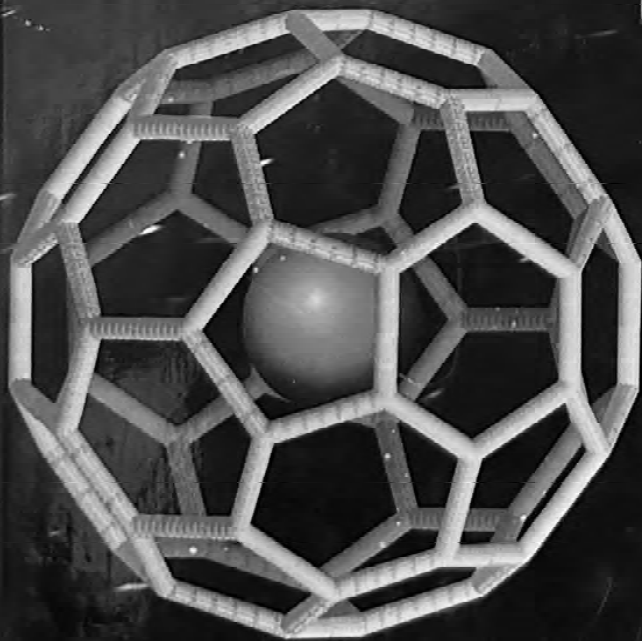


McGraw-Hill
Dictionary
of
SCIENTIFIC
and
TECHNICAL
TERMS



Sixth Edition

On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; U.S. Air Force *Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

**McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS,
Sixth Edition**

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container ship [NAV ARCH] A cargo ship which carries its cargo in weatherproof boxes (usually metal) of standard size, called containers, which need not be opened and are rapidly loaded or unloaded from the ship. { kən'tā-nər ,ship }

containment [ENG] An enclosed space or facility to contain and prevent the escape of hazardous material. [MOL BIO] Prevention of the replication of the products of recombinant deoxyribonucleic acid technology outside the laboratory. [NUCLEO] 1. Provision of a gastight enclosure around the highly radioactive components of a nuclear power plant, to contain the radioactivity released by a possible major accident. 2. The use of remote-control devices (slave apparatus) to remove spent cores from nuclear power plants or, in shielded laboratory hoods, to perform chemical studies of dangerous radioactive materials. { kən'tān-mənt }

containment building [NUCLEO] A steel-reinforced concrete dome built over a nuclear reactor to trap radioactive vapors that might otherwise be released into the environment during a nuclear accident. { kən'tān-mənt ,bil-dɪŋ }

containment vessel [NUCLEO] A gas-tight shell or other enclosure around a reactor. { kən'tān-mənt ,ves-əl }

contaminate [SCI TECH] To render unfit or to soil by the introduction of foreign or unwanted material. { kən'tam-ə ,næt }

contamination [COMPUT SCI] Placement of data at incorrect locations in storage, where it generally overlays valid information or a program code and produces bizarre results. [GEOL] A process in which the chemical composition of a magma changes due to the assimilation of country rocks. [HYD] The addition to water of any substance or property that prevents its use without further treatment. [MICROBIO] The process or act of soiling with bacteria. [NUCLEO] The deposit of radioactive materials, such as fission fragments or radiological warfare agents, on any objective or surface or in the atmosphere. [PSYCH] The fusion of words, resulting in a new word. [SCI TECH] Something that contaminates. { kən'tam-ə 'nā-shən }

contamination monitor [NUCLEO] A radiation counter used to detect radioactive contamination of surface areas or of the atmosphere. { kən'tam-ə 'nā-shən ,mən-əd-ər }

contemporaneous [GEOL] 1. Formed, existing, or originating at the same time. 2. Of a rock, developing during formation of the enclosing rock. { kən'tem-pə'rā-nē-əs }

contemporary carbon [CHEM] The isotopic carbon content of living matter, based on the assumption of a natural proportion of carbon-14. { kən'tem-pə're-ə 'kār-bən }

content See Jordan content. { 'kən,tent }

content analysis [COMPUT SCI] A method of automatically assigning words that identify the content of information items or search requests in an information retrieval system. { 'kən,tent ə'nal-ə-səs }

content indicator [COMPUT SCI] Display unit that indicates the content in a computer, and the program or mode being used. { 'kən,tent ,in-də ,kād-ər }

contention [COMMUN] A method of operating a multiterminal communication channel in which any station may transmit if the channel is free; if the channel is in use, the queue of contention requests may be maintained in predetermined sequence. [COMPUT SCI] 1. The condition arising when two or more units attempt to transmit over a time-division-multiplex channel at the same time. 2. Competition for the same computer resources by two or more devices or programs, such as an attempt by several programs to use the same disk drive simultaneously, or by several users in a multiaccess system to use the system's resources. { kən'ten-ʃən }

contention resolver [COMPUT SCI] A device that enables a central processing unit, memory, or channel whose attention is being requested over several pathways to give its attention to one pathway and ignore all others. { kən'ten-ʃən rɪ'zāl-vər }

contents [COMPUT SCI] The information stored at any address or in any register of a computer. { 'kən,tens }

context-driven line editor [COMPUT SCI] A line editor in which the user need not know or keep track of line numbers but can call up text by line content; the computer will then search for the indicated pattern. { 'kən,tekst ,drɪv-ən 'lɪn ,ed-əd-ər }

context-free grammar [COMPUT SCI] A grammar in which any occurrence of a metavariable may be replaced by one of its alternatives. { 'kən,tekst ,frɪ 'gram-ər }

context-sensitive grammar [COMPUT SCI] A grammar in

which the rules are applicable only when a metavariable occurs in a specified context. { 'kən,tekst ,sen-səd-ɪv 'gram-ər }

context-sensitive help [COMPUT SCI] A help screen that provides specific information about the current status or mode of a computer program or instructions for dealing with a particular error condition that has just occurred. { 'kən,tekst ,sen-səd-ɪv 'help }

context switch [COMPUT SCI] The action of a central processing unit that suspends work on one process to work on another. { 'kən,tekst ,swɪtʃ }

context switching See task switching. { 'kən,tekst ,swɪtʃ-ɪŋ }

contextual analysis [COMPUT SCI] A phase of natural language processing, following semantic analysis, whose purpose is to elaborate the semantic representation of what has been made explicit in the utterance with what is implicit from context. { kən'teks-ʃə-wəl ə'nal-ə-səs }

contextual search [COMPUT SCI] A search for documents or records based upon the data they contain, rather than their file names or key fields. { kən'teks-ʃə-wəl 'sə:tʃ }

contig [GEN] A region of chromosome defined by its hybridization to one or more cloned deoxyribonucleic acid fragments from an overlapping array of clones. [MOL BIO] A group of cloned nucleotide sequences that are contiguous. { kən'tɪg }

contiguous arc [ASTRON] A crater arc in which successive craters are in contact. { kən'tɪg-yə-wəs 'ɑ:k }

contiguous chain [ASTRON] A crater chain in which successive craters are in contact. { kən'tɪg-yə-wəs 'tʃæn }

contiguous craters [ASTRON] A formation on the moon's surface consisting of two craters in contact; the walls at the point of contact are low, broken, or entirely absent. { kən'tɪg-yə-wəs 'krād-ərz }

contiguous data [COMPUT SCI] Data that are stored in a collection of adjacent locations in a computer memory device. { kən'tɪg-yə-wəs 'dād-ə }

contiguous functions [MATH] Any pair of hypergeometric functions in which one of the parameters differs by unity and the other two are equal. { kən'tɪg-yə-wəs 'fəŋk-ʃənz }

contiguous gene syndrome [GEN] A characteristic complex phenotype produced by deletion of a short chromosome segment, resulting from haplo-insufficiency of several genes in the deleted segment. { kən'tɪg-yə-wəs 'jɛn 'sɪn'drəm }

continent [GEOGR] A protuberance of the earth's crustal shell, with an area of several million square miles and sufficient elevation so that much of it is above sea level. { 'kənt-ən-ənt }

continental accretion [GEOL] The theory that continents have grown by the addition of new continental material around an original nucleus, mainly through the processes of geosynclinal sedimentation and orogeny. { 'kənt-ən-ənt-əl ə'kre-ʃən }

continental air [METEOROL] A type of air whose characteristics are developed over a large land area and which therefore has relatively low moisture content. { 'kənt-ən-ənt-əl 'er }

continental anticyclone See continental high. { 'kənt-ən-ənt-əl ,an-tɪ'sɪ ,klɒn }

continental borderland [GEOL] The area of the continental margin between the shoreline and the continental slope. { 'kənt-ən-ənt-əl 'bɔ:d-ə ,lənd }

continental climate [CLIMATOL] Climate characteristic of the interior of a landmass of continental size, marked by large annual, daily, and day-to-day temperature ranges, low relative humidity, and a moderate or small irregular rainfall; annual extremes of temperature occur soon after the solstices. { 'kənt-ən-ənt-əl 'klɪ-mət }

continental code [COMMUN] The code commonly used for manual telegraph communication, consisting of short (dot) and long (dash) symbols, but not the various-length spaces used in the original Morse code. Also known as international Morse code. { 'kənt-ən-ənt-əl 'kɒd }

continental crust [GEOL] The basement complex of rock, that is, metamorphosed sedimentary and volcanic rock with associated igneous rocks mainly granitic, that underlies the continents and the continental shelves. { 'kənt-ən-ənt-əl 'krɒst }

continental deposits [GEOL] Sedimentary deposits laid down within a general land area. { 'kənt-ən-ənt-əl dɪ'pɒz-ɪts }

continental displacement See continental drift. { 'kənt-ən-ənt-əl dɪ'splās-mənt }

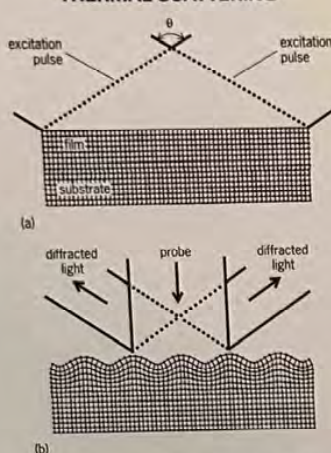
continental divide [GEOL] A drainage divide of a continent, separating streams that flow in opposite directions; for example,

CONTAINER SHIP



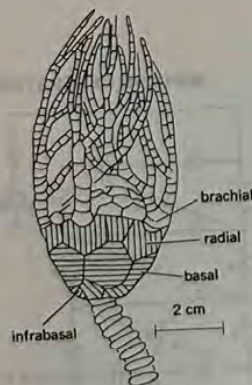
Inboard profile of a container ship.

IMPULSIVE STIMULATED THERMAL SCATTERING



In this experiment, (a) crossed laser pulses induce coherent, monochromatic acoustic and thermal motions in a thin film. (b) Continuous-wave probing laser diffracts from the ripple on the sample surface. Measuring the diffracted light intensity with a fast detector and transient recorder reveals the time dependence of the motions.

INADUNATA



Sketch of *Cyathocrinus*, a dicyclic inadunate crinoid, showing the main plates.

hands are driven by electromagnet impulses from the pendulum. { 'im,pəls ,mūv-mənt }

impulse noise [ELEC] Noise characterized by transient short-duration disturbances distributed essentially uniformly over the useful passband of a transmission system. { 'im,pəls ,nɔɪz }

impulse pallet [HOROL] Pallet stone in a chronometer balance, driven by impulses from the escape wheel. { 'im,pəls ,pal-ət }

impulse period See pulse period. { 'im,pəls ,pɪr-əd }

impulse relay [ELEC] A relay that stores the energy of a short pulse, to operate the relay after the pulse ends. { 'im,pəls ,rɛ,lə }

impulse response [CONT.SYS] The response of a system to an impulse which differs from zero for an infinitesimal time, but whose integral over time is unity; this impulse may be represented mathematically by a Dirac delta function. { 'im,pəls rɪ,sɒns }

impulse sealing [ENG] Heat-sealing of plastic materials by applying a pulse of intense thermal energy to the sealing area for a very short time, followed immediately by cooling. { 'im,pəls ,sɛl-ɪŋ }

impulse separator [ELECTR] In a television receiver, the circuit that separates the horizontal synchronizing impulses in the received signal from the vertical synchronizing impulses. { 'im,pəls ,sep-ə,rəd-ər }

impulse signaling [COMMUN] Conveying information by means of on-off conditions transmitted down a line or over free space. { 'im,pəls ,sɪŋ-nəl-ɪŋ }

impulse solenoid [ELECTROMAG] A solenoid that operates on pulse power, at speeds up to several hundred strokes per second. { 'im,pəls ,sɒ-lə,nɔɪd }

impulse strength [ELEC] Voltage breakdown of insulation under voltage surges on the order of microseconds in duration. { 'im,pəls ,streŋkθ }

impulse tachometer [ENG] A tachometer in which each rotation of a shaft generates an electric pulse and the time rate of pulses is then measured; classified as capacitive-current, inductive, or interrupted direct-current tachometer. { 'im,pəls tək-ə-m-əd-ər }

impulse train [CONT.SYS] An input consisting of an infinite series of unit impulses, equally separated in time. { 'im,pəls ,træn }

impulse transmission [COMMUN] Form of signaling which employs impulses of either or both polarities for transmission to indicate the occurrence of transitions in the signals; used principally to reduce the effects of low-frequency interference; the impulses are generally formed by suppressing the low-frequency components, including direct current, of the signals. { 'im,pəls tranz'mɪʃ-ən }

impulse turbine [MECH.ENG] A prime mover in which fluid under pressure enters a stationary nozzle where its pressure (potential) energy is converted to velocity (kinetic) energy and absorbed by the rotor. { 'im,pəls ,tɜr,bən }

impulse-type telemeter [COMMUN] A telemeter that employs electric impulses as the translating means. { 'im,pəls ,tɪp tə'lem-əd-ər }

impulse voltage [ELEC] A unidirectional voltage that rapidly rises to a peak value and then drops to zero more or less rapidly. Also known as pulse voltage. { 'im,pəls ,vɒl-tɪdʒ }

impulse welding [ENG] A welding process in which two layers of thermoplastic film are heated and fused to form a welded seam by clamping them together in close contact with a shielded electric heating element. { 'im,pəls 'weld-ɪŋ }

impulsive force See impact. { 'im,pəl-sɪv 'fɔrs }

impulsive phase [ASTROPHYS] The first phase of a solar flare, in which x-radiation rises to a maximum in a few seconds or minutes, and can then vary rapidly for several minutes in bursts of decreasing amplitude with rise times as short as 10 milliseconds. { 'im,pəl-sɪv ,fāz }

impulsive sound [ACOUS] A sound that lasts for a short period of time and includes frequencies over a large portion of the acoustic spectrum, such as a hammer blow or hand clap. { 'im,pəl-sɪv ,saʊnd }

impulsive sound equation [ACOUS] An equation which states that the total sound energy produced by a short burst of sound in a room is an exponentially decreasing function of time, whose decay constant depends on the speed of sound,

the sound absorption coefficient, and the volume and surface area of the room. { 'im,pəl-sɪv 'saʊnd i,kwə-zən }

impulsive stimulated thermal scattering [ENG] An optical, noncontacting method for characterizing the high-frequency acoustic behavior of surfaces, thin membrane, coatings, and multilayer assemblies, in which picosecond pulses of light from an excitation laser stimulate motions which are then detected with a continuous-wave probing laser. Abbreviated ISTS. Also known as transient grating photoacoustics. { 'im,pəl-sɪv ,stɪm-yə,ləd-əd ,θɜrm-əl 'skad-ər-ɪŋ }

impunctate [BIOL] Lacking pores. { 'im'pʌŋk,tet }

impurity [SCI.TECH] An undesirable foreign material in a pure substance. [SOLID STATE] A substance that, when diffused into semiconductor metal in small amounts, either provides free electrons to the metal or accepts electrons from it. { 'im'pyʊr-əd-ē }

impurity band [SOLID STATE] The impurity levels in a semiconductor, occupying a certain range of energies. { 'im'pyʊr-əd-ē ,bænd }

impurity level [SOLID STATE] An energy level in the band gap of a semiconductor that results from the presence of an impurity atom. { 'im'pyʊr-əd-ē ,lev-əl }

impurity scattering [SOLID STATE] Scattering of electrons by holes or phonons in the crystal. { 'im'pyʊr-əd-ē ,skad-ər-ɪŋ }

impurity semiconductor [SOLID STATE] A semiconductor whose properties are due to impurity levels produced by foreign atoms. { 'im'pyʊr-əd-ē ,sem-i-kən'dak-tər }

IMVIC test [MICROBIO] A group of four cultural tests used to differentiate genera of bacteria in the family Enterobacteriaceae and to distinguish them from other bacteria; tests are indole, methyl red, Voges-Proskauer, and citrate. { 'im,vɪk ,test }

In See indium.

in. See inch.

inactivated vaccine See killed vaccine. { 'ɪn'ak-tə,vəd-əd ,væk-sɛn }

inactive front [METEOROL] A front, or portion thereof, that produces very little cloudiness and no precipitation, as opposed to an active front. Also known as passive front. { 'ɪn'ak-tɪv 'frʌnt }

inactive tartaric acid See racemic acid. { 'ɪn'ak-tɪv tɑrtər-ɪk 'as-əd }

inadequate personality [PSYCH] An individual showing no obvious mental or physical defect, but characterized by inappropriate or inadequate response to intellectual, emotional, and physical demand, and whose behavior pattern shows inadequacy, ineptitude, poor judgment, lack of stamina, and social incompatibility. { 'ɪn'ad-ə'kwət pɜrs-ən'al-əd-ē }

Inadunata [PALEON] An extinct subclass of stalked Paleozoic Crinzoa characterized by branched or simple arms that were free and in no way incorporated into the calyx. { 'ɪn'ad-ən-əd-ə }

inadunate [BIOL] Not united. [INV.ZOO] In crinoids, having the arms free from the calyx. { 'ɪ'naj-əd-nat }

in-and-out bond [CIV.ENG] Masonry bond composed of vertically alternating stretchers and headers. { 'ɪn ən 'aʊt ,bʌnd }

inanimate [MED] Lacking consciousness or life. [SCI.TECH] A lifeless object. { 'ɪn'an-ə-mət }

inanition [MED] The exhausted, pathologic condition resulting from starvation. { 'ɪn-ə'nɪʃ-ən }

inaperturate [BIOL] Lacking apertures. { 'ɪn'ap-ə'chɜr-ət }

inarching [BOT] A kind of repair grafting in which two plants growing on their own roots are grafted together and one plant is severed from its roots after the graft union is established. { 'ɪn'ərʃ-ɪŋ }

Inarticulata [INV.ZOO] A class of the phylum Brachiopoda; valves are typically not articulated and are held together only by soft tissue of the living animal. { 'ɪn-ər-tɪk-yə'lad-ə }

in-band/adjacent-channel [COMMUN] The characteristic of radio or television broadcasting with a new type of signal (such as in digital audio broadcasting) using the same frequency channel adjacent to the one which that station uses to broadcast signals with conventional analog modulation. Abbreviated IBAC. { 'ɪn 'bænd ədʒəs-ənt 'chan-əl }

in-band/on-channel [COMMUN] The characteristic of radio or television broadcasting with a new type of signal (such as in digital audio broadcasting) using the same frequency channel