



McGraw-Hill  
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Scientific and  
Technical  
Terms  
Fifth Edition

**On the cover: Photomicrograph of crystals of vitamin B<sub>1</sub>.  
(Dennis Kunkel, University of Hawaii)**

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

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functions which are to be carried out by a computer program including descriptions of the input to be processed by the program, the processing needed, and the output from the program. { 'prō-grām,spes-ə-fə-kā-shən }

**gram star** [ASTRON] A star whose properties are observed measured during a specified series of observations. { 'prō-grām,star }

**gram state** [COMPUT SCI] The mode of operation of a computer during the execution of instructions in an application program. { 'prō-grām,stāt }

**gram status word** [COMPUT SCI] An internal register to central processing unit denoting the state of the computer at a given time. { 'prō-grām,stad-əs,word }

**gram step** [COMPUT SCI] In computers, some part of a program, usually one instruction. { 'prō-grām,step }

**gram stop** [COMPUT SCI] An instruction built into a computer program that will automatically stop the machine under certain conditions, or upon reaching the end of processing or completing the solution of a program. Also known as halt instruction; stop instruction. { 'prō-grām,stāp }

**gram storage** [COMPUT SCI] Portion of the internal storage reserved for the storage of programs, routines, and subroutines in many systems, protection devices are used to prevent unwanted alteration of the contents of the program storage; associated with temporary storage. { 'prō-grām,stōrij }

**gram tape** [COMPUT SCI] Tape containing the sequence of computer instructions for a given problem. { 'prō-grām,tāp }

**gram test** [COMPUT SCI] A system of checking before running any problem in which a sample problem of the same type with a known answer is run. { 'prō-grām,test }

**gram testing time** [COMPUT SCI] The machine time expended for program testing, debugging, and volume and complexity testing. { 'prō-grām,tes-tīŋ,tīm }

**gram time** [COMPUT SCI] The phase of computer operation when an instruction is being interpreted so that it can be carried out. { 'prō-grām,tīm }

**gram chart** [IND ENG] A graphical representation of the progress of completion of work in progress. { 'prā-grās,čārt }

**gression** [MATH] A sequence or series of mathematical operations or quantities, each entry determined from its predecessor by some algorithm. [MET] The fixed dimension between two stations in a progressive die and thus the precise distance the strip must advance between successive cycles of the die. { 'prā-gresh-ən }

**gressive aging** [MET] Aging of metals achieved by increasing the temperature in stages or by continuous elevation of temperature. { 'prā-gres-iv,āj-īŋ }

**gressive block sequence** [MET] A welding sequence in which the joint is completed in sections from one end to the other from the center alternately to both ends. { 'prā-gres-iv,blok,si-kwəns }

**gressive bonding** [ENG] A method of curing a resin wherein heat and pressure are applied in successive stages. Also known as progressive gluing. { 'prā-gres-iv,bānd-īŋ }

**gressive die** [MET] A die in which two or more operations are performed sequentially at different positions. { 'prā-gres-iv,dī }

**gressive forming** [MET] Sequential forming at consecutive positions either with a single die or with separate dies. { 'prā-gres-iv,fōrm-īŋ }

**gressive gluing** See progressive bonding. { 'prā-gres-iv,glū-īŋ }

**gressive granulation** [MATER] Propellant granulation in which the surface area of a grain increases during burning. { 'prā-gres-iv,gran-yə-lā-shən }

**gressive lateral sclerosis** [MED] Amyotrophic lateral sclerosis with primary involvement of the pyramidal tracts. { 'prā-gres-iv,lād-ə-rəl,sklē-rō-səs }

**gressive lens** See omnifocal lens. { 'prā-gres-iv,leŋz }

**gressive metamorphism** [GEOL] Systematic change in metamorphic grade from lower to higher in any metamorphic belt. { 'prā-gres-iv,med-ə-mór,fiz-əm }

**gressive muscular dystrophy** [MED] Chronic progressive dystrophy of the skeletal muscles. { 'prā-gres-iv,məs-kyə,drō-fē }

**gressive overflow** [COMPUT SCI] Retrieval of a randomly selected overflow record by a forward serial search from the home record. { 'prā-gres-iv,ō-vər,flō }

**progressive powder** [MATER] A slow-burning explosive. { 'prā-gres-iv,paūd-ər }

**progressive proofs** [GRAPHICS] The proofs from color plates showing each color alone, and also in combination with each succeeding color in printing rotation; the order is yellow, magenta, cyan, and black. { 'prā-gres-iv,prüfs }

**progressive sand wave** [GEOL] A sand wave characterized by downcurrent migration. { 'prā-gres-iv,sand,wāv }

**progressive scanning** [COMMUN] Scanning all lines in sequence, without interlace, so all picture elements are included during one vertical sweep of the scanning beam. Also known as sequential scanning. { 'prā-gres-iv'skan-īŋ }

**progressive sorting** [GEOL] Sorting of sedimentary particles in the downcurrent direction, resulting in a systematic downcurrent decrease in the mean grain size of the sediment. { 'prā-gres-iv'sōrd-īŋ }

**progressive wave** [METEOROL] A wave or wavelike disturbance which moves relative to the earth's surface. [PHYS] A wave which transfers energy from one part of a medium to another, in contrast to a standing wave. Also known as free-traveling wave. { 'prā-gres-iv,wāv }

**progressive-wave antenna** See traveling-wave antenna. { 'prā-gres-iv,wāv,an'ten-ə }

**Progymnospermopsida** [PALEON] A class of plants intermediate between ferns and gymnosperms; comprises the Devonian genus *Archaeopteris*. { 'prō,jīm'nō,spər'māp-səd-ə }

**prohaptor** [INV ZOO] The anterior attachment organ of a typical monogenetic trematode. { 'prō'haptər }

**prohibited area** [NAV] 1. An airspace of defined dimensions identified by an area on the surface of the earth within which flight is prohibited, except as authorized by governmental authority. 2. An area within which no vessels may be navigated, except as authorized by governmental authority. { 'prō'hīb-əd,əd'er-ē-ə }

**Projapygidae** [INV ZOO] A family of wingless insects in the order Diplura. { 'prājə'pij-əd-ē }

**project** [ENG] A specifically defined task within a research and development field, which is established to meet a single requirement, either stated or anticipated, for research data, an end item of material, a major component, or a technique. { 'prāj,jekt }

**project development methodology** [COMPUT SCI] A structured set of procedures designed to control the development of computer programs in a large organization. { 'prāj,jekt di'vel-əp'mənt, meth-əd-ē-ə-jē }

**projected planform** [AERO ENG] The contour of the planform as viewed from above. { 'prāj,jek-təd,plan,fōrm }

**projected-scale instrument** [ENG] An indicating instrument in which a light beam projects an image of the scale on a screen. { 'prāj,jek-təd'skāl,in-strə-mənt }

**projected window** [BUILD] A window having one or more rotatable sashes which swing either inward or outward. { 'prāj,jek-təd,win-dō }

**project engineering** [ENG] 1. The engineering design and supervision (coordination) aspects of building a manufacturing facility. 2. The engineering aspects of a specific project, such as development of a product or solution to a problem. { 'prāj,jekt en-jə'nir-īŋ }

**projectile** [AERO ENG] 1. Any object, especially a missile, that is fired, thrown, launched, or otherwise projected. 2. Originally, an object, such as a bullet or artillery shell, projected by an applied external force. { 'prāj,jek-təl }

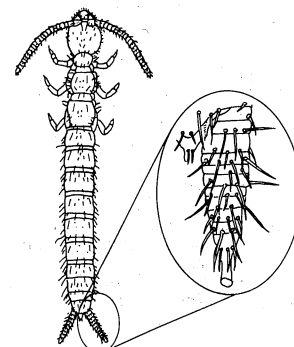
**projectile ogive** [ORD] A hollow, conical, metallic item, designed to enclose the forward portion of a projectile to reduce air resistance during flight. { 'prāj,jek-təl,ō,jiv }

**projecting cylinder** [MATH] A cylinder whose elements pass through a given curve and are perpendicular to one of the three coordinate planes. { 'prāj,jek-tīŋ,sil-ə-n-dər }

**projecting plane** [MATH] A plane that contains a given straight line in space and is perpendicular to one of the three coordinate planes. { 'prāj,jek-tīŋ,plān }

**projection** [MAP] A system for presenting on a plane surface the spherical surface of the earth or the celestial sphere; some of these systems are conic, cylindrical, gnomonic, Mercator, orthographic, and stereographic. Also known as map projection. [MATH] 1. The continuous map for a fiber bundle. 2. Geometrically, the image of a geometric object or vector superimposed on some other. 3. A linear map  $P$  from a linear space to itself such that  $P \circ P$  is equal to  $P$ . [PSYCH] Ascribing one's

## PROJAPYGIDAE



*Anajapyx vesiculosus* showing the cerci which contain a silk gland.

ive enlargement of the cervical lymph nodes. Also known as paracoccidioidomycosis. { 'saũth ə'mer-ə-kən, bləs-tō, mī'kō-  
(s) }

**South American leishmaniasis** See American mucocutaneous leishmaniasis. { 'saũth ə'mer-ə-kən, lēsh-mā'nī-ə-səs }

**South American trypanosomiasis** See Chagas' disease. { 'saũth ə'mer-ə-kən trip, an-ə-sə'mī-ə-səs }

**South Atlantic Current** [OCEANOGR] An eastward-flowing current of the South Atlantic Ocean that is continuous with the northern edge of the West Wind Drift. { 'saũth at'lan-tik 'kə-rənt }

**South Australian faunal region** [ECOL] A marine littoral region along the southwestern coast of Australia. { 'saũth ə'strāl-yən fōn-əl, rē-jən }

**Southbound node** See descending node. { 'saũth, baũnd 'nōd }

**Southeast Drift Current** [OCEANOGR] A North Atlantic ocean current flowing southeastward and southward from a point west of the Bay of Biscay toward southwestern Europe and the Canary Islands, where it continues as the Canary Current. { 'saũ'thēst 'drift 'kə-rənt }

**Southeaster** [METEOROL] A southeasterly wind, particularly strong wind or gale; for example, the winter southeast storms of the Bay of San Francisco. Also spelled sou'easter. { 'saũ'thēst-ər }

**South Equatorial Current** [OCEANOGR] Any of several ocean currents, flowing westward, driven by the southeast trade winds blowing over the tropical oceans of the Southern Hemisphere and extending slightly north of the equator. Also known as Equatorial Current. { 'saũth, ək-wə'tōr-ē-əl 'kə-rənt }

**South** [METEOROL] A south wind, especially a strong wind or gale. { 'saũth-ər }

**Southerly buster** [METEOROL] A cold wind from the south of Australia. { 'səʊt-ər-lē 'bər-stər }

**Southern Cross** See Crux. { 'səʊt-əm 'krɒs }

**Southern Crown** See Corona Australis. { 'səʊt-əm 'kraɪn }

**Southern Fish** See Piscis Australis. { 'səʊt-əm 'fɪʃ }

**Southern lights** See aurora australis. { 'səʊt-əm 'lɪts }

**Southern Polar Front** See Antarctic Convergence. { 'səʊt-əm 'pɒl-ər 'frənt }

**Southern Triangle** See Triangulum Australe. { 'səʊt-əm 'tri-əŋ-gəl }

**South foehn** [METEOROL] A foehn condition sustained by a strong south-to-north airflow across a transverse mountain barrier; the south foehn of the Alps may well be the most striking in the world. { 'saũth 'fəʊn }

**South frigid zone** [GEOGR] That part of the earth south of the Arctic Circle. { 'saũth 'frij-əd, zōn }

**South geographical pole** [GEOGR] The geographical pole in the Southern Hemisphere, at latitude 90°S. Also known as South Pole. { 'saũth 'jē-ə, graf-ə-kəl, pɒl }

**South geomagnetic pole** [GEOPHYS] The geomagnetic pole in the Southern Hemisphere at approximately 78.5°S, longitude 180° from the north geomagnetic pole. Also known as South pole. { 'saũth 'jē-ə-mag'ned-ik, pɒl }

**South Indian Current** [OCEANOGR] An eastward-flowing current of the southern Indian Ocean that is continuous with the northern edge of the West Wind Drift. { 'saũth 'in-dē-ən 'kə-rənt }

**South** [NAV] The distance a craft makes good to the south. { 'saũth-ɪŋ }

**South Pacific Current** [OCEANOGR] An eastward-flowing current of the South Pacific Ocean that is continuous with the northern edge of the West Wind Drift. { 'saũth pə'sif-ik 'kə-rənt }

**South point** [ASTRON] That imaginary point on the celestial sphere at which the meridian intersects the horizon; it is due south of the observer. { 'saũth 'pɔɪnt }

**South polar distance** [ASTRON] The angular distance between a celestial object and the south celestial pole. { 'saũth 'pɔɪl 'dɪst-əns }

**South pole** [ELECTROMAG] The pole of a magnet at which the magnetic lines of force are assumed to enter. Also known as magnetic pole. [GEOPHYS] See south geomagnetic pole. { 'saũth 'pɒl }

**South Pole** See south geographical pole. { 'saũth 'pɒl }

**Subtropical zone** [GEOGR] That part of the earth between the Tropic of Capricorn and the Antarctic Circle. { 'saũth 'trɒp-ik, zōn }

**Subtropical disturbance** [ASTRON] An elongated dark

band seen on the surface of Jupiter at about the latitude of the Great Red Spot; it has at times exceeded 180° of longitude in length and, like the Red Spot, appears and disappears intermittently. { 'saũth 'trap-ə-kəl dɪ'stərb-əns }

**Southwester** [METEOROL] A southwest wind, particularly a strong wind or gale. Also spelled sou'wester. { 'saũth 'wes-tər }

**Sou'wester** See southwester. { 'saũ 'wes-tər }

**Souzalite** [MINERAL]  $(\text{Mg}, \text{Fe})_3(\text{Al}, \text{Fe})_4(\text{PO}_4)_4(\text{OH})_6 \cdot 2\text{H}_2\text{O}$  A green mineral composed of hydrous basic phosphate of magnesium, iron, and aluminum. { 'sō-zə, līt }

**Sow** [MET] 1. A mold of larger size than a pig. 2. A channel that conducts molten metal to molds in a pig bed. [VERT ZOO] An adult female swine. { 'saũ }

**Sow block** [MET] In forging, a removable block set into the hammer anvil to reduce wear on the anvil. { 'saũ, blæk }

**Soxhlet extractor** [CHEM] A flask and condenser device for the continuous extraction of alcohol- or ether-soluble materials. { 'sɒks-lət ɪk, stræk-tər }

**Soya bean oil** See soybean oil. { 'sɔɪ-ə, bēn, ɔɪl }

**Soybean** [BOT] *Glycine max.* An erect annual legume native to China and Manchuria and widely cultivated for forage and for its seed. { 'sɔɪ, bēn }

**Soybean lecithin** See lecithin. { 'sɔɪ, bēn 'les-ə-thən }

**Soybean oil** [MATER] A pale yellow, fixed drying oil produced by solvent extraction from soybeans; soluble in alcohol, chloroform, and ether; used for soap manufacture, cattle feeds, and printing inks, and in margarine, salad dressing, and high-protein foods. Also known as Chinese bean oil; soya bean oil; soy oil. { 'sɔɪ, bēn, ɔɪl }

**Soy lecithin** See lecithin. { 'sɔɪ 'les-ə-thən }

**Soy milk** [FOOD ENG] A milklike product derived from soybeans. { 'sɔɪ, milk }

**Soy oil** See soybean oil. { 'sɔɪ, ɔɪl }

**Space** [ASTRON] 1. Specifically, the part of the universe lying outside the limits of the earth's atmosphere. 2. More generally, the volume in which all celestial bodies, including the earth, move. [COMMUN] The open-circuit condition or the signal causing the open-circuit condition in telegraphic communication; the closed-circuit condition is called the mark. [MATH] In context, usually a set with a topology on it or some other type of structure. { 'spās }

**Space attenuation** [ACOUS] Loss of energy, expressed in decibels, of a signal in free air; caused by such factors as absorption, reflection, scattering, and dispersion. { 'spās ə, ten-yə, wā-shən }

**Space biology** [BIOL] A term for the various biological sciences and disciplines that are concerned with the study of living things in the space environment. { 'spās bɪ, ɒl-ə-jē }

**Space capsule** [AERO ENG] A container, manned or unmanned, used for carrying out an experiment or operation in space. { 'spās, kap'səl }

**Space centrode** [MECH] The path traced by the instantaneous center of a rotating body relative to an inertial frame of reference. { 'spās 'sen, trɒd }

**Space character** See blank character. { 'spās, kar-ik-tər }

**Space charge** [ELEC] The net electric charge within a given volume. [GEOPHYS] In atmospheric electricity, space charge refers to a preponderance of either negative or positive ions within any given portion of the atmosphere. { 'spās, chärj }

**Space-charge balanced flow** [ELECTR] A method of focusing an electron beam in the interaction region of a traveling-wave tube; there is an axial magnetic field in the interaction region which is stronger than that in the gun region; at the transition between the two values of magnetic field strength, the beam is given a rotation in such a direction as to produce an inward force that counterbalances the outward forces from space charge and from the centrifugal forces set up by rotation. { 'spās 'chärj 'bal-ənst 'flɔ } }

**Space-charge debunching** [ELECTR] A process in which the mutual interactions between electrons in a stream spread out the electrons of a bunch. { 'spās 'chärj dɪ'bəŋtʃ-ɪŋ }

**Space-charge effect** [ELECTR] Repulsion of electrons emitted from the cathode of a thermionic vacuum tube by electrons accumulated in the space charge near the cathode. { 'spās 'chärj ɪ, fekt }

**Space-charge grid** [ELECTR] Grid operated at a low positive potential and placed between the cathode and control grid of a