

McGraw-Hill Dictionary of the

Life Sciences

**McGraw-Hill
Dictionary
of the
Life
Sciences**

Daniel N. Lapedes Editor in Chief

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Preface

The *McGraw-Hill Dictionary of the Life Sciences* is intended to provide the student, researcher, teacher, librarian, and the general public with the vocabulary of the biological sciences and of related disciplines such as chemistry, statistics, and physics. The concept of the Dictionary is based on the awareness that the life sciences embrace so many specialized areas that a specialist in one aspect is a nonspecialist in another.

The more than 20,000 terms and definitions in the *McGraw-Hill Dictionary of the Life Sciences* are, in the opinion of the Board of Consulting Editors, fundamental to understanding the life sciences. The definitions either were written especially for this work or were drawn from the broader *McGraw-Hill Dictionary of Scientific and Technical Terms* (1974). The present Dictionary is thus a product of data-base operations, for the terms and definitions selected from the larger work were extracted from a master file stored on magnetic tape. As additional terms were written and reviewed by the consulting editors, they were alphabetically collated with the original terms on tape. The present Dictionary was generated from this tape and set by computer composition.

Each definition is preceded by an abbreviation identifying the field in which it is primarily used. Some of the fields covered are zoology, microbiology, genetics, anatomy, ecology, physical chemistry, spectroscopy, thermodynamics, and nuclear physics. When a definition applies equally to more than one field, it is identified by a more general field. For example, a definition that applies to both botany and zoology is assigned to biology.

The usefulness of this Dictionary is enhanced by illustrations, cross-references, and the Appendix. There are approximately 800 illustrations to amplify the definitions. Synonyms are given in the alphabetical sequence and are cross-referenced to the term where the definition appears. The Appendix has an explanation of the International System of Units, with conversion tables; a list of the chemical elements; taxonomy of animals, plants, and bacteria; and a table which gives the spectrum of activity of various antibiotics and antimicrobial agents.

An explanation of the alphabetization, cross-referencing, format, field abbreviations, and other information on how to use the Dictionary begins on page ix.

The *McGraw-Hill Dictionary of the Life Sciences* is the result of the ideas and efforts of the editorial staff and the consulting editors. It is a reference tool in which the editors have tried to achieve a clear and simple style, with the hope that the information and communication needs of the community in the field of life sciences will be served.

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How to Use the Dictionary

I. ALPHABETIZATION

The terms in the *McGraw-Hill Dictionary of the Life Sciences* are alphabetized on a letter-by-letter basis; word spacing, hyphen, comma, solidus, and apostrophe in a term are ignored in the sequencing. For example, an ordering of terms would be:

agar
Agarbacterium
agar-gel reaction
A horizon
Al

Also ignored in the sequencing of terms (usually, chemistry terms) are italic elements, numbers, small capitals, and Greek letters. For example, the following terms appear within alphabet letter "A":

para-aminobenzoic acid
D-aminobenzyl penicillin
4-aminofolic acid

II. FORMAT

The basic format for a defining entry provides the term in boldface, the field in small capitals, and the single definition in lightface:

term [FIELD] Definition.

A field may be followed by multiple definitions, each introduced by a boldface number:

term [FIELD] 1. Definition. 2. Definition. 3. Definition.

A term may have definitions in two or more fields:

term [BOT] Definition. [GEOL] Definition.

A simple cross-reference entry appears as:

term See another term.

A cross-reference may also appear in combination with definitions:

term [BOT] Definition. [GEOL] See another term.

III. CROSS-REFERENCING

A cross-reference entry directs the user to the defining entry. For example, the user looking up "backbone" finds:

backbone See spine.

The user then turns to the "S" terms for the definition. Cross-references are also made from variant spellings, acronyms, abbreviations, and symbols.

aesthacyte See esthacyte.

ATP See adenosinetriphosphate.

at wt See atomic weight.

Au See gold.

IV. ALSO KNOWN AS . . . , etc.

A definition may conclude with a mention of a synonym of the term, a variant spelling, an abbreviation for the term, or other such information, introduced by "Also known as . . . ," "Also spelled . . . ," "Abbreviated . . . ," "Symbolized . . . ," "Derived from" When a term has more than one definition, the positioning of any of these phrases conveys the extent of applicability. For example:

term [BOT] 1. Definition. Also known as synonym. 2. Definition. Symbolized T.

In the above arrangement, "Also known as . . ." applies only to the first definition: "Symbolized . . ." applies only to the second definition.

term [BOT] 1. Definition. 2. Definition. [GEOL] Definition. Also known as synonym.

In the above arrangement "Also known as . . ." applies only to the second field.

term [BOT] Also known as synonym. 1. Definition. 2. Definition. [GEOL] Definition.

In the above arrangement, "Also known as . . ." applies to both definitions in the first field.

term Also known as synonym. [BOT] 1. Definition. 2. Definition. [GEOL] Definition.

In the above arrangement, "Also known as . . ." applies to all definitions in both fields.

V. CHEMICAL FORMULAS

Chemistry definitions may include either an empirical formula (say, for acetaldehyde, C_2H_4O) or a line formula (for acetone, CH_3COCH_3), whichever is appropriate.

Field Abbreviations

AGR	agriculture	MATH	mathematics
ANALY CHEM	analytical chemistry	MECH	mechanics
ANAT	anatomy	MED	medicine
ANTHRO	anthropology	MICROBIO	microbiology
ARCHEO	archeology	MOL BIO	molecular biology
ATOM PHYS	atomic physics	MYCOL	mycology
BIOCHEM	biochemistry	NUC PHYS	nuclear physics
BIOL	biology	OPTICS	optics
BIOPHYS	biophysics	ORG CHEM	organic chemistry
BOT	botany	PALEOBOT	paleobotany
CHEM	chemistry	PALEON	paleontology
CRYO	cryogenics	PATH	pathology
CRYSTAL	crystallography	PHARM	pharmacology
CYTOL	cytology	PHYS	physics
ECOL	ecology	PHYS CHEM	physical chemistry
EMBRYO	embryology	PHYSIO	physiology
ENG	engineering	PL PATH	plant pathology
EVOL	evolution	PL PHYS	plasma physics
FL MECH	fluid mechanics	PSYCH	psychology
FOOD ENG	food engineering	SCI TECH	science and technology
FOR	forestry	SPECT	spectroscopy
GEN	genetics	STAT	statistics
GEOL	geology	SYST	systematics
HISTOL	histology	THERMO	thermodynamics
IMMUNOL	immunology	VERT ZOO	vertebrate zoology
INORG CHEM	inorganic chemistry	VET MED	veterinary medicine
INV ZOO	invertebrate zoology	VIROL	virology
MATER	materials	ZOO	zoology

Scope of Fields

agriculture—The production of plants and animals useful to humans, involving soil cultivation and the breeding and management of crops and livestock.

analytical chemistry—Science and art of determining composition of materials in terms of elements and compounds which they contain.

anatomy—The branch of morphology concerned with the gross and microscopic structure of animals, especially humans.

anthropology—The study of the interrelations of biological, cultural, geographical, and historical aspects of the human race.

archeology—The scientific study of the material remains of the cultures of historical and prehistorical peoples.

atomic physics—A branch of physics concerned with the structures of the atom, the characteristics of the electrons and other elementary particles of which the atom is composed, the arrangement of the atom's energy states, and the processes involved in the radiation of light and x-rays.

biochemistry—The study of the chemical substances that occur in living organisms, the processes by which these substances enter into or are formed in the organisms and react with each other and the environment, and the methods by which the substances and processes are identified, characterized, and measured.

biology—The science of living organisms, concerned with the study of embryology, anatomy, physiology, cytology, morphology, taxonomy, genetics, evolution, and ecology.

biophysics—The hybrid science involving the methods and ideas of physics and chemistry to study and explain the structures of living organisms and the mechanics of life processes.

botany—That branch of biological science which embraces the study of plants and plant life, including algae; deals with taxonomy, morphology, physiology, and other aspects.

chemistry—The scientific study of the properties, composition, and structure of matter, the changes in structure and composition of matter, and accompanying energy changes.

cryogenics—The science of producing and maintaining very low temperatures, of phenomena at those temperatures, and of technical operations performed at very low temperatures.

crystallography—The branch of science that deals with the geometric description of crystals, their internal arrangement, and their properties.

cytology—The branch of biological science which deals with the structure, behavior, growth, and reproduction of cells and the function and chemistry of cells and cell components.

ecology—The study of the interrelationships between organisms and their environment.

embryology—The study of the development of the organism from the zygote, or fertilized egg.

engineering—The science by which the properties of matter and the sources of power in nature are made useful to humans in structures, machines, and products.

evolution—The processes of biological and organic change in organisms by which descendants come to differ from their ancestors, and a history of the sequence of such change.

fluid mechanics—The science concerned with fluids, either at rest or in motion, and dealing with pressures, velocities, and accelerations in the fluid, including fluid deformation and compression or expansion.

food engineering—Technical discipline involved in food manufacturing and processing.

forestry—The science of developing, cultivating, and managing forest lands for wood, forage, water, wildlife, and recreation; the management of growing timber.

genetics—The science concerned with biological inheritance, that is, with the causes of the resemblances and differences among related individuals.

geology—The study or science of earth, its history, and its life as recorded in the rocks; includes the study of the geologic features of an area, such as the geometry of rock formations, weathering and erosion, and sedimentation.

histology—The study of the structure and chemical composition of animal tissues as related to their function.

immunology—The division of biological science concerned with the native or acquired resistance of higher animal forms and humans to infection with microorganisms.

inorganic chemistry—A branch of chemistry that deals with reactions and properties of all chemical elements and their compounds, excluding hydrocarbons but usually including carbides and other simple carbon compounds (such as CO_2 , CO , and HCN).

invertebrate zoology—A branch of zoology concerned with the taxonomy, behavior, and morphology of invertebrate animals.

materials—The study of admixtures of matter or the basic matter from which products are made; includes adhesives, building materials, fuels, paints, leathers, and so on.

mathematics—The deductive study of shape, quantity, and dependence; the two main areas are applied mathematics and pure mathematics, the former arising from the study of physical phenomena, the latter involving the intrinsic study of mathematical structures.

mechanics—The branch of physics which seeks to formulate general rules for predicting the behavior of a physical system under the influence of any type of interaction with its environment.

medicine—The study of cause and treatment of human disease, including the healing arts dealing with diseases which are treated by a physician or a surgeon.

microbiology—The science and study of microorganisms, especially bacteria and rickettsiae, and of antibiotic substances.

molecular biology—That branch of biology which attempts to interpret biological events in terms of the molecules in the cell.

mycology—A branch of biological science concerned with the study of fungi.

nuclear physics—The study of the characteristics, behavior, and internal structure of the atomic nucleus.

optics—The study of phenomena associated with the generation, transmission, and detection of electromagnetic radiation in the spectral range extending from the long-wave edge of the x-ray region to the short-wave edge of the radio region; and the science of light.

organic chemistry—The study of the composition, reactions, and properties of carbon compounds except CO_2 , CO, and certain ionic compounds such as Na_2CO_3 and NaCN.

paleobotany—The study of fossil plants and vegetation of the geologic past.

paleontology—The study of life in the geologic past as recorded by fossil remains.

pathology—The study of the nature of disease, through study of its causes, its processes, and its effects, together with the associated alterations of structure and function; and the laboratory findings of disease, as distinguished from clinical signs and symptoms.

pharmacology—The science of detection and measurement of the effects of drugs or other chemicals on biological systems; includes all chemicals used as drugs.

physical chemistry—The description and prediction of chemical behavior by means of physical theory; main subject areas are structure, thermodynamics, and kinetics.

physics—The science concerned with those aspects of nature which can be understood in terms of elementary principles and laws.

physiology—The branch of biological science concerned with the basic activities that occur in cells and tissues of living organisms and involving physical and chemical studies of these organisms.

plant pathology—The branch of botany concerned with diseases of plants.

psychology—The science of the function of the mind and the behavior of an organism, both animal and human, in relation to its environment.

science and technology—The study of the natural sciences and the application of this knowledge for practical purposes.

spectroscopy—The branch of physics concerned with the production, measurement, and interpretation of electromagnetic spectra arising from either emission or absorption of radiant energy by various substances.

statistics—The science dealing with the collection, analysis, interpretation, and presentation of masses of numerical data.

systematics—The science of animal and plant classification.

thermodynamics—The branch of physics which seeks to derive, from a few basic postulates, relations between properties of substances, especially those which are affected by changes in temperature, and a description of the conversion of energy from one form to another.

vertebrate zoology—A branch of zoology concerned with the taxonomy, behavior, and morphology of vertebrate animals.

veterinary medicine—That branch of medical practice which treats of the diseases and injuries of animals.

virology—The science that deals with the study of viruses.

zoology—The science that deals with the taxonomy, behavior, and morphology of animal life.

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A

A See angstrom.

aaa disease [MED] An endemic hookworm disease accompanied by anemia that occurred in ancient Egypt and is designated in the Ebers Papyrus.

Aalenian [GEOL] Lowermost Middle or uppermost Lower Jurassic geologic time.

aapamoor [ECOL] A moor with elevated areas or mounds supporting dwarf shrubs and sphagnum, interspersed with low areas containing sedges and sphagnum, thus forming a mosaic.

aardvark [VERT ZOO] A nocturnal, burrowing, insectivorous mammal of the genus *Orycteropus* in the order Tubulidentata. Also known as earth pig.

aardwolf [VERT ZOO] *Proteles cristatus*. A hyenalike African mammal of the family Hyaenidae.

abaca [BOT] *Musa textilis*. A plant of the banana family native to Borneo and the Philippines, valuable for its hard fiber. Also known as Manila hemp.

abactinal [INV ZOO] In radially symmetrical animals, pertaining to the surface opposite the side where the mouth is located.

abalienation [PSYCH] Mental deterioration or derangement.

abalone [INV ZOO] A gastropod mollusk composing the single genus, *Haliotis*, of the family Haliotidae. Also known as ear shell; ormer; paua.

A band [HISTOL] The region between two adjacent I bands in a sarcomere; characterized by partial overlapping of actin and myosin filaments.

abapertural [INV ZOO] Away from the shell aperture, referring to mollusks.

abapical [BIOL] On the opposite side to, or directed away from, the apex.

abarognosis [MED] Lack of ability to estimate the weight of an object one is holding.

abasia [MED] Lack of muscular coordination in walking.

abaxial [BIOL] On the opposite side to, or facing away from, the axis of an organ or organism.

abaxile [BOT] Referring to an embryo whose axis has a different direction from that of the seed.

Abbe condenser [OPTICS] A variable large-aperture lens system arranged substage to image a light source into the focal plane of a microscope objective.

abcauline [BOT] Positioned away from the stem.

Abderhalden reaction [PATH] A chemical blood test for the identification of certain enzymes associated with pregnancy and a few diseases.

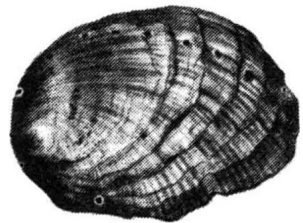
abdomen [ANAT] 1. The portion of the vertebrate body between the thorax and the pelvis. 2. The cavity of this part of the body. [INV ZOO] The elongate region posterior to the thorax in arthropods.

AARDVARK



The aardvark (*Orycteropus afer*), a nocturnal, burrowing animal ranging from Ethiopia to southern Africa.

ABALONE



Typical abalone ear-shaped shell perforated by pores.

- abdominal apoplexy** [MED] Vascular occlusion and hemorrhage in an abdominal organ, usually the small intestine, or in the peritoneal cavity.
- abdominal depth** [ANTHRO] Maximum horizontal contact dimension, measured front to back.
- abdominal gestation** [MED] Development of a fetus outside the uterus in the abdominal cavity.
- abdominal hernia** See ventral hernia.
- abdominal hysterectomy** [MED] Surgical removal of all or part of the uterus through an incision in the abdomen.
- abdominal pore** [VERT ZOO] Any of the single or paired pores leading from the coelom to the exterior in cyclostomes and certain fishes.
- abdominal reflex** [PHYSIO] A superficial or cutaneous reflex involving contraction of the abdominal muscles, induced by stroking the overlying skin.
- abdominal regions** [ANAT] Nine theoretical areas delineated on the abdomen by two horizontal and two parasagittal lines: above, the right hypochondriac, epigastric, and left hypochondriac; in the middle, the right lateral, umbilical, and left lateral; and below, the right inguinal, hypogastric, and left inguinal.
- abdominal rib** [VERT] One of the ossifications that occur in fibrous tissue between the skin and muscles of certain reptiles.
- abducens** [ANAT] The sixth cranial nerve in vertebrates; a paired, somatic motor nerve arising from the floor of the fourth ventricle of the brain and supplying the lateral rectus eye muscles.
- abduction** [PHYSIO] Movement of an extremity or other body part away from the axis of the body.
- abductor** [PHYSIO] Any muscle that draws a part of the body or an extremity away from the body axis.
- abenteric** [MED] Involving abdominal organs and structures outside the intestine.
- aberrant** [BIOL] An atypical group, individual, or structure, especially one with an aberrant chromosome number.
- aberration** [OPTICS] Any deviation from perfect reproduction so that a point is not imaged as a point, a straight line as straight, or an angle as an equal angle.
- Abies** [BOT] The firs, a genus of trees in the pine family characterized by erect cones, absence of resin canals in the wood, and flattened needlelike leaves.
- abiocoen** [ECOL] A nonbiotic habitat.
- abiogenesis** [BIOL] The obsolete concept that plant and animal life arise from nonliving organic matter. Also known as autogenesis; spontaneous generation.
- abiotic** [BIOL] Referring to the absence of living organisms.
- abiotic environment** [ECOL] All physical and nonliving chemical factors, such as soil, water, and atmosphere, which influence living organisms.
- abiotrophy** [MED] Disordered functioning of an organ or system, as in Huntington's chorea, due to an inherited pathologic trait, which trait, however, may remain latent in the individual rather than becoming apparent; this mechanism is still conceptual.
- abjection** [MYCOL] The discharge or casting off of spores by the spore-bearing structure of a fungus.
- abjunction** [BOT] Spore formation by hyphal septation.
- ab lactation** [PHYSIO] Termination of the period of mammary secretion.
- ablastin** [IMMUNOL] An antibodylike substance elicited by *Trypanosoma lewisi* in the blood serum of infected rats that inhibits reproduction of the parasite.
- ablation** [MED] The removal of tissue or a part of the body by surgery, such as by excision or amputation.

abnormal behavior [PSYCH] Personality functioning that is socially undesirable or that renders the individual unable to cope with day-to-day living. Also known as behavior disorder.

abnormal psychology [PSYCH] A branch of psychology that deals with behavior disorders and internal psychic conflict in addition to certain normal phenomena such as dreams, motivations, and anxiety.

ABO blood group [IMMUNOL] An immunologically distinct, genetically determined group of human erythrocyte antigens represented by two blood factors (A and B) and four blood types (A, B, AB, and O).

abomasitis [VET MED] Inflammation of the abomasum in ruminants.

abomasum [VERT ZOO] The final chamber of the complex stomach of ruminants; has a glandular wall and corresponds to a true stomach.

aboral [INV ZOO] Opposite to the mouth.

abortifacient [MED] Any agent that induces abortion.

abortion [MED] The spontaneous or induced expulsion of the fetus prior to the time of viability, most often during the first 20 weeks of the human gestation period.

abortive [BIOL] Imperfectly formed or developed.

abortus [MED] An aborted fetus.

abrachiocephalia [MED] Congenital lack of arms and head. Also known as acephalobrachia.

abrasion [MED] A spot denuded of skin, mucous membrane, or superficial epithelium by rubbing or scraping.

abruptly acuminate [BOT] Of leaves, having an apex or base which is suddenly sharply pointed.

abruptly pinnate [BOT] Of leaves, having parts arranged like a feather. [INV ZOO] Referring to an epipodium having no wings on the main axis but having a number of secondary axes which bear wings.

abscess [MED] A localized collection of pus surrounded by inflamed tissue.

abscisic acid [BIOCHEM] $C_{15}H_{20}O_4$ A plant hormone produced by fruits and leaves that promotes abscission and dormancy and retards vegetative growth. Formerly known as abscisin.

abscisin See abscisic acid.

abscissa [MATH] One of the coordinates of a two-dimensional coordinate system, usually the horizontal coordinate, denoted by x .

abscission [BOT] A physiological process promoted by abscisic acid whereby plants shed a part, such as a leaf, flower, seed, or fruit.

absolute boiling point [CHEM] The boiling point of a substance expressed in the unit of an absolute temperature scale.

absolute deviation [STAT] The difference, without regard to sign, between a variate value and a given value.

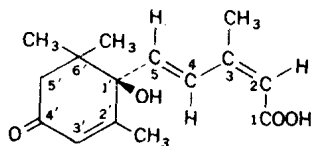
absolute gravity [CHEM] Density or specific gravity of a fluid reduced to standard conditions; for example, with gases, to 760 mm Hg pressure and 0°C temperature. Also known as absolute density.

absolute pressure [PHYS] The pressure above the absolute zero value of pressure that theoretically obtains in empty space or at the absolute zero of temperature, as distinguished from gage pressure.

absolute refractory period [PHYSIO] The brief time during discharge of a nerve impulse when the neuron cannot be fired again.

absolute temperature [THERMO] 1. The temperature measurable in theory on the thermodynamic temperature scale.
2. The temperature in Celsius degrees relative to the absolute

ABSCISIC ACID



Structural formula for *S*-abscisic acid, the naturally occurring form.

ABSOLUTE TEMPERATURE

	Kelvin	Celsius	Rankine	Fahrenheit
steam point	373	100	672	212
		100 K or C		180 R or F
ice point	273	0	492	32
solid CO ₂	195	-78	351	-109
oxygen point	90	-183	162	-297
absolute zero	0	-273	0	-460

Comparisons of Kelvin, Celsius, Rankine, and Fahrenheit temperature scales. Temperatures are rounded off to nearest degree. (From M. W. Zemanek, *Temperatures Very Low and Very High*, Van Nostrand, 1964)

zero at -273.16°C (the Kelvin scale) or in Fahrenheit degrees relative to the absolute zero at -459.69°F (the Rankine scale).

absolute temperature scale [THERMO] A scale with which temperatures are measured relative to absolute zero. Also known as absolute scale.

absolute threshold [PHYSIO] The minimum stimulus energy that an organism can detect.

absolute zero [THERMO] The temperature of -273.16°C , or -459.69°F , or 0 K, thought to be the temperature at which molecular motion vanishes and a body would have no heat energy.

absorb [CHEM] To take up matter in bulk. [ELECTROMAG] To take up energy from radiation. [PHYS] To take up matter or radiation.

absorbance [PHYS CHEM] The common logarithm of the reciprocal of the transmittance of a pure solvent. Also known as absorbancy; extinction.

absorbancy *See* absorbance.

absorbed dose [NUCLEO] The amount of energy imparted by ionizing particles to a unit mass of irradiated material at a place of interest. Also known as dosage; dose.

absorption [CHEM] The taking up of matter in bulk by other matter, as in dissolving of a gas by a liquid. [PHYSIO] Passage of a chemical substance through a body membrane.

absorption atelectasis *See* obstructive atelectasis.

absorption band [PHYS] A range of wavelengths or frequencies in the electromagnetic spectrum within which radiant energy is absorbed by a substance.

absorption curve [PHYS] A graph showing the curvilinear relationship of the variation in absorbed radiation as a function of wavelength.

absorption edge [SPECT] The wavelength corresponding to a discontinuity in the variation of the absorption coefficient of a substance with the wavelength of the radiation. Also known as absorption limit.

absorption limit *See* absorption edge.

absorption line [SPECT] A minute range of wavelength or frequency in the electromagnetic spectrum within which radiant energy is absorbed by the medium through which it is passing.

absorption spectrophotometer [SPECT] An instrument used to measure the relative intensity of absorption spectral lines and bands. Also known as difference spectrophotometer.

absorption spectroscopy [SPECT] The study of spectra obtained by the passage of radiant energy from a continuous source through a cooler, selectively absorbing medium.

absorption spectrum [SPECT] The array of absorption lines and absorption bands which results from the passage of radiant energy from a continuous source through a cooler, selectively absorbing medium.

absorption test [IMMUNOL] Analysis of the antigenic components of bacterial cells and large macromolecules by a series of precipitation or agglutination reactions with specific antibodies.

absorptive power *See* absorptivity.

absorptivity [ANALY CHEM] The constant a in the Beer's law relation $A = abc$, where A is the absorbance, b the path length, and c the concentration of solution. Also known as absorptive power.

abstinence syndrome [MED] A disturbance of metabolic equilibrium that occurs when a narcotic drug is withdrawn from the user.

abstriction [MYCOL] In fungi, the cutting off of spores in

hyphae by formation of septa followed by abscission of the spores, especially by constriction.

abterminal [BIOL] Referring to movement from the end toward the middle; specifically, describing the mode of electric current flow in a muscle.

abulia [PSYCH] Loss of ability to make decisions.

abyssal-benthic [OCEANOGR] Pertaining to the bottom of the abyssal zone.

abyssal floor [GEOL] The ocean floor, or bottom of the abyssal zone.

abyssal zone [OCEANOGR] The biogeographic realm of the great depths of the ocean beyond the limits of the continental shelf, generally below 1000 meters.

abyssobenthic [BIOL] Pertaining to, or found on, the bottom of the ocean.

Ac See actinium.

acalyculate [BOT] Lacking a calyx.

Acalyptatae [INV ZOO] A large group of small, two-winged flies in the suborder Cyclorrhapha characterized by small or rudimentary calypters.

acantha [BIOL] A sharp spine; a spiny process, as on vertebrae.

Acanthaceae [BOT] A family of dicotyledonous plants in the order Scrophulariales distinguished by their usually herbaceous habit, irregular flowers, axile placentation, and dry, dehiscent fruits.

acanthaceous [BOT] Armed with prickles or spines.

Acantharia [INV ZOO] A subclass of essentially pelagic protozoans in the class Actinopodea characterized by skeletal rods constructed of strontium sulfate (celestite).

Acanthaster [INV ZOO] A genus of Indo-Pacific starfishes, including the crown-of-thorns, of the family Asteroidea; economically important as a destroyer of oysters in fisheries.

acanthella [INV ZOO] A transitional larva of the phylum Acanthocephala in which rudiments of reproductive organs, lemnisci, a proboscis, and a proboscis receptacle are formed.

acanthion [ANAT] A point at the tip of the anterior nasal spine.

acanthocarpous [BOT] Having spiny fruit.

Acanthocephala [INV ZOO] The spiny-headed worms, a phylum of helminths; adults are parasitic in the alimentary canal of vertebrates.

acanthocephalous [INV ZOO] Having a proboscis that is hooked.

acanthoclados [BOT] Having spiny branches.

acanthocyst [INV ZOO] In Nemertea, a sac that contains lateral or reserve stylets.

acanthocytosis [MED] A disorder of erythrocytes in which spiny projections appear on the blood cells.

Acanthodidae [PALEON] A family of extinct acanthodian fishes in the order Acanthodiformes.

Acanthodiformes [PALEON] An order of extinct fishes in the class Acanthodii having scales of acellular bone and dentine, one dorsal fin, and no teeth.

Acanthodii [PALEON] A class of extinct fusiform fishes, the first jaw-bearing vertebrates in the fossil record.

acanthodion [INV ZOO] In Acarina, a seta on the tarsus that contains an extension of a sensory basal cell.

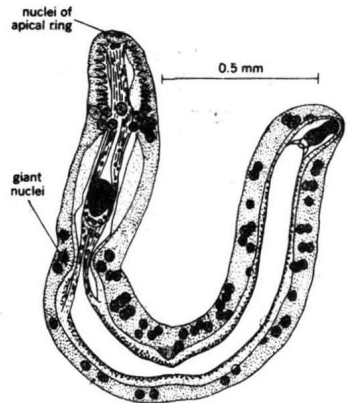
acanthoid [BIOL] Shaped like a spine.

Acanthometrida [INV ZOO] An order of marine protozoans in the subclass Acantharia with 20 or less skeletal rods.

acanthophore [INV ZOO] In Nemertea, a conical mass that forms the basis of a median stylet.

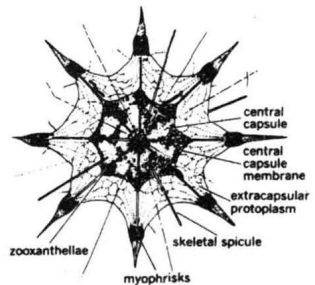
Acanthophractida [INV ZOO] An order of marine protozoans

ACANTHELLA



A stage in the life history of *Moniliformis dubius*, a helminth, with the acanthella dissected from its enveloping sheath.

ACANTHOMETRIDA



A drawing of *Acanthometra* showing the characteristic pattern of the radially arranged rods (skeletal spicules). (From L. H. Hyman, *The Invertebrates*, vol. 1, McGraw-Hill, 1940)