

On the cover: Photograph of crystals of Villanin B.
(Dariusz Aukel, University of Hawaii)

McGraw-Hill Dictionary of Scientific and Technical Terms Fifth Edition

Sybil P. Parker
Editor in Chief

McGraw-Hill, Inc.
New York San Francisco Washington, D.C.
Auckland Bogotá Caracas Lisbon London Madrid Mexico City Milan
Montreal New Delhi San Juan Singapore Sydney Tokyo Toronto

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

Included in this Dictionary are definitions which have been published previously in the following works: P. B. Jordain, *Condensed Computer Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. J. Markus, *Electronics and Nucleonics Dictionary*, 4th ed., Copyright © 1960, 1966, 1978 by McGraw-Hill, Inc. All rights reserved. J. Quick, *Artists' and Illustrators' Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. *Blakiston's Gould Medical Dictionary*, 3d ed., Copyright © 1956, 1972 by McGraw-Hill, Inc. All rights reserved. T. Baumeister and L. S. Marks, eds., *Standard Handbook for Mechanical Engineers*, 7th ed., Copyright © 1958, 1967 by McGraw-Hill, Inc. All rights reserved.

In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *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; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *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; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

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

Copyright © 1994, 1989, 1984, 1978, 1976, 1974 by McGraw-Hill, 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.

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

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

CIP

INTERNATIONAL EDITION

Copyright © 1994. Exclusive rights by McGraw-Hill, Inc. for manufacture and export. This book cannot be re-exported from the country to which it is consigned by McGraw-Hill. The International Edition is not available in North America.

When ordering this title, use ISBN 0-07-113584-7.

$K(A)$, the Grothendieck group of A . { 'al-jə'brā-ik 'kə ,thē-ə-rē }

algebraic language [MATH] The conventional method of writing the symbols, parentheses, and other signs of formulas and mathematical expressions. { 'al-jə'brā-ik 'lāŋ-gwɪj }

algebraic manipulation language [COMPUT SCI] A programming language used in the solution of analytic problems by symbolic computation. { 'al-jə'brā-ik mən-i-pyə'lä-shən ,lāŋ-gwɪj }

algebraic number [MATH] Any root of a polynomial with rational coefficients. { 'al-jə'brā-ik 'nəm-bər }

algebraic number field [MATH] A finite extension field of the field of rational numbers. { 'al-jə'brā-ik 'nəm-bər ,fēld }

algebraic number theory [MATH] The study of properties of real numbers, especially integers, using the methods of abstract algebra. { 'al-jə'brā-ik 'nəm-bər ,thē-ə-rē }

algebraic object [MATH] Either an algebraic structure, such as a group, ring, or field, or an element of such an algebraic structure. { 'al-jə'brā-ik 'əb-jekt }

algebraic operation [MATH] Any of the operations of addition, subtraction, multiplication, division, raising to a power, or extraction of roots. { 'al-jə'brā-ik ,əp-ə-rā-shən }

algebraic scattering theory [PHYS] An approach to the analysis of reactions between composite particles in which the fundamental role is played by the scattering matrix, which is obtained algebraically, without the use of a wave equation, by using the concept of dynamic symmetry. { 'al-jə'brā-ik 'skad-ə-rɪŋ ,thē-ə-rē }

algebraic set [MATH] A set made up of all zeros of some specified set of polynomials in n variables with coefficients in a specified field F , in a specified extension field of F . { 'al-jə'brā-ik 'set }

algebraic sum [MATH] 1. The result of the addition of two or more quantities, with the addition of a negative quantity equivalent to subtraction of the corresponding positive quantity. 2. For two fuzzy sets A and B , with membership functions m_A and m_B , that fuzzy set whose membership function m_{A+B} satisfies the equation $m_{A+B}(x) = m_A(x) + m_B(x) - [m_A(x) \cdot m_B(x)]$ for every element x . { 'al-jə'brā-ik 'səm }

algebraic surface [MATH] A subset S of a complex n -space which consists of the set of complex solutions of a system of polynomial equations in n variables such that S is a complex two-manifold in the neighborhood of most of its points. { 'al-jə'brā-ik 'sərfəs }

algebraic symbol [MATH] A letter that represents a number or a symbol indicating an algebraic operation. { 'al-jə'brā-ik 'sɪm-bəl }

algebraic term [MATH] In an expression, a term that contains only numbers and algebraic symbols. { 'al-jə'brā-ik 'tərm }

algebraic topology [MATH] The study of topological properties of figures using the methods of abstract algebra; includes homotopy theory, homology theory, and cohomology theory. { 'al-jə'brā-ik tə'päl-ə-jē }

algebra of subsets [MATH] An algebra of subsets of a set S is a family of subsets of S that contains the null set, the complement (relative to S) of each of its members, and the union of any two of its members. { 'al-jə-brə əv 'səb ,sets }

algebra with identity [MATH] An algebra which has an element, not equal to 0 and denoted by 1, such that, for any element x in the algebra, $x1 = 1x = x$. { 'al-jə-brə wɪθ i'den-ə-tē }

algid malaria See falciparum malaria. { 'al-jəd mə'lēr-ē-ə }

Algenib [ASTRON] A star in the constellation Pegasus. { 'al-jen-əb }

Algerian onyx See onyx marble. { 'al-jer-ē-ən 'än-iks }

algosia [PHYSIO] Sensitivity to pain. { 'al-jēz-ē-ə }

algesimeter [PHYSIO] A device used to determine pain thresholds. { 'al-jə'sɪm-əd-ər }

algesireceptor [PHYSIO] A pain-sensitive cutaneous sense organ. { 'al-jə'sɪr-ə-ri ,septər }

algicide [MATER] A chemical used to kill algae. { 'al-jə'sɪd }

algin [MATER] A hydrophilic polysaccharide extracted from brown algae, such as giant kelp. [ORG CHEM] See sodium alginate. { 'al-jən }

alginite [BOT] An algal polysaccharide that is a major constituent of the cell walls of brown algae. { 'al-jə'nīt }

alginic acid [ORG CHEM] ($C_6H_8O_6$)_n An insoluble colloidal acid obtained from brown marine algae; it is hard when dry and absorbent when moist. Also known as algin. { 'al-jin-ik 'as-əd }

alginic acid sodium salt See sodium alginate. { 'al-jin-ik 'as-əd 'sɒd-ē-əm 'sɒlt }

alginite See alginite. { 'al-jə'nīt }

algitte [PETR] The petrological unit that constitutes algal material present in considerable amounts in algal or boghead coal. Also known as alginite. { 'al-jīt }

algonite [MINERAL] Cu_6As A steel gray to silver white mineral consisting of copper arsenide and occurring as minute hexagonal crystals or in massive and granular form. { 'al-gɒn-ə'nīt }

Algol [ASTRON] An eclipsing variable star of spectral classification B8 in the constellation Perseus; the star β Persei. Also known as Demon Star. [COMPUT SCI] An algorithmic and procedure-oriented computer language used principally in the programming of scientific problems. { 'al-gɒl }

algology [BOT] The study of algae. Also known as phycology. { 'al-gə-lə-jē }

Algol symbiotic [ASTRON] A symbiotic star consisting of a red giant, a main-sequence star, and an accretion disk of gas from the red giant that forms around the main-sequence star and is heated by it. { 'al-gɒl ,sɪm-bē'tɪk }

Algomian orogeny [GEOL] Orogenic episode affecting Archean rocks of Canada about 2.4 billion years ago. Also known as Kenoran orogeny. { 'al-gɒm-ən ō'rɪj-ə-nē }

algometer [MED] An instrument for measuring pressure stimuli which produce pain. { 'al-gə-məd-ər }

Algonkian [GEOL] Geologic time between the Archean and Paleozoic. Also known as Proterozoic. { 'al-gɒŋ-kē-ən }

algophagy See cyanophagy. { 'al-gə'faj }

alophobia [PSYCH] Abnormal fear of pain. { 'al-gə'fəb-ē-ə }

algorithm [MATH] A set of well-defined rules for the solution of a problem in a finite number of steps. { 'al-gə-rɪθ-əm }

algorithmic error [COMPUT SCI] An error in computer processing resulting from imprecision in the method used to carry out mathematical computations, usually associated with either rounding or truncation of numbers. { 'al-gə'rɪθ-mɪk 'erər }

algorithmic language [COMPUT SCI] A language in which a procedure or scheme of calculations can be expressed accurately. { 'al-gə'rɪθ-mɪk 'lāŋ-gwɪj }

algorithm translation [COMPUT SCI] A step-by-step computerized method of translating one programming language into another programming language. { 'al-gə'rɪθ-əm trānz'leɪ-shən }

algor mortis [PATH] Postmortem cooling of the body. { 'al-gər'mɔrtəs }

alias [COMPUT SCI] 1. An alternative entry point in a computer subroutine at which its execution may begin, if so instructed by another routine. 2. An alternative name for a file or device. [STAT] Either of two effects in a factorial experiment which cannot be differentiated from each other on the basis of the experiment. { 'ā-lē-əs }

aliasing [COMPUT SCI] In computer graphics, the jagged appearance of diagonal lines on printouts and on video monitors. [MATH] Introduction of error into the computed amplitudes of the lower frequencies in a Fourier analysis of a function carried out using discrete time samplings whose interval does not allow the proper analysis of the higher frequencies present in the analyzed function. { 'ā-lē-əs-ɪŋ }

alicyclic [ORG CHEM] 1. Having the properties of both aliphatic and cyclic substances. 2. Referring to a class of saturated hydrocarbon compounds whose structures contain one ring. Also known as cycloaliphatic; cycloalkane. 3. Any one of the compounds of the alicyclic class. Also known as cyclane. { 'āl-ə'sɪk-lɪk }

alidade [ENG] 1. An instrument for topographic surveying and mapping by the plane-table method. 2. Any sighting device employed for angular measurement. { 'al-ə,dād }

alien substitution [GEN] The replacement of one or more chromosomes by those from a different species. { 'āl-ē-ən ,səb-stə'tu-shən }

allesterase [BIOCHEM] Any one of the lipases or nonspecific esterases. { 'āl-ē'st-ə-rās }

aligning drift [MECH ENG] A rod or bar that is used for aligning parts during assembly. { 'əl-ɪn-ɪŋ ,drɪft }

alignment [ARCHEO] An arrangement of a single row or of multiple rows of standing stones at a sites formerly occupied by humans. [CIV ENG] In a survey for a highway, railroad, or similar installation, a ground plan that shows the horizontal

ALIDADE



A surveying alidade, having a telescope with attached graduated vertical circle, mounted on a flat base that can be moved about the table. (Kern Instruments, Inc.)