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On the cover: Photomicrograph of crystals of vitamin B<sub>12</sub>.  
(Dennis Kunkel, University of Hawaii)

# McGraw-Hill Dictionary of Scientific and Technical Terms Fifth Edition

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(Dennis Kunkel, University of Hawaii)

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**McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS,  
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**marine terrace**

facilities for docking, cargo-handling, and storage. { mə'ren 'ter-mən-əl }

**marine terrace** [GEOL] A seacoast terrace formed by the merging of a wave-built terrace and a wave-cut platform. Also known as sea terrace; shore terrace. { mə'ren 'ter-əs }

**marine traffic** [NAV] Traffic on the waterways. { mə'ren 'traf-ik }

**marine transgression** See transgression. { mə'ren tranz'gresh-ən }

**marine weather observation** [METEOROL] The weather as observed from a ship at sea, usually taken in accordance with procedures specified by the World Meteorological Organization. { mə'ren 'weth-ər, əb-zər, vā-shən }

**Mariotte's law** See Boyle's law. { 'mar-ē, 'äts, 'lō }

**marita** [INV ZOO] An adult trematode. { mə'ri-d-ə }

**maritime air** [METEOROL] A type of air whose characteristics are developed over an extensive water surface and which, therefore, has the basic maritime quality of high moisture content in at least its lower levels. { 'mar-ə, 'tīm 'er }

**maritime climate** See marine climate. { 'mar-ə, 'tīm 'klīm-ət }

**maritime frequency bands** [COMMUN] In the United States, a collection of radio frequencies allocated for communication between coast stations and ships or between ships. { 'mar-ə, 'tīm 'frē-kwən-sē, 'bānz }

**maritime law** [NAV] Law that concerns navigation and commerce on the oceans and other navigable bodies of water. { 'mar-ə, 'tīm 'lō }

**maritime mobile service** [COMMUN] A mobile service between coast stations and ship stations, or between ship stations, in which survival craft stations may also participate. { 'mar-ə, 'tīm 'mō-bəl 'sər-vəs }

**maritime polar air** [METEOROL] Polar air initially possessing similar properties to those of continental polar air, but in passing over warmer water it becomes unstable with a higher moisture content. { 'mar-ə, 'tīm 'pō-lər 'er }

**maritime position** [NAV] The location of a seaport or other point along a coast. { 'mar-ə, 'tīm pə'zish-ən }

**maritime satellite** See MARISAT. { 'mar-ə, 'tīm 'sad-əl, 'it }

**maritime tropical air** [METEOROL] The principal type of tropical air, produced over the tropical and subtropical seas; it is very warm and humid, and is frequently carried poleward on the western flanks of the subtropical highs. { 'mar-ə, 'tīm 'trāp-əkəl 'er }

**marjoram** [BOT] Any of several perennial plants of the genera *Origanum* and *Majorana* in the mint family, Labiatae; the leaves are used as a food seasoning. { 'mār-jə-rəm }

**marjoram oil** [MATER] A colorless essential liquid whose chief components are terpenes, obtained from marjoram plants of the genus *Origanum*; used as a perfume in soaps, and in flavorings. { 'mār-jə-rəm, 'ōil }

**mark** [COMMUN] The closed-circuit condition in telegraphic communication, during which the signal actuates the printer; the opposite of space. [COMPUT SCI] A distinguishing feature used to signal some particular location or condition. [NAV] 1. A charted conspicuous object, structure, or light serving as an indicator for guidance or warning to craft; a beacon: it may be a day-beacon or sea-mark depending upon its location, or a day-mark or lighted beacon depending upon its period of usefulness. 2. Fathoms marked on a lead line. [ORD] A designation followed by a serial number, used to identify models of military equipment. [STAT] The name or value given to a class interval; frequently, the value of the midpoint or the integer nearest the midpoint. { mār-k }

**mark detection** [COMPUT SCI] That class of character recognition systems which employs coded documents, in the form of boxes or windows, in order to convey intended information by means of pencil or ink marks made in specific boxes. { 'mār-k di, tek-shən }

**marker** [GEN] A gene with a known location on a chromosome and a clear-cut phenotype. [IMMUNOL] Any antigen that serves to distinguish cell types. [ORD] A sign or signal for marking a location on land or water; frequently contains pyrotechnics. { 'mār-k-ər }

**marker beacon** [NAV] A low-power radio beacon transmitting a signal to designate a small area, as an aid to navigation. { 'mār-k-ər, 'bē-kən }

**marker bed** [GEOL] 1. A stratified unit with distinctive char-

**marl**

seismic refraction time-distance curve. 3. See key bed. { 'mār-k-ər, 'bed }

**marker buoy** [NAV] 1. A temporary buoy used in surveying to mark a location of particular interest, such as a shoal or reef. 2. See station buoy. { 'mār-k-ər, 'bōi }

**marker pulse** [COMMUN] A pulse used for synchronization between transmitter and receiver in a time-division multiplex system. { 'mār-k-ər, 'pəls }

**market analysis** [IND ENG] The collection and evaluation of data concerned with the past, present, or future attributes of potential consumers for a product or service. { 'mār-kət ə, 'nāl-ə'səs }

**mark-hold** [COMMUN] The transmission of a steady mark to indicate that there is no traffic over a telegraph channel; the upper marking frequency of a duplex channel (2225 hertz) is used to disable echo suppressors which may interfere with data communications. { 'mār-k, 'hōld }

**Mark-Houwink equation** [PHYS CHEM] The relationship between intrinsic viscosity and molecular weight for homogeneous linear polymers. { 'mār-k 'hau, 'wiŋk i, 'kwā-zhən }

**marking and spacing intervals** [COMMUN] Intervals of closed and open conditions in transmission circuits. { 'mār-kiŋ ən 'spās-iŋ 'in-tər-vəlz }

**marking bias** [COMMUN] Bias distortion that lengthens the marking impulse. { 'mār-kiŋ, 'bī-əs }

**marking current** [ELEC] Magnitude and polarity of current in the line when the receiving mechanism is in the operating position. { 'mār-kiŋ, 'kə-rənt }

**marking-end distortion** [COMMUN] End distortion that lengthens the marking impulse. { 'mār-kiŋ 'end di, 'stōr-shən }

**marking pulse** [ELEC] In a teletypewriter, the signal interval during which time the teletypewriter selector unit is operated. { 'mār-kiŋ, 'pəls }

**marking wave** [ELEC] In telegraphic communications, that portion of the emission during which the active portions of the code character are being transmitted. Also known as keying wave. { 'mār-kiŋ, 'wāv }

**Markov chain** [MATH] A Markov process whose state space is finite or countably infinite. { 'mār, 'kōf, 'chān }

**Markov inequality** [STAT] If  $x$  is a random variable with probability  $P$  and expectation  $E$ , then  $P(|x| \geq a) \leq E(|x|^n)/a^n$ . { 'mār, 'kōf, 'in-i, 'kwāl-əd-ē }

**Markovnikoff's rule** [ORG CHEM] In an addition reaction, the additive molecule RH adds as H and R, with the R going to the carbon atom with the lesser number of hydrogen atoms bonded to it. { 'mār, 'kōv-nə, 'kōfs, 'rīl }

**Markov process** [MATH] A stochastic process which assumes that in a series of random events the probability of an occurrence of each event depends only on the immediately preceding outcome. { 'mār, 'kōf 'prə-səs }

**mark reading** [COMPUT SCI] In character recognition, that form of mark detection which employs a photoelectric device to locate and convey intended information; the information appears as special marks on sites (windows) within the document coding area. { 'mār-k, 'rēd-iŋ }

**mark sensing** [COMPUT SCI] In character recognition, that form of mark detection which depends on the conductivity of graphite pencil marks to locate and convey intended information; the information appears as special marks on sites (windows) within the document coding area. { 'mār-k, 'sens-iŋ }

**mark-space multiplier** [ELECTR] A multiplier used in analog computers in which one input controls the mark-to-space ratio of a square wave while the other input controls the amplitude of the wave, and the output, obtained by a smoothing operation, is proportional to the average value of the signal. Also known as time-division multiplier. { 'mār-k 'spās 'māl-tə, 'plī-ər }

**mark-space ratio** See mark-to-space ratio. { 'mār-k 'spās 'rā-shō }

**mark-to-space ratio** [ELECTR] The ratio of the duration of the positive-amplitude part of a square wave to that of the negative-amplitude part. Also known as mark-space ratio. { 'mār-k 'tə 'spās 'rā-shō }

**mark-to-space transition** [COMMUN] The process of switching from a mark to a space. { 'mār-k 'tə 'spās 'tran'zish-ən }

**marl** [GEOL] A deposit of crumbling earthy material composed principally of clay with magnesium and calcium carbonate; used as a fertilizer for lime-deficient soils. Also known as mal.

**marline**

**marline** [NAVARO] about 1/8 inch (3 mm) { 'mār-lən }

**marline spike** [NAV] A spike used to separate the strands of rope and seizing. { 'mār-lən 'spi:k }

**marlite** See marlstone

**marlstone** [PETR] same composition as marlstone; argillaceous limestone; ferruginous rock of marl. { 'mār-līt }

**marly** [GEOL] Peaty. { 'mār-lē }

**marmatite** [MINER] A mineral composed of iron-bearing silicate. { 'mār-mə, 'tīt }

**marmolite** [MINER] A mineral occurring in thin laminae. { 'mār-mə, 'līt }

**marmon clampbar** [MECH] A device used around the circumference of two structures, holding them together. { 'klāmp, 'bōrd }

**Marmor** [GEOL] A metamorphic rock of igneous origin, above Whiterock and below the surface. { 'mār-mər }

**marmoset** [VERT ZOO] A small primate belonging to the family Callitrichidae; primitive in that they have a prehensile tail. { 'mār-mə-sət }

**marmot** [VERT ZOO] A large short-legged burrowing squirrel family Sciuridae. { 'mār-mə-t }

**marocain crepe** [TEXT] A twisted wool, silk, or cotton fabric, giving a cross-ribbed effect. { 'mār-ə, 'kri:p }

**marquenching** See marbling

**marriage theorem** [MATH] A theorem stating that  $n$  subsets of a set  $S$  have representatives for  $S$  together contain at least  $n$  elements. { 'mār-i-əj, 'θi-ərəm }

**marrite** [MINERAL] A mineral occurring as small crystals. { 'mār-ri:t }

**marrubium** [BOT] A herb of the mint family, Labiatae; used as a tonic and an expectorant. { 'mār-rū-bē-əm }

**Mars** [ASTRON] The fourth planet from the sun; it is visible to the naked eye during most of the year; its period is about 4150 miles. { 'mār-s }

**Marsden chart** [METEOROL] A chart showing the distribution of meteorological data over the oceans; using a Mercator projection of 80°N and 70°S latitude with 10° latitude intervals; used to indicate probability of occurrence of quarter squares, or from 00 to 99 to give a probability. { 'mār-s-dən, 'chärt }

**Marseilles fever** See typhoid fever

**Marseilles soap** [TEXT] A soap made of olive oil and soda. { 'mār-sel, 'səp }

**marsh** [ECOL] A part of the time by which the water is raised by aquatic and grass accumulation. { 'mār-sh }

**Marsh-Berzelius test** [CHEM] A test for the presence of arsenic. { 'mār-sh, 'ber-zel-i-əs, 'test }

**marsh gas** [GEOL] A gas composed of methane, produced from organic material. { 'mār-sh, 'gās }

**marshite** [MINER] A mineral composed of calcium carbonate; hardness is 2.5 on Mohs scale. { 'mār-shīt }