally to most of the casuists, and have often been the subject of controversy. Liguori's *Theologia Moralis* (8 vols. 8vo.) have been reprinted numberless times, as also most of his ascetic works. The most complete ed. of his works (Italian and Latin) is that of Monza, 70 vols. They have been translated entire into French and German, and in great part into English, Spanish, Polish, and other European languages.

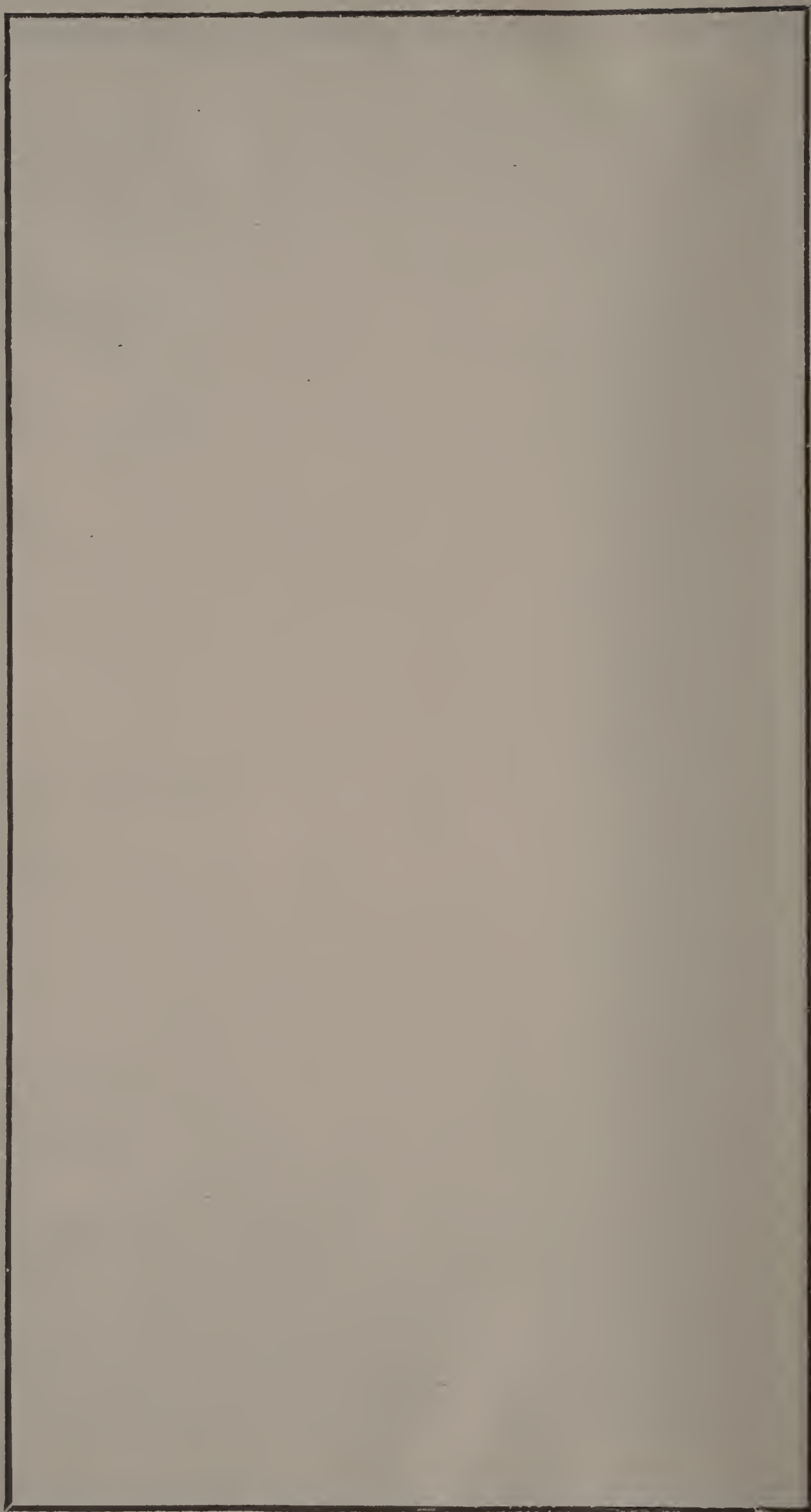
LIGUORIANS, *lĭg-ŭ-ō'rĭ-anz*, called also **REDEMP-TORISTS**: congregation of missionary priests founded by Liguori 1732, and approved by Pope Benedict XIV. 1759. Their object is the religious instruction of the people and the reform of public morality, by periodically visiting, preaching, and hearing confessions, with the consent and under the direction of the parish clergy. Their instructions are ordered to be of the plainest and most simple character, and their ministrations are entirely without pomp or ceremonial. The congregation was founded originally in Naples, but it extended to Germany and Switzerland. In the Austrian provinces they had several houses, and were by some represented as establishments of the suppressed Jesuits under another name; but the constitution and the objects of the two orders were entirely different. Since the Restoration, and especially since the revolution of 1830, the Liguorians have effected an entrance into France, and several houses of the congregation have been founded in England, Ireland, and America; but their place is in great measure occupied by the more active congregation of the Lazarist or Vincentian Fathers, whose objects are substantially the same, and who are much more widely spread. See **PAUL, VINCENT DE**; **VINCENTIAN CONGREGATION**.

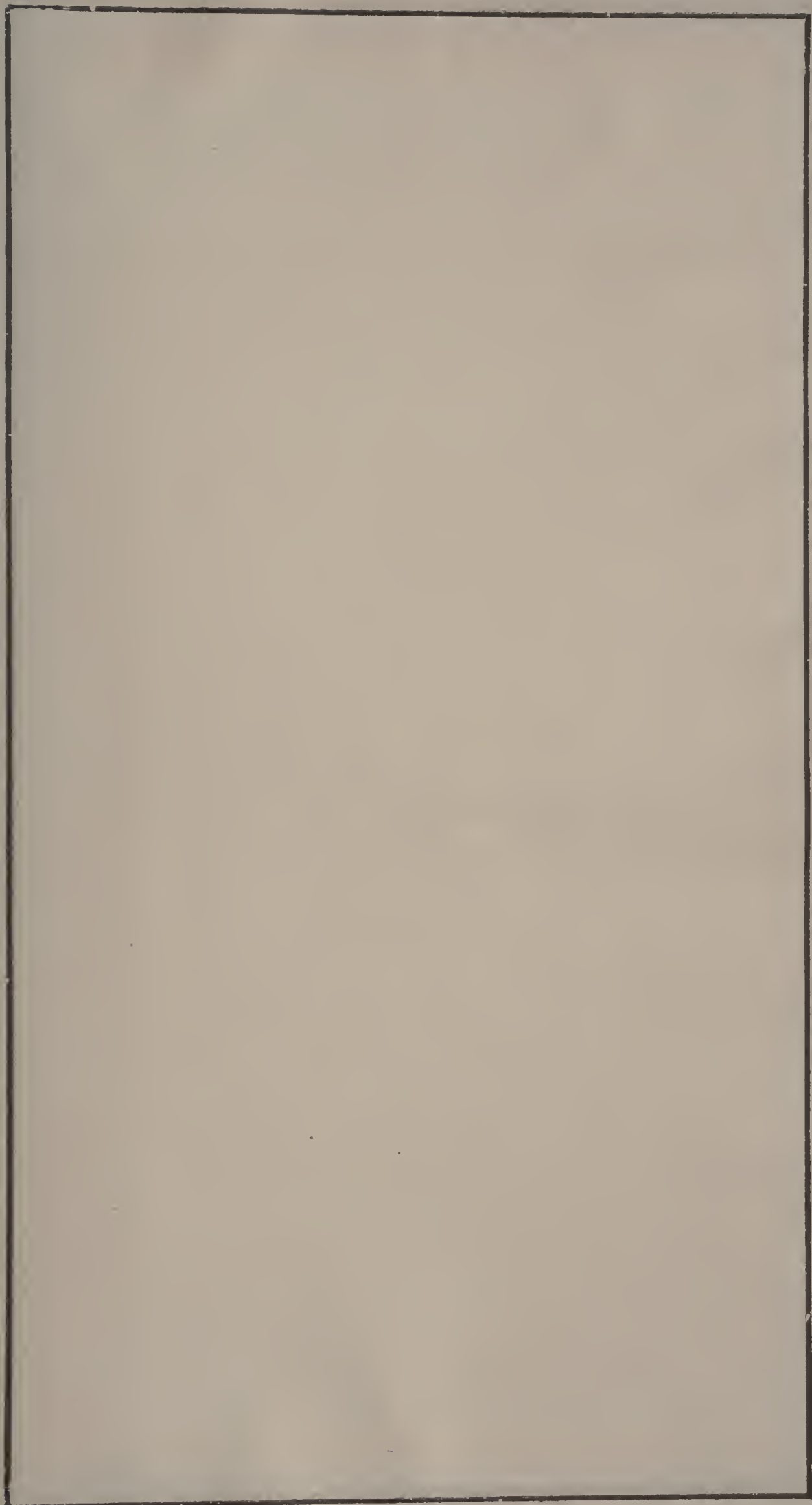
LIGURE, n. *lĭg'ŭr* or *lĭ'gŭr* [Gr. *ligu'rĭōn*, a species of amber]: a precious stone mentioned in Exodus xxviii. 19---supposed by some to be the jacinth or hyacinth.









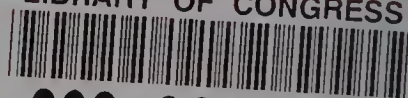




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