



# Academic Press Dictionary of Science and Technology



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**substrate mycelium** *Mycology*. hyphal masses or mycelium that grow on the surface to which they are attached. Also, VEGETATIVE MYCELIUM.

**stratosphere** *Meteorology*. the atmospheric region that is of indefinite extent beneath the stratosphere.

**stratum** *Geology*. any solid layer occurring beneath the true soil or superficial deposits. *Agriculture*. another term for the subsoil. *Biology*. the base on which a nonmotile organism lives.

**string** *Computer Programming*. a contiguous portion of a string.

**structure** *Civil Engineering*. 1. the part of any structure that is below ground. 2. specifically, the foundation or piers of a bridge.

**subsumed clause** *Artificial Intelligence*. in predicate calculus, a clause that can be deleted because another stronger clause is present; e.g.,  $P(x)$  subsumes  $P(x) \vee Q(x)$  because whenever  $P(x)$  is true, then  $P(x) \vee Q(x)$  must also be true.

**subsurface contour** see STRUCTURE CONTOUR.

**subsurface current** *Oceanography*. an ocean current flowing beneath the surface, usually below the main thermocline and often in a different direction from that of the surface currents.

**subsurface flow** see INTERFLOW.

**subsurface geology** *Geology*. a branch of geology concerned with the study and correlation of geologic features and processes occurring beneath the earth's surface. Also, UNDERGROUND GEOLOGY.

**subsurface hydrology** *Hydrology*. the branch of hydrology dealing with the study of underground water, as opposed to surface water.

**subsurface ice** see GROUND ICE.

**subsurface tillage** *Agriculture*. a form of plowing in which underground blades stir the soil, but leave surface vegetation in place. Also, subsurface till.

**subsurface waste disposal** *Engineering*. a method of disposing of wastes by pumping them into porous rock and certain other formations.

**subsurface wave** *Electromagnetism*. an electromagnetic wave that propagates through land or water rather than on the earth's surface; attenuation is significant for such waves above about 35 kilohertz.

**subsynchronous** *Electricity*. having a frequency that is a submultiple of the driving frequency.

**subsystem** *Science*. a portion of a system that can be treated as a single element in the main system, but that can also be considered a distinct system itself.

**subtend** *Botany*. of a plant or plant part, to grow beneath and close to another plant or part, often embracing or enclosing it. *Mathematics*. to extend under, stretch across, or be opposite to, as a chord and an arc.

**subtense bar** *Engineering*. in surveying, a horizontal bar used for distance measurement by determining the arc it subtends as viewed from the measuring point.

**subtense technique** *Civil Engineering*. a technique used in surveying to measure distances, in which a transit angle subtended by the subtense bar permits the calculation of the distance between the transit and bar.

**subterranean** [sub'tə rā'nē ən] *Geology*. relating to or located in the region beneath the surface of the earth, especially the land surface; underground.

**subterranean ice** see GROUND ICE.

**subterranean stream** *Hydrology*. a stream flowing beneath the surface through a cave or group of connected caves.

**subterranean water** see GROUNDWATER.

**subtilin** *Microbiology*. an antibiotic that is produced by the soil bacterium *Bacillus subtilis*; effective against organisms such as Gram-positive bacteria and the tubercle bacillus.

**subtilisin** *Biochemistry*. an extracellular protease produced by bacteria of the genus *Bacillus* (such as *B. amyloliquefaciens* or *B. subtilis*) that digest protein molecules; used as an active agent in detergents and in protein-structure research. Also, NAGAROSE.

**subtract** *Mathematics*. to carry on a process of subtraction; remove one number or quantity from another.

**subtractor** *Computer Technology*. a circuit that performs arithmetic subtraction operations on binary numbers.

**subtraction** *Mathematics*. the process by which, for two given numbers or quantities, one is removed from the other to give a third; the operation that is inverse to addition. It is a noncommutative binary operation denoted by the minus sign "-";  $a - b = a + (-b)$ , where  $-b$  is the additive inverse of  $b$ . "+" usually refers to the operation of an Abelian group or the group operation in a ring, module, or vector space over which the other operations distribute.

**subtractive primaries** *Optics*. the colors that are complementary to red, blue, and green in subtractive printing processes; respectively, cyan, yellow, and magenta.

**subtractive process** *Optics*. the process that reproduces colors by means of transparent inks or dyes in their complementary colors used in photography and printing.

**subtractor** *Electronics*. an operational amplifier circuit whose gain is determined by the difference between the input signals.

**subtrahend** *Mathematics*. a quantity that is to be subtracted from another quantity (the minuend).

**subtribe** *Systematics*. a taxonomic rank immediately below a tribe.

**subtropical** *Meteorology*. 1. of or relating to the subtropics. 2. occurring on the tropics; nearly tropical.

**subtropical anticyclone** see SUBTROPICAL HIGH.

**Subtropical Convergence** *Oceanography*. the boundary between the warm subtropical and cold subpolar waters where the two ocean currents tend to converge; the term generally refers to the southern convergence zone around 40°S, but it may also refer to the defined northern zone between 20°N and 28°N.

**subtropical cyclone** *Meteorology*. a low-level atmospheric pressure representation of a cutoff low on a surface chart.

**subtropical easterlies** see TROPICAL EASTERLIES.

**subtropical easterlies index** *Meteorology*. a scale that measures the strength of easterly winds in the northern subtropics; the average sea-level pressure difference between 20°N and 30°N expressed in meters per second as the east-west component of the resulting geostrophic wind.

**subtropical high** *Meteorology*. any of the semipermanent high pressure systems that lie over the oceans of the subtropical high pressure belt and are best developed during the summer season.

**subtropical high-pressure belt** *Meteorology*. either the high atmospheric pressure that are formed by subtropical high pressure belts, in the mean, near 30° latitude N and S. Also, subtropical high.

**subtropical westerlies** see WESTERLIES.

**subtropics** *Meteorology*. either of two latitudinal belts between the tropics and the temperate regions, roughly between 35° and 60° latitude but varying in width according to continental influence.

**subulate** *Botany*. of or related to a leaf that is slender, tapering from base to a fine-pointed apex.

**Subulitacea** *Paleontology*. a large superfamily of Paleozoic trilobites belonging to the subclass Prosobranchia of the order Trilobitiformes, generally characterized by a spindle or awl shape. Members are generally high; extant from the Ordovician to the Permian.

**Subuluridea** see HETERAKIDAE.

**subumbrella** *Invertebrate Zoology*. the concave upper part of a lenterate medusa.

**suburb** *Civil Engineering*. a smaller community, usually residential, that lies adjacent to or at the edge of a major city.

**subvariety** *Systematics*. a botanical taxonomic rank below a variety, species or subspecies.

**subversion** *Military Science*. action designed to weaken the economic, psychological, or political strength of a state by undermining the morale, loyalty, or reliability of its population.

**subvert** *Military Science*. to carry on an operation of subversion.

**subviral agent** *Microbiology*. any viroid or other subviral entity that lacks at least one essential feature of a virus.

**subviral particle** *Virology*. an intermediate form of virus existing in certain components, that is formed during the replication cycle.

**subvulotomy** *Surgery*. the turning up of a flap of skin on the face that the cutaneous surface comes in contact with the underlying tissue to prevent adhesions, especially for a pterygium.

**subwaking** *Neurology*. a state of awareness between complete unconsciousness and complete consciousness.

**subway** *Civil Engineering*. 1. an underground rail line. 2. an underground train that is part of such a system. 3. especially in Great Britain, an underground passage, as beneath an urban street.

**subway-type transformer** *Electricity*. a transformer constructed so that it can be installed in an underground passage.

**Sucaryl** *Organic Chemistry*. a trade name for sodium cyclamate, an artificial sweetener formerly in wide use.

**succession** *Ecology*. 1. the progressive replacement of one type of community by another. 2. the process by which one type of community takes place in a community, which can be induced by external factors or by the species' own intrinsic characteristics.

**succession cropping** *Agronomy*. the growing of one crop after another on the same land in one growing season.

**successive approximation** *Behavior*. see SHAPING.