

McGraw-Hill Dictionary of Scientific and Technical Terms

Fifth Edition

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Editor in Chief

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On the cover: Photomicrograph of crystals of vitamin B₁.
(Dennis Kunkel, University of Hawaii)

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McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, Fifth Edition

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ISBN 0-07-042333-4

Library of Congress Cataloging-in-Publication Data

McGraw-Hill dictionary of scientific and technical terms /

Sybil P. Parker, editor in chief.—5th ed.

p. cm.

ISBN 0-07-042333-4

1. Science—Dictionaries. 2. Technology—Dictionaries.

I. Parker, Sybil P.

Q123.M34 1993

503—dc20

93-34772

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INTERNATIONAL EDITION

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drill jig [MECH ENG] A device fastened to the work in repetition drilling to position and guide the drill. { 'dril ,jig }

drill jumbo [MIN ENG] A mobile carriage or platform fitted with mechanical arms upon which several drilling machines are mounted. { 'dril ,jəm'bō }

drill log [ENG] 1. A record of the events and features of the formations penetrated during boring. Also known as boring log. 2. A record of all occurrences during drilling that might help in a complete logging of the hole or in determining the cost of the drilling. { 'dril ,lɒg }

drill out [ENG] 1. To complete one or more boreholes. 2. To penetrate or remove a borehole obstruction. 3. To locate and delineate the area of a subsurface ore body or of petroleum by a series of boreholes. { 'dril ,aʊt }

drill-over [ENG] The act or process of drilling around a casing lodged in a borehole. { 'dril ,ōvər }

drill pipe [MIN ENG] A pipe used for driving a revolving drill bit, used especially in drilling wells; consists of a casing within which tubing is run to conduct oil or gas to ground level; drilling mud flows in the annular space between casing and tubing during the drilling operation. { 'dril ,pīp }

drill point gage See drill grinding gage. { 'dril ,pɔɪnt ,gæj }

drill press [MECH ENG] A drilling machine in which a vertical drill moves into the work, which is stationary. { 'dril ,pres }

drill rod [ENG] The long rod that drives the drill bit in drilling boreholes. { 'dril ,rɒd }

drill runner [MIN ENG] A tunnel miner who operates rock drills. { 'dril ,rənər }

drill sleeve [ENG] A tapered, hollow steel shaft designed to fit the tapered shank of a cutting tool to adapt it to the drill press spindle. { 'dril ,slēv }

drill socket [ENG] An adapter to fit a tapered shank drill to a taper hole that is larger than that in the drill press spindle. { 'dril ,sɒkət }

drill steel [MET] Steel with at least 0.85% carbon content made by the electric furnace process. Formerly known as crucible steel, when made by the crucible process. { 'dril ,stēl }

drill stem See bent sub. { 'dril ,stem }

drill-stem test [PETRO ENG] Bottom-hole pressure information obtained and used to determine formation productivity. { 'dril ,stem ,test }

drill string [MECH ENG] The assemblage of drill rods, core barrel, and bit, or of drill rods, drill collars, and bit in a borehole, which is connected to and rotated by the drill collar of the borehole. { 'dril ,striŋ }

drill weave [TEXT] Special fabric sometimes used in filtration; a three-harness, warp-face twill weave, having the two-up and one-down twill effect. { 'dril ,wēv }

Drlonematoidea [INV ZOO] A superfamily of parasitic nematodes in the subclass Spiruria. { 'dril'ō,nem-ə'toid-ē-ə }

drip [ARCH] See hoodmold. [HYD] Condensed or otherwise collected moisture falling from leaves, twigs, and so forth. [MATER] 1. Oil which comes through the cloth of a paraffin wax press. 2. Filter drainings too dark to be included in filter stock. [PETRO ENG] A discharge mechanism installed at a low point in a gas transmission line to collect and remove liquid accumulations. Also known as blowcase. { drip }

drip cap [BUILD] A horizontal molding installed over the frame for a door or window to direct water away from the frame. { 'drip ,kæp }

drip-dry [TEXT] Of a fabric, shedding water or moisture rapidly without squeezing, spinning, or wringing. { 'drip ,dri }

drip edge [BUILD] A metal strip that extends beyond the other parts of the roof and is used to direct rainwater off. { 'drip ,ej }

dripping drop atomization [HYD] A type of natural gravitational atomization process in which there is periodic emission of drops from the bottom side of a surface to which a liquid is fed continuously, as in dripping of water from leaves. { 'drip-ɪŋ ,dräp ,əd-ə'mə'zä'shən }

dripstone [GEOL] A cave feature, such as a stalagmite, which is formed by precipitation of calcium carbonate or another mineral from dripping water. { 'drip ,stōn }

drive [ELECTR] See excitation. [MECH ENG] The means by which a machine is given motion or power (as in steam drive, diesel-electric drive), or by which power is transferred from one part of a machine to another (as in gear drive, belt drive). [MIN ENG] 1. To excavate in a horizontal or inclined plane. 2. A horizontal underground tunnel along or parallel to a lode, vein,

or ore body. [PSYCH] A strong impetus to behavior or active striving. { 'driv }

drive chuck [MECH ENG] A mechanism at the lower end of a diamond-drill drive rod on the swivel head by means of which the motion of the drive rod can be transmitted to the drill string. { 'driv ,çʌk }

drive control See horizontal drive control. { 'driv kən'trɒl }

drive fit [DES ENG] A fit in which the larger (male) part is pressed into a smaller (female) part; the assembly must be effected through the application of an external force. { 'driv ,fit }

drivehead [ENG] A cap fitted over the end of a mechanical part to protect it while it is being driven. { 'driv ,hed }

driveless workstation [COMPUT SCI] A computer or terminal in a local area network that does not have its own disk drives and relies on a central mass storage facility for information storage. { 'driv-ləs 'wɜ:k,stə'shən }

drive light [COMPUT SCI] A lamp on the front of a disk drive that lights to indicate when the unit is reading or writing data. { 'driv ,li:t }

driveline [MECH ENG] In an automotive vehicle, the group of parts, including the universal joint and the drive shaft, that connect the transmission with the driving wheels. { 'driv ,li:n }

driven array [ELECTROMAG] An antenna array consisting of a number of driven elements, usually half-wave dipoles, fed in phase or out of phase from a common source. { 'driv-ən ə'rei }

driven blocking oscillator See monostable blocking oscillator. { 'driv-ən 'blɒk-ɪŋ 'ɔ:s-ə,ləd-ər }

driven caisson [CIV ENG] A caisson formed by driving a cylindrical steel shell into the ground with a pile-driving hammer and then placing concrete inside; the shell may be removed when concrete sets. { 'driv-ən 'kæ,sən }

driven element [ELECTROMAG] An antenna element that is directly connected to the transmission line. { 'driv-ən 'el-ə-mənt }

driven gear [MECH ENG] The member of a pair of gears to which motion and power are transmitted by the other. { 'driv-ən 'gɜ:r }

driven snow [METEOROL] Snow which has been moved by wind and collected into snowdrifts. { 'driv-ən 'snō }

drive pattern [COMMUN] In a facsimile system, undesired pattern of density variations caused by periodic errors in the position of the recording spot. { 'driv ,pæd-əm }

drivepipe [ENG] A thick-walled casing pipe that is driven through overburden or into a deep drill hole to prevent caving. { 'driv ,pīp }

drive pulley [MECH ENG] The pulley that drives a conveyor belt. { 'driv ,pʊlē }

drive pulse [ELECTR] An electrical pulse which induces a magnetizing force in an element of a magnetic core storage, reversing the polarity of the core. { 'driv ,pʊls }

driver [COMPUT SCI] A sequence of program instructions that controls an input/output device such as a tape drive or disk drive. [ELECTR] The amplifier stage preceding the output stage in a receiver or transmitter. [ENG ACOUS] The portion of a horn loudspeaker that converts electrical energy into acoustical energy and feeds the acoustical energy to the small end of the horn. { 'driv-ər }

driver element [ELECTROMAG] Antenna array element that receives power directly from the transmitter. { 'driv-ər ,el-ə-mənt }

drive rod [ENG] Hollow shaft in the swivel head of a diamond-drill machine through which energy is transmitted from the drill motor to the drill string. Also known as drive spindle. { 'driv ,rɒd }

driver sweep [ELECTR] Sweep triggered only by an incoming signal or trigger. { 'driv-ər ,swēp }

driver transformer [ELECTR] A transformer in the input circuit of an amplifier, especially in the transmitter. { 'driv-ər tranz'fɔrmər }

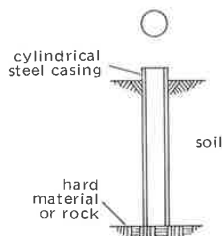
drive sampling [ENG] The act or process of driving a tubular device into soft rock material for obtaining dry samples. { 'driv ,sæmplɪŋ }

drivescrew [DES ENG] A screw that is driven all the way in, or nearly all the way in, with a hammer. { 'driv ,skrū }

drive shaft [MECH ENG] A shaft which transmits power from a motor or engine to the rest of a machine. { 'driv ,shaft }

drive shoe [DES ENG] A sharp-edged steel sleeve attached to the bottom of a drivepipe or casing to act as a cutting edge and protector. { 'driv ,shū }

DRIVEN CAISSON



Driven caisson, top view and cross-section from the side.

leum or other oils (with or without additives) used to lessen friction between moving surfaces. Also known as lube oil. { 'lū-brə,kād-ŋ,ōil }

lubrication action [MATER] The ability of the lubricant to maintain a fluid film between solid surfaces and to prevent their physical contact. { 'lū-brə'kā-shən,ak-shən }

lubricator [ENG] A device for applying a lubricant. { 'lū-brə,kād-ər }

lubricity [MATER] The ability of a material to lubricate. { 'lū-bris-əd-ē }

Lucanidae [INV ZOO] The stag beetles, a cosmopolitan family of coleopteran insects in the superfamily Scarabaeoidea. { 'lū'kan-ə,dē }

Lucas number [MATH] A number in the Fibonacci sequence whose first two terms are $L_1 = 1$ and $L_2 = 3$. { 'lū-kəs,nəm-bər }

lucca oil See olive oil. { 'lū-kə,ōil }

lucerne See alfalfa. { 'lū'sərn }

Lucibacterium [MICROBIO] A genus of light-emitting bacteria in the family Vibrionaceae; motile, asporogenous rods with peritrichous flagella. { 'lū-si,bak'tir-ē-əm }

luciferase [BIOCHEM] An enzyme that catalyzes the oxidation of luciferin. { 'lū'sif-ə,rās }

luciferin [BIOCHEM] A species-specific pigment in many luminous organisms that emits heatless light when combined with oxygen. { 'lū'sif-ər-ən }

Luciocephalidae [VERT ZOO] A family of fresh-water fishes in the suborder Anabantoidae. { 'lū-sē-ō-sə'fal-ə,dē }

Luckiesh-Moss visibility meter [ENG] A type of photometer that consists of two variable-density filters (one for each eye) that are adjusted so that an object seen through them is just barely discernible; the reduction in visibility produced by the filters is read on a scale of relative visibility related to a standard task. { 'lū'kēsh'mōs,viz-ə'bīl-əd-ē,mēd-ər }

Lüders' lines [MET] Surface markings on a metal caused by flow of the material strained beyond its elastic limit. Also known as deformation bands; Hartmann lines; Lüders' bands; Piobert lines; stretcher strains. { 'lūd-ərz,līnz }

Ludian [GEOL] A European stage of geologic time in the uppermost Eocene, above the Bartonian and below the Tongrian of the Oligocene. { 'lū-dē-ən }

ludlamite [MINERAL] $(\text{Fe,Mg,Mn})_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ A green mineral crystallizing in the monoclinic system and occurring in small, transparent crystals. { 'lūd-lə,mīt }

Ludlovian [GEOL] A European stage of geologic time; Upper Silurian, below Gedinian of Devonian, above Wenlockian. { 'lūd'lō-vē-ən }

ludwigite [MINERAL] $(\text{Mg,Fe})_2\text{FeBO}_3$ Blackish-green mineral that crystallizes in the monoclinic system and occurs in fibrous masses; isomorphous with ronsenite. { 'lūd,wī,gīt }

Ludwig's angina [MED] Acute streptococcal cellulitis of the floor of the mouth. { 'lūd,wīgz'anj-ə-nə }

Ludwig-Soret effect [THERMO] A phenomenon in which a temperature gradient in a mixture of substances gives rise to a concentration gradient. { 'lūd,wīk sə'rā i,fekt }

Luenberger observer [CONT SYS] A compensator driven by both the inputs and measurable outputs of a control system. { 'lūn,bərg-ər əb'zər-vər }

lueneburgite [MINERAL] $\text{Mg}_3\text{B}_2(\text{OH})_6(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$ A colorless mineral composed of hydrous basic phosphate of magnesium and boron. { 'lū-nə-bərg,gīt }

lueshireite [MINERAL] NaNbO_3 An orthorhombic mineral having perovskite-type structure; it is dimorphous with natroniobite. { 'lū-sē,hīt }

lug [DES ENG] A projection or head on a metal part to serve as a cap, handle, support, or fitting connection. { 'løg }

luginot [METEOROL] A strong south or south-southeast wind of Lake Garda, Italy. { 'lū'gā,nōt }

lug bolt [DES ENG] 1. A bolt with a flat extension or hook instead of a head. 2. A bolt designed for securing a lug. { 'løg,bōlt }

lug brick [MATER] A brick with lugs for spacing adjacent bricks. { 'løg,brik }

Luggin probe [PHYS CHEM] A device which transmits a significant current density on the surface of an electrode to measure its potential. { 'løg-ən,prōb }

Lugol solution [CHEM] A solution of 5 grams of iodine and 10 grams of potassium iodide per 100 milliliters of water; used in medicine. { 'lū,gōl sə'lū-shən }

LUHF See lowest useful high frequency.

Luidiidae [INV ZOO] A family of echinoderms in the suborder Paxillosina. { 'lū-ə'dī-ə,dē }

Luisian [GEOL] A North American stage of geologic time: Miocene (above Relizian, below Mohnian). { 'lū'ē-shən }

Lukasiewicz notation See Polish notation. { 'lū,kā-shē'ā,vits nō,tā-shən }

lum See trolley. { 'ləm }

lumbago [MED] Backache in the lumbar or lumbosacral region. { 'ləm'bā,gō }

lumbang oil [MATER] Colorless or yellow liquid with pleasant aroma and bland taste; soluble in alcohol, ether, chloroform, and carbon disulfide; expressed from candlenut; used as an illuminant and wood preservative, and in paints, calking, and soap manufacture. Also known as candlenut oil. { 'lūm'bāŋ,ōil }

lumbar artery [ANAT] Any of the four or five pairs of branches of the abdominal aorta opposite the lumbar region of the spine; supplies blood to loin muscles, skin on the sides of the abdomen, and the spinal cord. { 'ləm,bār 'ārd-ə-rē }

lumbar nerve [ANAT] Any of five pairs of nerves arising from lumbar segments of the spinal cord; characterized by motor, visceral sensory, somatic sensory, and sympathetic components; they innervate the skin and deep muscles of the lower back and the lumbar plexus. { 'ləm,bār 'nərv }

lumbar vertebrae [ANAT] Those vertebrae located between the lowest ribs and the pelvic girdle in all vertebrates. { 'ləm,bār 'vərd-ə-brā }

lumber [MATER] Logs that have been sawed and prepared for market. { 'ləm-bər }

lumberg [OPTICS] A unit of luminous energy equal to the luminous energy corresponding to a radiant energy of $1/K$ ergs, where K is the luminous efficiency in lumens per watt. Formerly known as lumerg. { 'lūm,bərg }

lumbodorsal fascia [ANAT] The sheath of the erector spinae muscle alone, or the sheaths of the erector spinae and the quadratus lumborum muscles. { 'ləm-bō'dōrsəl 'fā-shə }

lumbosacral plexus [ANAT] A network formed by the anterior branches of lumbar, sacral, and coccygeal nerves which for descriptive purposes are divided into the lumbar, sacral, and pudendal plexuses. { 'ləm-bō'sak-rəl 'plek-səs }

Lumbricidae [INV ZOO] A family of annelid worms in the order Oligochaeta; includes the earthworm. { 'ləm'brī-ə,dē }

Lumbriclymeninae [INV ZOO] A subfamily of mud-swallowing sedentary worms in the family Maldanidae. { 'ləm'brī-klī'men-ə,nē }

Lumbriculidae [INV ZOO] A family of aquatic annelids in the order Oligochaeta. { 'ləm'brī'kyūl-ə,dē }

Lumbricus [INV ZOO] A genus of earthworms recognized as the type genus of the family Lumbricidae. { 'ləm-brē'kəs }

Lumbrineridae [INV ZOO] A family of errantian polychaetes in the superfamily Eunicae. { 'ləm'brī'nēr-ə,dē }

lumen [ANAT] The interior space within a tubular structure, such as within a blood vessel, a duct, or the intestine. [OPTICS] The unit of luminous flux, equal to the luminous flux emitted within a unit solid angle (1 steradian) from a point source having a uniform intensity of 1 candela, or to the luminous flux received on a unit surface, all points of which are at a unit distance from such a source. Symbolized lm. [SCI TECH] The space within a tube. { 'lū-mən }

lumen-hour [OPTICS] A unit of quantity of light (luminous energy), equal to the quantity of light radiated or received for a period of 1 hour by a flux of 1 lumen. Abbreviated lm-hr. { 'lū-mən,'aūr }

lumen per watt [OPTICS] The unit of luminosity factor and of luminous efficacy. Abbreviated lm/w. { 'lū-mən pər 'wāt }

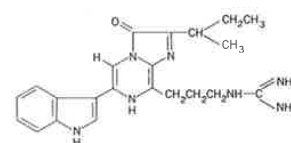
lumen-second [OPTICS] A unit of quantity of light (luminous energy), equal to the quantity of light radiated or received for a period of 1 second by a flux of 1 lumen. Abbreviated lm-sec. { 'lū-mən,'sek-ənd }

lumberg See lumerg. { 'lū,mərg }

luminaire [ELEC] An electric lighting fixture, wall bracket, portable lamp, or other complete lighting unit designed to contain one or more electric lighting sources and associated reflectors, refractors, housing, and such support for those items as necessary. { 'lū-mā,'ner }

luminance [OPTICS] The ratio of the luminous intensity in a given direction of an infinitesimal element of a surface containing the point under consideration, to the orthogonally projected

LUCIFERIN



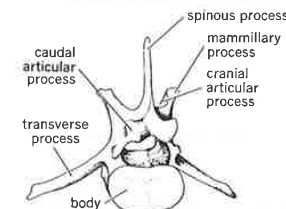
Structural formula of *Cypridina* luciferin.

LUCKIESH-MOSS VISIBILITY METER



Photograph of Luckiesh-Moss visibility meter. (General Electric Co.)

LUMBAR VERTEBRAE



Fifth lumbar vertebra of the dog, the caudal lateral aspect showing the body or centrum. (From M. E. Miller, G. C. Christensen, and H. E. Evans, *Anatomy of the Dog*, Saunders, 1964)