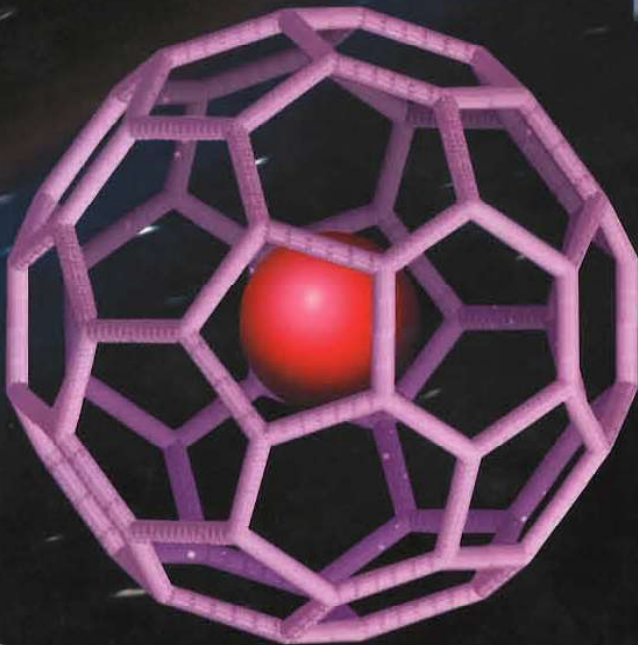


Kirkland & Ellis Library



5 0628 01167727 2

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. Hushke, *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**

Copyright © 2003, 1994, 1989, 1984, 1978, 1976, 1974 by The McGraw-Hill Companies, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of the publisher.

1 2 3 4 5 6 7 8 9 0 DOW/DOW 0 8 7 6 5 4 3 2

ISBN 0-07-042313-X

Library of Congress Cataloging-in-Publication Data

McGraw-Hill dictionary of scientific and technical terms--6th ed.

p. cm.

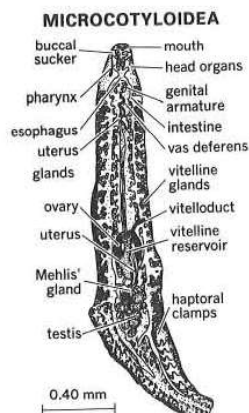
ISBN 0-07-042313-X (alk. paper)

1. Science--Dictionaries. 2. Technology--Dictionaries. I. Title: Dictionary of scientific and technical terms.

Q123.M15 2002

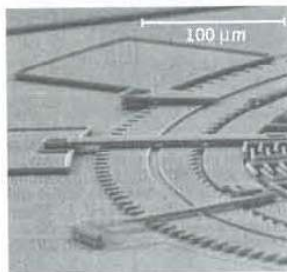
503--dc21

2002026436



Ventral view of *Heteraxinoides xanthophilis* (Hargis), an ectoparasite of the spot fish (*Leiostomus xanthurus*).

MICRO-ELECTRO-MECHANICAL SYSTEM



Close-up of a torsional ratcheting actuator fabricated by surface micromachining. (J. Jakubczala, Sandia National Laboratories)

cocci; chemoorganotrophic organisms with respiratory or fermentative metabolism. { 'mī·krō·kāk'sās-ē,ē }

microcode [COMPUT SCI] A code that employs microinstructions; not ordinarily used in programming. { 'mī·krō,kōd }

microcomputer [COMPUT SCI] 1. A digital computer whose central processing unit resides on a single semiconductor integrated circuit chip, a microprocessor. 2. An electronic device, typically consisting of a microprocessor central processing unit, semiconductor memory (RAM), graphics display, and keyboard. Typical configurations also include a hard disk for persistent memory, a compact disk drive, a disk drive which allows removable disks to be used to move data in and out of the machine, and a pointing device. { 'mī·krō·kəm'pyū·ər }

microcomputer development system [COMPUT SCI] A complete microcomputer system that is used to test both the software and hardware of other microcomputer-based systems. { 'mī·krō·kəm'pyū·ər dī'vel-əp-mənt 'sis-təm }

microconsumer See decomposer. { 'mī·krō·kən'sū-mər }

microcontroller [ELECTR] A microcomputer, microprocessor, or other equipment used for precise process control in data handling, communication, and manufacturing. { 'mī·krō·kən'trōl-ər }

microcopy [GRAPHICS] A photographic reproduction that is too small to be read without magnification. { 'mī·krō,kāp-ē }

microcoquina [PETR] A clastic limestone composed wholly or partially of cemented sand-size particles of shell detritus. { 'mī·krō·kō'kē-nā }

Microcotyloidea [INV ZOO] A superfamily of ectoparasitic trematodes in the subclass Monogenea. { 'mī·krō,kād-əl'ōid-ē-ə }

microcoulomb [ELEC] A unit of electric charge equal to one-millionth of a coulomb. Abbreviated μC. { 'mī·krō'kū,lām }

microcrack See microfissure. { 'mī·krō,krak }

microcrystalline [CRYSTAL] Composed of or containing crystals that are visible only under the microscope. { 'mī·krō'krist-əl-ən }

microcrystalline wax [MATER] A petroleum wax containing small, indistinct crystals, and having a higher molecular weight, melting point, and viscosity than paraffin wax; used in laminated paper and electrical coil coating. { 'mī·krō'krist-əl-ən 'waks }

Microcyprini [VERT ZOO] The equivalent name for Cyprinodontiformes. { 'mī·krō·sə'prē,nē }

microcyst [MED] A very small cyst. { 'mī·krō,sist }

microcyte [MED] A red blood cell whose diameter or mean corpuscular volume or both are more than two standard deviations below the normal mean. Also known as microerythrocyte. { 'mī·krō,sit }

microcythemia [MED] Blood characterized by the presence of small red blood cells. { 'mī·krō·sī'thē-mē-ə }

microcytic anemia [MED] Any form of anemia in which small erythrocytes occur in the blood. { 'mī·krō'sīd-ik ə'nēmē-ə }

microcytosis [MED] A blood disorder characterized by a preponderance of microcytes. { 'mī·krō·sī'tō-sās }

microdactyly [MED] A condition of abnormal smallness of fingers or toes. { 'mī·krō'dak-tə-lē }

microdensitometer [SPECT] A high-sensitivity densitometer used in spectroscopy to detect spectrum lines too faint on a negative to be seen by the human eye. { 'mī·krō,dən-sə'tām-əd-ər }

microdiagnostic program [COMPUT SCI] A microprogram that tests a specific hardware component, such as a bus or store location, for faults. { 'mī·krō,dī-əg'nās-tik 'prō-grām }

microdialysis [ANALY CHEM] A technique for sampling biological systems in which a short length of hollow-fiber dialysis membrane is implanted into any tissue or fluid compartment, and through which compounds in the extracellular fluid are collected for subsequent analysis. { 'mī·krō-dī'al-ə-sās }

microdiffusimeter [ENG] A type of diffusimeter in which diffusion is measured over microscopic distances, greatly reducing the time required for the measurement and the effects of vibration and temperature changes. { 'mī·krō-də'fyz-ər }

microdisk [COMPUT SCI] A small floppy disk with a diameter between 3 and 4 inches (7 and 10 centimeters). Also known as microflop disk. { 'mī·krō,disk }

microdisk laser [OPTICS] A very small semiconductor laser

that consists of a quantum well structure formed into a disk, such that total internal reflection of photons traveling around the perimeter of the disk results in high-Q whispering-gallery resonances. { 'mī·krō,disk,lā-zər }

microdissection [BIOL] Dissection under a microscope. { 'mī·krō-dī'sek-shən }

Microdomatacea [PALEON] An extinct superfamily of gastropod mollusks in the order Aspidobranchia. { 'mī·krō,dō-mā'tās-ē-ə }

microearthquake [GEOPHYS] An earthquake with a low intensity, usually less than 3 on the Richter scale. Also known as microquake. { 'mī·krō'ərth,kwāk }

microelectrode [ENG] 1. In biological research, an electrode with a microscopic tip dimension that may be placed adjacent to or inside a cell for the purpose of recording the electric potentials of single cells, passing electrical currents, or injecting electrically charged substances into the cell. 2. In physical chemistry, a minute electrode used to perform electrolysis of small quantities of material. { 'mī·krō-i'lek,trod }

microelectrolysis [PHYS CHEM] Electrolysis of small quantities of material. { 'mī·krō-i'lek'trāl-ə-sās }

micro-electro-mechanical system [ENG] A system in which micromechanisms are coupled with microelectronics, most commonly fabricated as microsensors or microactuators. Abbreviated MEMS. Also known as microsystem. { 'mī·krō-i'lek-trə-mə'kan-ə-kəl 'sis-təm }

microelectronic circuitry See microcircuitry. { 'mī·krō-i'lek-'trān-ik 'sər-kə-trē }

microelectronics [ELECTR] The technology of constructing circuits and devices in extremely small packages by various techniques. Also known as microminiaturization; microsystem electronics. { 'mī·krō-i'lek'trān-iks }

microelectrophoresis [ANALY CHEM] Direct microscopic observation and measurement of the velocity of migration of ions or other charged bodies through a solution toward oppositely charged electrodes. Also known as optical cytophotometry. { 'mī·krō-i'lek-trə-fə're-sās }

microelement [ELECTR] Resistor, capacitor, transistor, diode, inductor, transformer, or other electronic element or combination of elements mounted on a ceramic wafer 0.025 centimeter thick and about 0.75 centimeter square; individual microelements are stacked, interconnected, and potted to form micromodules. [IND ENG] An element of a work cycle whose time span is too short to be observed by the unaided eye. { 'mī·krō-el-ə-mənt }

microemulsion [MATER] A thermodynamically stable dispersion of two immiscible liquids, stabilized by surfactants; it is typically clear because the dispersed droplets are less than 100 nanometers in diameter. { 'mī·krō-i'məl-shən }

microemulsion flooding See micellar flooding. { 'mī·krō-i'məl-shən 'flād-īŋ }

microencapsulation [CHEM ENG] Enclosing of materials in capsules from well below 1 micrometer to over 2000 micrometers in diameter. { 'mī·krō-in,kap-sə'lā-shən }

microencephaly See micrencephaly. { 'mī·krō-en'sef-ə-lē }

microengineering [ENG] The design and production of small, three-dimensional objects, usually for manufacture in high volumes at low cost. { 'mī·krō,en-jə'nir-īŋ }

microenvironment [ECOL] The specific environmental factors in a microhabitat. { 'mī·krō-in'vī-ər-nənt }

microerythrocyte See microcyte. { 'mī·krō-ə'rith-rō,sit }

microevolution [EVOL] 1. Evolutionary processes resulting from the accumulation of minor changes over a relatively short period of time; evolutionary changes due to gene mutation. 2. Evolution of species. { 'mī·krō,ev-ə'lū-shən }

microfabrication [ENG] The technology of fabricating microsystems from silicon wafers, using standard semiconductor process technologies in combination with specially developed processes. { 'mī·krō,fab-rə'kā-shən }

microfacies [PETR] The composition, features, or appearance of a rock or mineral in thin section under the microscope. { 'mī·krō-fā-shēz }

microfarad [ELEC] A unit of capacitance equal to one-millionth of a farad. Abbreviated μF. { 'mī·krō'far-əd }

microfauna [ECOL] Microscopic animals such as protozoa and nematodes. { 'mī·krō,fōn-ə }

microfibril [CELL MOL] The submicroscopic unit of a microscopic cellular fiber. { 'mī·krō'fī-brəl }

microfiche [GRAPHICS] A microfilm card or sheet used in